

CMK2

Medium bore size cylinder

Standard

ø20/ø25/ø32/ø40

Overview

Medium bore size (ø20 to ø40) series with high corrosion resistance and long service life among general purpose cylinders. A wide range of caulked cylinders is available.



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The cylinder switches T2YH, T2YV, T3YH, and T3YV are scheduled for end of production at the end of December 2023.

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

Series variation

Medium bore size cylinder 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

Variation	Model No. JIS symbol	Bore size (mm)	Standard stroke (mm)									Min. stroke (mm)	Max. stroke (mm)	Custom stroke (per mm)	Basic		Axial foot Two sides
			25	50	75	100	150	200	250	300	00				LB		
															00	LB	
Double acting	CMK2 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	●	5	750	1	●	●	
Single acting/ push	CMK2-S 	ø20/ø25	●	●	●	●	●	●	●	●	●	5	300	1	●	●	
		ø32/ø40	●	●	●	●	●	●	●	●	●	5	300	1	●	●	
Single acting/pull	CMK2-SR 	ø20/ø25	●	●	●	●	●	●	●	●	●	5	300	1	●	●	
		ø32/ø40	●	●	●	●	●	●	●	●	●	5	300	1	●	●	
Double acting/ stroke adjustable (push)	CMK2-P 	ø20/ø25	●	●	●	●	●	●	●	●	●	25	450	1	●	●	
		ø32	●	●	●	●	●	●	●	●	●	25	430	1	●	●	
		ø40	●	●	●	●	●	●	●	●	●	25	400	1	●	●	
Double acting/stroke adjustable (pull)	CMK2-R 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	25	750	1	●	●		
Double acting/heat resistant	CMK2-T 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/rubber-air cushioned	CMK2-*C	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/air cushioned	CMK2-C 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/position locking	CMK2-Q 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/fine speed	CMK2-F 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/ double rod	CMK2-D 	ø20/ø25	●	●	●	●	●	●	●	●	●	5	500	1	●	●	
		ø32	●	●	●	●	●	●	●	●	●	5	480	1	●	●	
		ø40	●	●	●	●	●	●	●	●	●	5	450	1	●	●	
Double acting/back to back	CMK2-B 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/rotation-stop	CMK2-M 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/built-in speed controller	CMK2-Z	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/low hydraulic	CMK2-H 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/coolant proof	CMK2-G2/G3 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	750	1	●	●		
Double acting/exterior 100% stainless steel/water resistance	CMK2-JG2/JG3 	ø20/ø25/ø32/ø40	○	○	○	○	○	○	○	○	5	750	1	○	○		

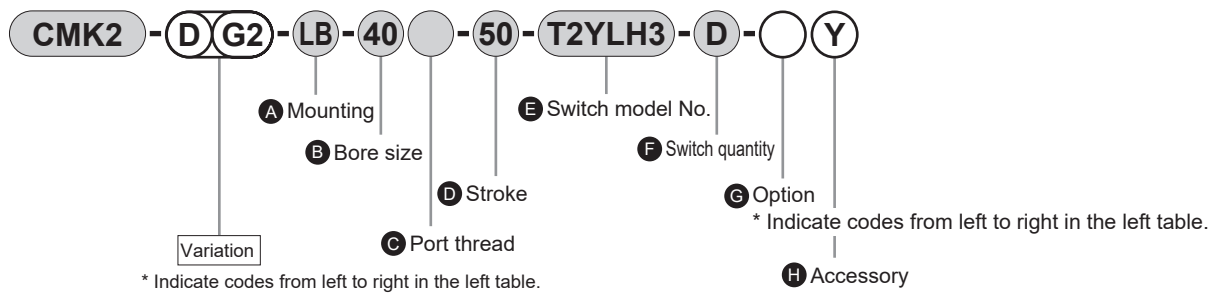
●: Standard, ◎: Option, ○: Made to order, ■: Not available

Mounting										Option								Accessory			Switch	Page
Axial foot One side	Rod side flange	Head side flange	Eye bracket	Eye bracket integrated	Eye bracket bush pressfit	Clevis bracket	Rod side trunnion	Head side trunnion	Bellows (100°C)	Bellows (250°C)	With push-in fitting, straight	With push-in fitting, elbow	Piston rod material change	Boss cutoff	Food-grade (NSF H1) grease	Copper and PTFE free	Rod eye	Rod clevis	Clevis bracket			
LS	FA	FB	CA	CC	CC1	CB	TA	TB	J	L	F	FE	M	V	FP1	P6	I	Y	B2			
●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	86
●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	100
●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	106
●	●	●	■	■	■	■	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	112
●	●	●	■	■	■	■	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	118
●	●	●	●	●	●	●	●	●	■	◎	■	■	◎	◎	■	■	◎	◎	◎	◎	◎	124
●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	128
●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	136
●	●	●	●	○ ^{*1}	○ ^{*1}	●	● ^{*2}	● ^{*1}	■	■	◎	◎	◎	○ ^{*1}	■	◎	◎	◎	◎	◎	◎	142
●	●	●	●	●	●	●	●	●	■	■	■	■	■	◎	■	■	◎	◎	◎	◎	◎	148
●	●	■	■	■	■	■	●	■	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	154
■	●	■	■	■	■	■	■	■	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	160
●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	166
●	●	●	●	●	○	●	●	●	◎	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	172
●	●	●	●	●	●	●	●	●	◎	◎	■	■	◎	◎	■	◎	◎	◎	◎	◎	◎	178
●	●	●	●	●	●	●	●	●	■	■	○ ^{*3}	○ ^{*3}	■	■	■	◎	◎	◎	◎	◎	◎	182
○	○	○	■	○	■	■	■	■	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	188

*1: Available for the rod-side position locking. *2: Available for the head-side position locking. *3: Available for G2.

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

[Example of model No.]



Model No.: Double acting/standard

- Variation : Double rod/coolant proof scraper
- A Mounting : Two-sided foot
- B Bore size : $\phi 40$ mm
- C Port thread : Rc thread
- D Stroke : 50 mm
- E Switch model No. : Coolant proof switch, lead wire length 3 m
- F Switch quantity : 2
- G Option : None
- H Accessory : Rod clevis

*1: The back to back includes two cylinders. Specify the model No. as below when ordering variations.

For S1 variations only, insert the variation code before the stroke of S1.

(Example) CMK2-B-32-H25-50: S1 only is low hydraulic.

For S2 variations only, insert the variation code before the stroke of S2.

(Example) CMK2-B-32-25-H50: Only S2 is the low hydraulic.

When ordering the same variation for S1 and S2, insert the variation code before the bore size.

(Example) CMK2-BH-32-25-50: Both S1 and S2 are low hydraulic.

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

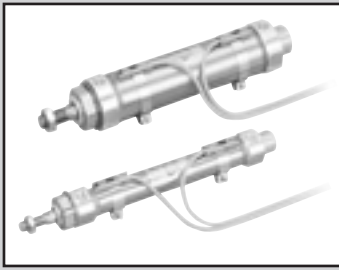
FJ

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/single rod

CMK2 Series

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

JIS symbol

● Double acting cylinder single rod



Specifications

Item	CMK2			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		
Applications	For 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	24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		
Leakage current	1 mA 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 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			3 m:87 5 m:142			

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

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

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

Bellows max. operating ambient temperature

Code	Bellows material	Max. ambient temp.	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 (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)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

Product weight when S = 0 mm0.45 kg
 Additional weight when S = 50 mmAdditional weight when S = 10 mm 0.02 x $\frac{\text{Product stroke (50)}}{10}$ = 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
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

- 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

No switch (built-in magnet for switch)

CMK2 - **00** - **20** - **100** - **Y**

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke

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 of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 86.
- *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 84 for combination of variations/options.
- *8 : Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
- *9 : For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.
- *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 : 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	Description
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 included)
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 (made-to-order product)
GN	G thread (made-to-order product)

D Stroke (mm)			
Bore size	Stroke	*2	Custom stroke
$\phi 20$	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	Stroke	Contact	Voltage AC DC	Indicator	Lead wire
T0H*	T0V*	Reed	● ●	1-color LED	2-wire
T5H*	T5V*		● ●	No indicator lamp	
T8H*	T8V*		● ●	1-color LED	
T1H*	T1V*	Prox.	●	1-color LED	2-wire
T2H*	T2V*		●		
T3H*	T3V*		●	1-color LED	3-wire
T3PH*	T3PV*		●		
T2WH*	T2WV*		●	2-color LED	2-wire
T2YH*	T2YV*		●		
T3WH*	T3WV*		●		
T3YH*	T3YV*		●	1-color LED off-delay	2-wire
T2JH*	T2JV*		●		

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

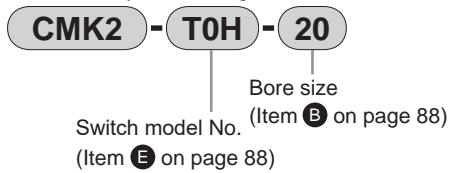
F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

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 *10		

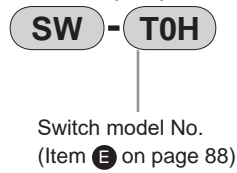
H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin included)
B2	Clevis bracket (pin and snap ring included)

How to order switch

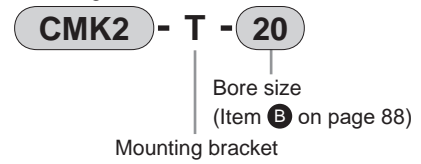
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
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

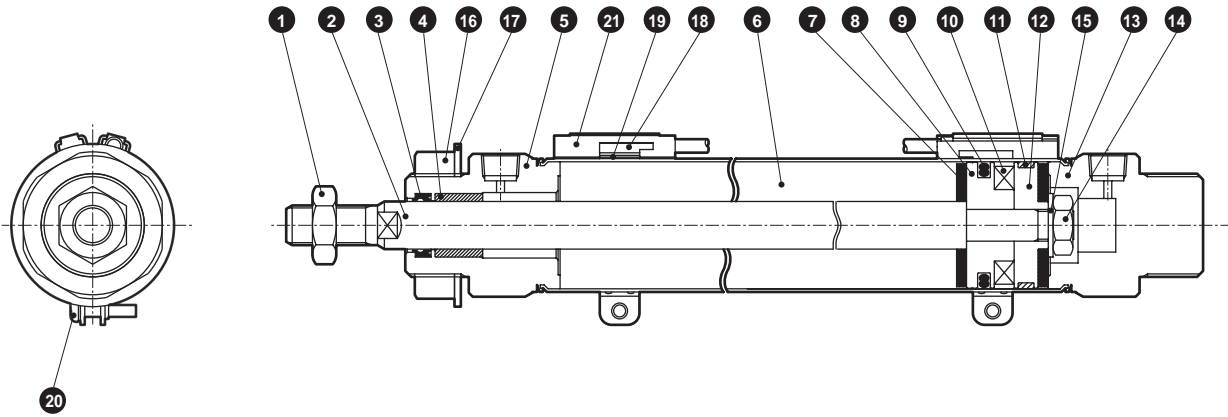
FK

Spd
Contr

Ending

SCP*3 Internal structure and parts list

- 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



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	ø20, ø25: Stainless steel ø32, ø40: Carbon steel	Industrial chrome plating	12	Piston B	Aluminum alloy	
3	Rod packing	Nitrile rubber		13	Head cover	Aluminum alloy	
4	Bush	ø20: Dry bearing ø25, ø32, ø40: 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

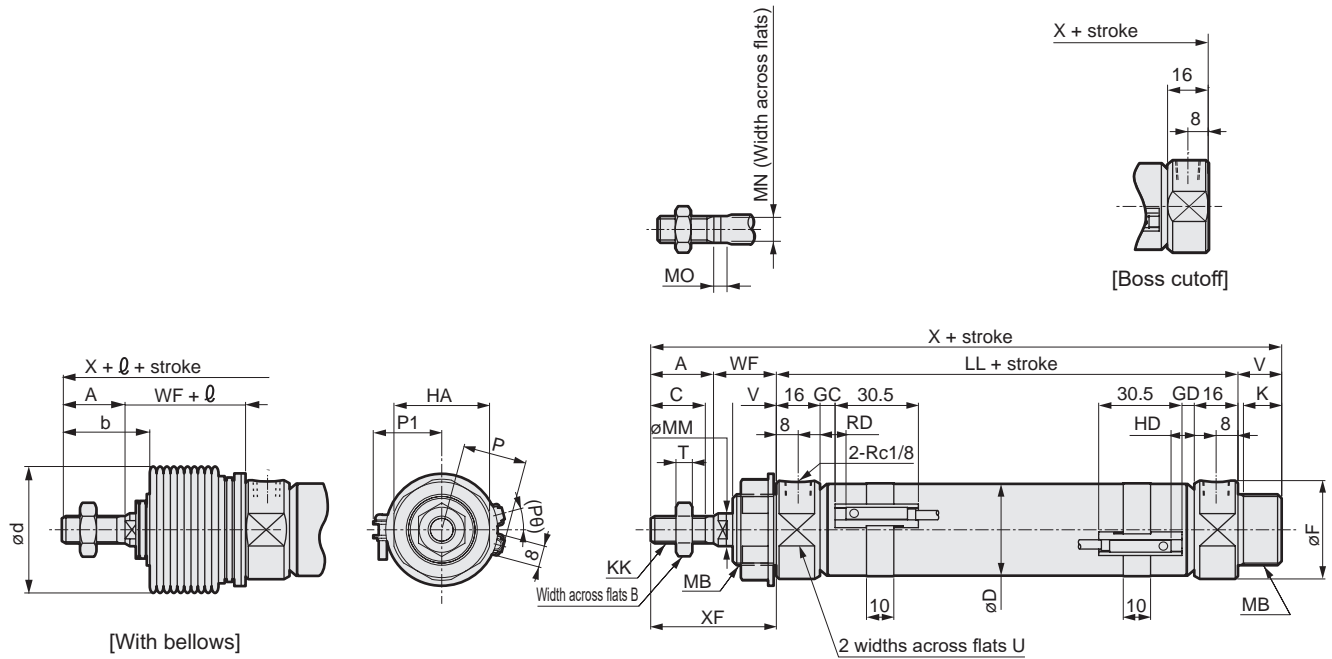
Mounting	Material
LB/LS	Steel
FA/FB	Steel
TA/TB	Steel
CA	Steel
CB	Steel

● 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
ø20	20	13	18	21.4	28	26	12	M 8x1.0	66	M18x1.5	10	8	5	5	24	14	24	124	44
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	10	5	6	30	16	23	131	46
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	10	5	6	34	16	23	131	46
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	14	12	6	7	43	16	23	137	48

Code	With switch								With bellows				Boss cutoff		
	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ	X
Bore size (mm)	GC	GD	RD	HD	GC	GD	RD	HD							
ø20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6	110
ø25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke/3.25) + 7	115
ø32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke/3.25) + 7	115
ø40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke/3.25) + 7	121

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

2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

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

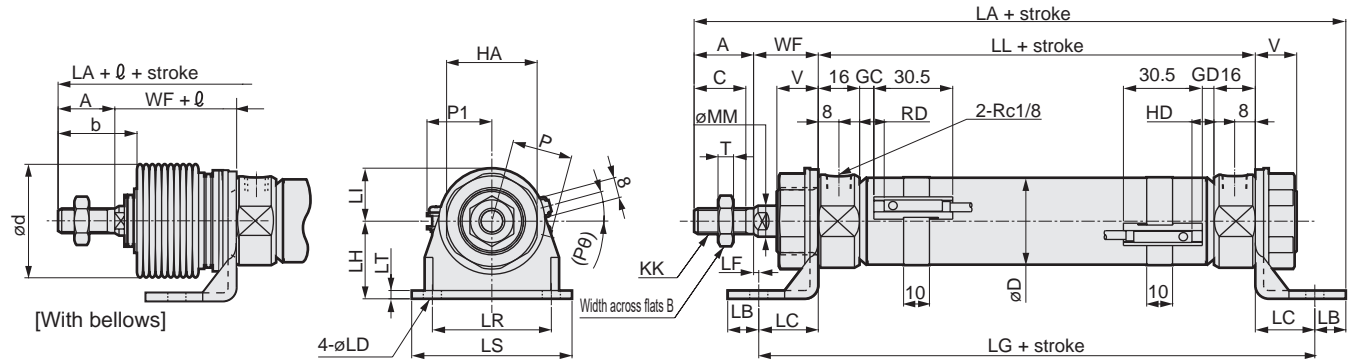
Ending

CMK2 Series



Dimensions

● Axial foot (LB)



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

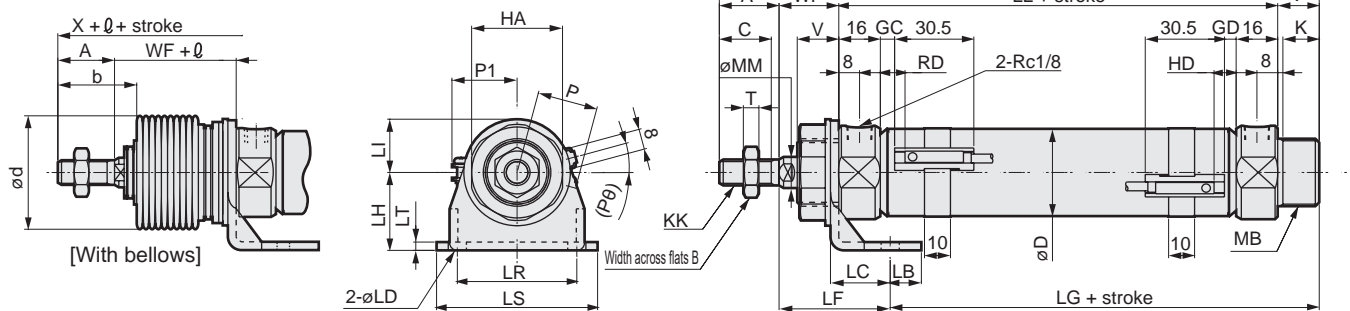
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

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	LI
SSD2	ø20	20	13	18	21.4	26	M 8x1.0	66	10	5	14	24	138	10	18	6	6	102	25	15
SSG	ø25	23	17	20	26.4	35	M10x1.25	69	12	6	16	23	150	12	23	7	0	115	30	20
SSD	ø32	23	17	20	33.6	35	M10x1.25	69	12	6	16	23	150	12	23	7	0	115	30	20
SSD	ø40	25	19	22	41.6	35	M12x1.5	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						
MDC2	ø20	30	44	3.2	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6
MVC	ø25	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/3.25) + 7
MVC	ø32	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/3.25) + 7
MVC	ø40	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/3.25) + 7

● Axial foot (single) (LS)



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

2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

*3 : Max. stroke: 50.

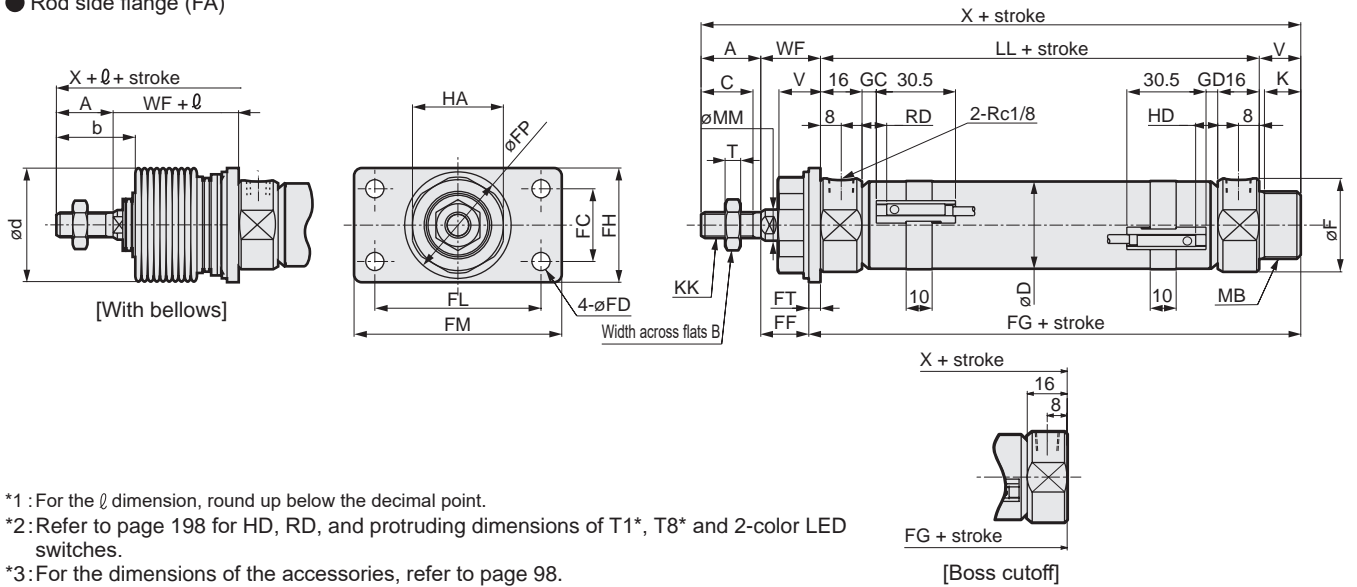
*4: For the dimensions of the accessories, refer to page 98.

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	LH
SM-25	ø20	20	13	18	21.4	26	12	M 8x1.0	66	M18x1.5	10	5	14	24	124	10	18	6	38.8	65.2	25
ShkAbs	ø25	23	17	20	26.4	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	12	23	7	42.8	65.2	30
FJ	ø32	23	17	20	33.6	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	12	23	7	42.8	65.2	30
FJ	ø40	25	19	22	41.6	35	14	M12x1.5	73	M26x1.5	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								
Spd Contr	ø20	15	30	44	3.2	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6	110	51.2
Ending	ø25	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/3.25) + 7	115	49.2
Ending	ø32	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/3.25) + 7	115	49.2
Ending	ø40	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/3.25) + 7	121	53.2

Dimensions

● Rod side flange (FA)



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

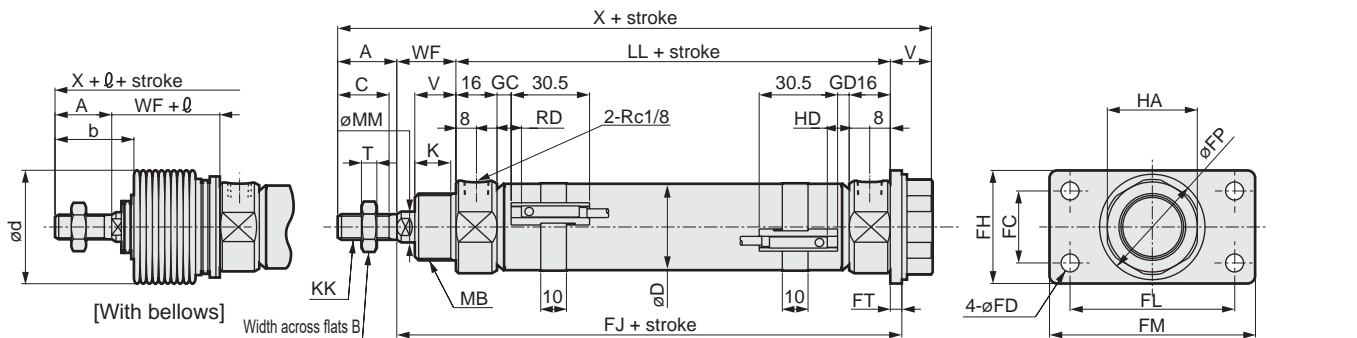
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

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
ø20	20	13	18	21.4	28	26	12	M 8x1.0	66	M18x1.5	10	5	14	24	124	20	6	20.8	83.2
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	28	7	18.5	89.5
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	28	7	18.5	89.5
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	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					
ø20	34	40	54	29	3.2	4	3	8	7	6	5	10	9	30	30	(Stroke/3) + 6	110	69.2
ø25	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/3.25) + 7	115	73.5
ø32	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/3.25) + 7	115	73.5
ø40	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/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 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

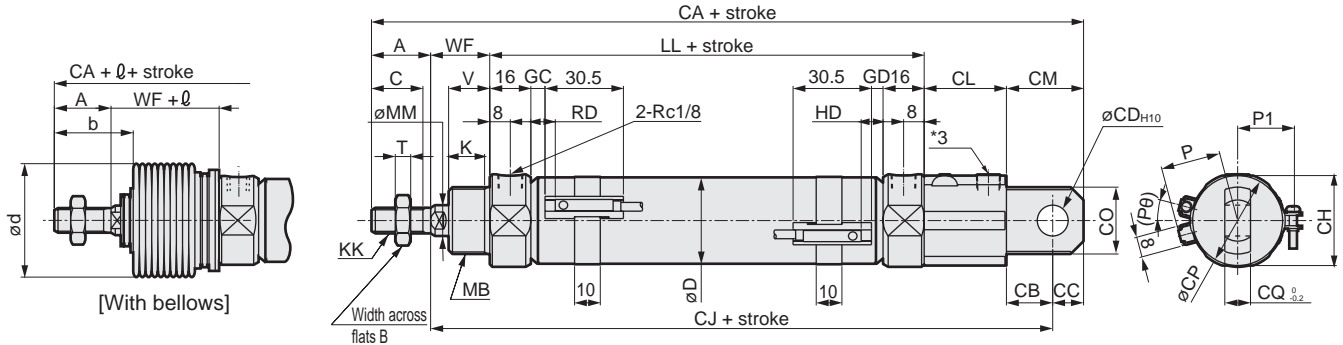
Code	Head side flange (FB) Basic dimensions														Mounting dimensions			
Bore size (mm)	A	B	C	D	HA	K	KK	LL	MB	MM	T	V	WF	X	FC	FD	FF	FG
ø20	20	13	18	21.4	26	12	M 8x1.0	66	M18x1.5	10	5	14	24	124	20	6	20.8	83.2
ø25	23	17	20	26.4	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	28	7	18.5	89.5
ø32	23	17	20	33.6	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	28	7	18.5	89.5
ø40	25	19	22	41.6	35	14	M12x1.5	73	M26x1.5	14	7	16	23	137	28	7	18.5	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					
ø20	93.2	40	54	29	3.2	4	3	8	7	6	5	10	9	30	30	(Stroke/3) + 6	110	69.2
ø25	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/3.25) + 7	115	73.5
ø32	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/3.25) + 7	115	73.5
ø40	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/3.25) + 7	121	77.5

Dimensions



● Eye bracket (CA)



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

2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

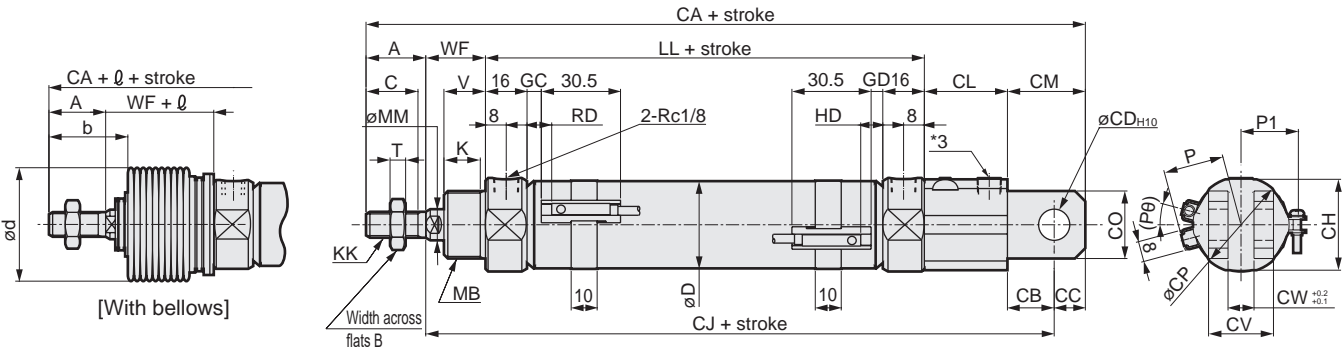
*3 : Not piping port.

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

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
ø20	20	13	18	21.4	12	M 8x1.0	66	M18x1.5	10	5	14	24	165	14	10	10	26	135	31																		
ø25	23	17	20	26.4	14	M10x1.25	69	M26x1.5	12	6	16	23	177	18	12	12	35	142	32																		
ø32	23	17	20	33.6	14	M10x1.25	69	M26x1.5	12	6	16	23	177	18	12	12	35	142	32																		
ø40	25	19	22	41.6	14	M12x1.5	73	M26x1.5	14	7	16	23	183	18	12	12	35	146	32																		

Code	With switch												With bellows														
					T0, T5, T2, T3				T2W, T3W				P		P1		(P0)°		b		d		ℓ				
	CM		CO		CP		CQ		GC		GD		RD		HD		P		P1		(P0)°		b		d		ℓ
ø20	24	22	28	8	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6									
ø25	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/3.25) + 7									
ø32	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/3.25) + 7									
ø40	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/3.25) + 7									

● Clevis bracket (CB)



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

2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

*3 : Not piping port.

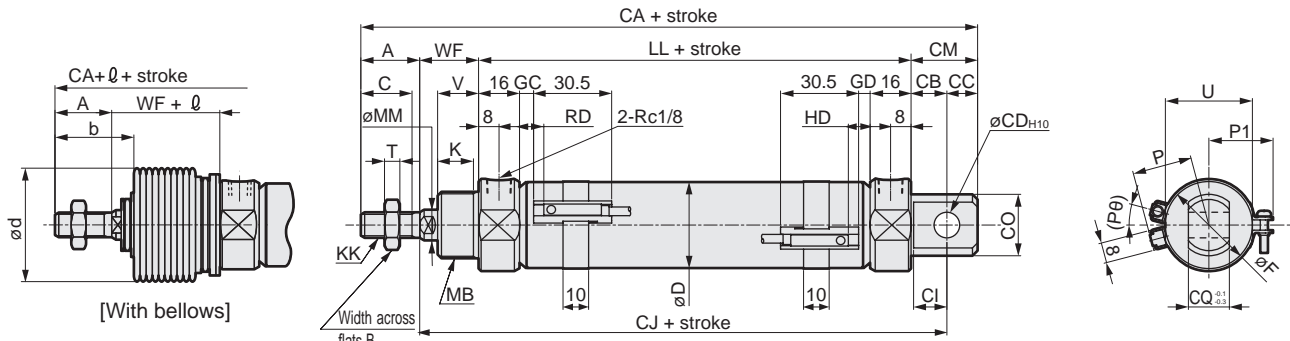
*4: For the dimensions of the accessories, refer to page 98.

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
ø20	20	13	18	21.4	12	M 8x1.0	66	M18x1.5	10	5	14	24	165	14	10	10	26	135	31																		
ø25	23	17	20	26.4	14	M10x1.25	69	M26x1.5	12	6	16	23	177	18	12	12	35	142	32																		
ø32	23	17	20	33.6	14	M10x1.25	69	M26x1.5	12	6	16	23	177	18	12	12	35	142	32																		
ø40	25	19	22	41.6	14	M12x1.5	73	M26x1.5	14	7	16	23	183	18	12	12	35	146	32																		

Code	With switch												With bellows																
					T0, T5, T2, T3				T2W, T3W				P		P1		(P0)°		b		d		ℓ						
	CM		CO		CP		CV		CW		GC		GD		RD		HD		P		P1		(P0)°		b		d		ℓ
ø20	24	22	28	19	8	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6										
ø25	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/3.25) + 7										
ø32	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/3.25) + 7										
ø40	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/3.25) + 7										

Dimensions

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



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

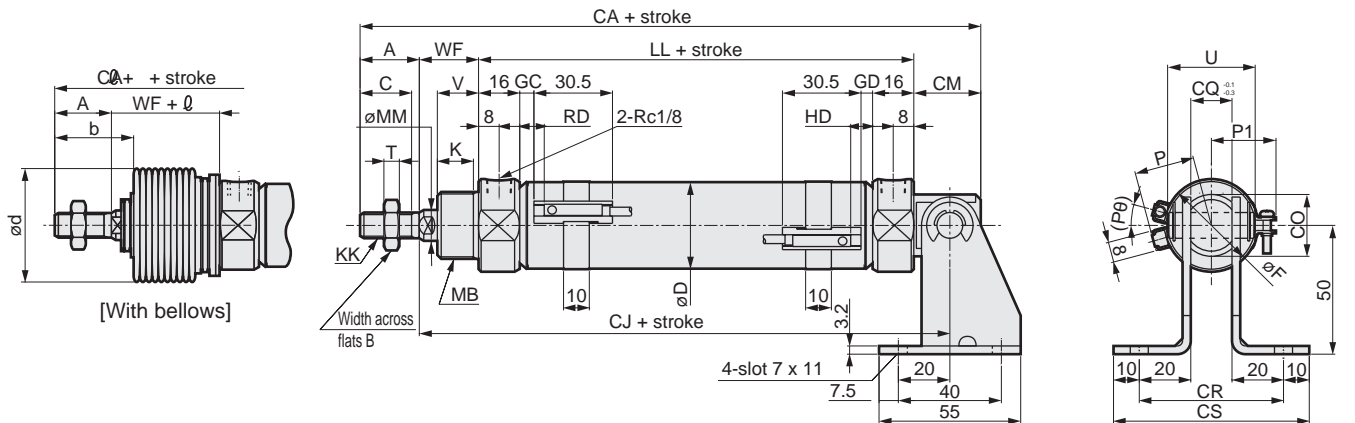
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

Code	Eye bracket integrated (CC) Basic dimensions														Mounting dimensions				
	A	B	C	D	F	K	KK	LL	MB	MM	T	U	V	WF	CA	CB	CC	CD	CI
$\phi 20$	20	13	18	21.4	28	12	M 8x1.0	66	M18x1.5	10	5	24	14	24	131	12	9	8	11
$\phi 25$	23	17	20	26.4	32	14	M10x1.25	69	M26x1.5	12	6	30	16	23	136	12	9	8	11
$\phi 32$	23	17	20	33.6	36	14	M10x1.25	69	M26x1.5	12	6	34	16	23	141	14	12	10	13
$\phi 40$	25	19	22	41.6	45	14	M12x1.5	73	M26x1.5	14	7	43	16	23	151	16	14	12	15

Code	With switch													With bellows				
	CJ	CM	CO	CQ	T0, T5, T2, T3				T2W, T3W				P	P1	P(θ)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
$\phi 20$	102	21	22	16	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6
$\phi 25$	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/3.25) + 7
$\phi 32$	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/3.25) + 7
$\phi 40$	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/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 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

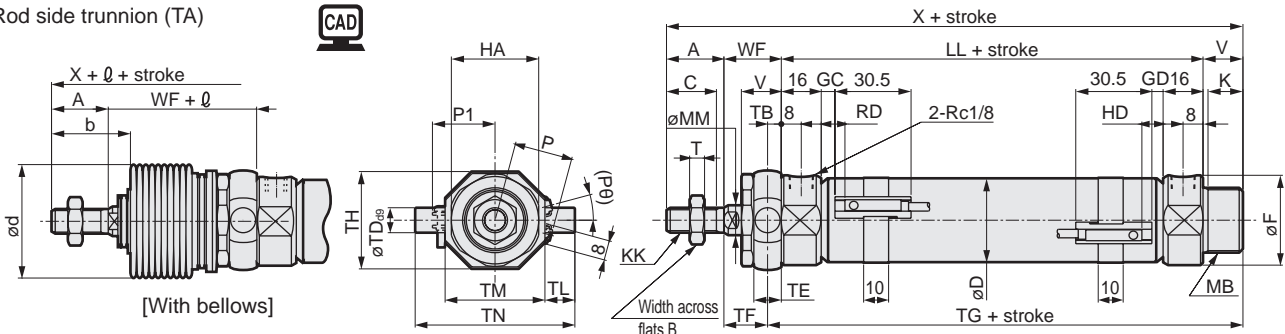
*3: For the dimensions of the accessories, refer to page 98.

Code	Eye bracket integrated (CC) with bracket (option code B2) Basic dimensions														Mounting dimensions			
	A	B	C	D	F	K	KK	LL	MB	MM	T	U	V	WF	CA	CJ	CM	CO
$\phi 20$	20	13	18	21.4	28	12	M 8x1.0	66	M18x1.5	10	5	24	14	24	131	102	21	22
$\phi 25$	23	17	20	26.4	32	14	M10x1.25	69	M26x1.5	12	6	30	16	23	136	104	21	24
$\phi 32$	23	17	20	33.6	36	14	M10x1.25	69	M26x1.5	12	6	34	16	23	141	106	26	24
$\phi 40$	25	19	22	41.6	45	14	M12x1.5	73	M26x1.5	14	7	43	16	23	151	112	30	30

Code	With switch													With bellows			
	CQ	CR	CS	T0, T5, T2, T3				T2W, T3W				P	P1	P(θ)°	b	d	ℓ
				GC	GD	RD	HD	GC	GD	RD	HD						
$\phi 20$	16	56	76	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6
$\phi 25$	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/3.25) + 7
$\phi 32$	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/3.25) + 7
$\phi 40$	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/3.25) + 7

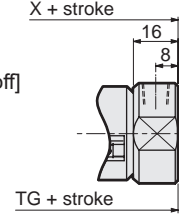
Dimensions

● Rod side trunnion (TA)



[With bellows]

[Boss cutoff]



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

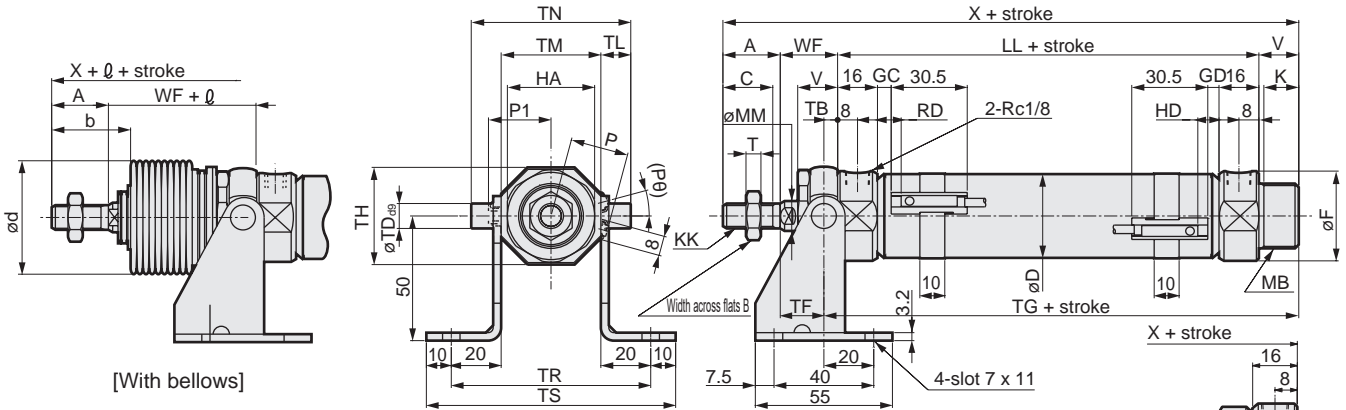
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

Code	Rod side trunnion (TA) Basic dimensions													Mounting dimensions							
	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TE	TF	TG	TH
$\phi 20$	20	13	18	21.4	28	26	12	M 8x1.0	66	M18x1.5	10	5	14	24	124	4.5	8	9	19.5	84.5	29.5
$\phi 25$	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
$\phi 32$	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
$\phi 40$	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	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	(P θ)°	b	d	ℓ	X	TG
				GC	GD	RD	HD	GC	GD	RD	HD								
$\phi 20$	8	30	46	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6	110	70.5
$\phi 25$	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/3.25) + 7	115	74.5
$\phi 32$	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/3.25) + 7	115	74.5
$\phi 40$	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/3.25) + 7	121	78.5

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



[With bellows]

[Boss cutoff]

TG + stroke

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

2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

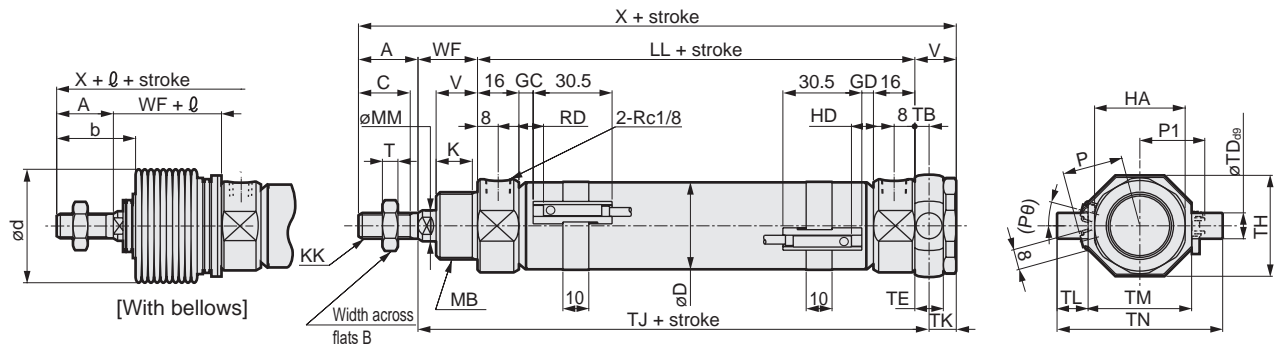
*3: For the dimensions of the accessories, refer to page 98.

Code	Rod side trunnion (TA) with bracket (option code B2) Basic dimensions													Mounting dimensions							
	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TE	TF	TG	TH
$\phi 20$	20	13	18	21.4	28	26	12	M 8x1.0	66	M18x1.5	10	5	14	24	124	4.5	8	9	19.5	84.5	29.5
$\phi 25$	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
$\phi 32$	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
$\phi 40$	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	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	(P θ)°	b	d	ℓ	X	G
						GC	GD	RD	HD	GC	GD	RD	HD								
$\phi 20$	8	30	46	70	90	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6	110	70.5
$\phi 25$	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/3.25) + 7	115	74.5
$\phi 32$	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/3.25) + 7	115	74.5
$\phi 40$	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/3.25) + 7	121	78.5

Dimensions

● Head side trunnion (TB)



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

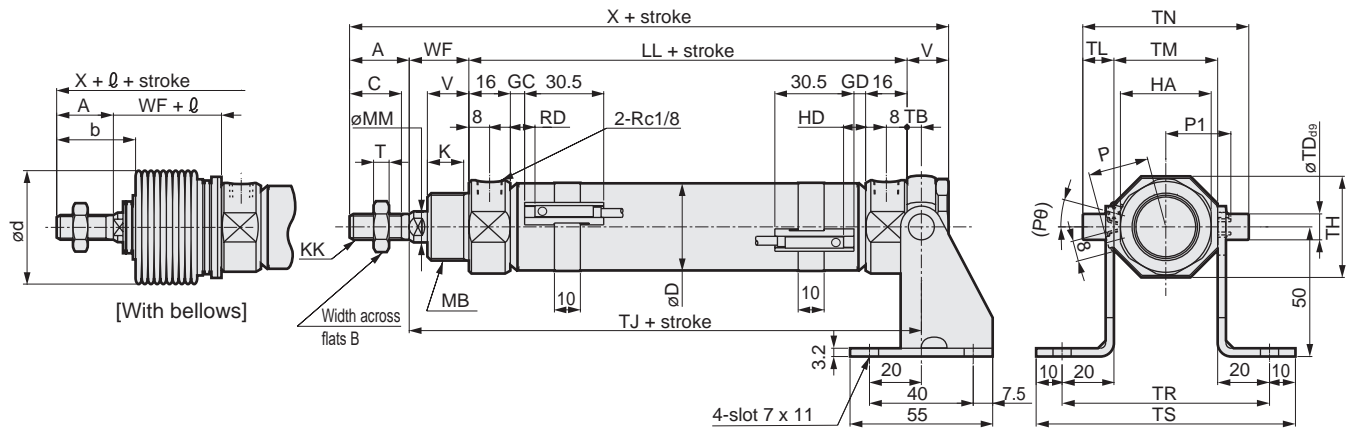
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

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
ø20	20	13	18	21.4	26	12	M 8x1.0	66	M18x1.5	10	5	14	24	124	4.5	8	9	29.5	94.5
ø25	23	17	20	26.4	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	11	39	97.5
ø32	23	17	20	33.6	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	11	39	97.5
ø40	25	19	22	41.6	35	14	M12x1.5	73	M26x1.5	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	(Pθ)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
ø20	9.5	8	30	46	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6
ø25	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/3.25) + 7
ø32	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/3.25) + 7
ø40	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/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 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

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

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
ø20	20	13	18	21.4	26	12	M 8x1.0	66	M18x1.5	10	5	14	24	124	4.5	8	29.5	94.5	8
ø25	23	17	20	26.4	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	39	97.5	12
ø32	23	17	20	33.6	35	14	M10x1.25	69	M26x1.5	12	6	16	23	131	5.5	10	39	97.5	12
ø40	25	19	22	41.6	35	14	M12x1.5	73	M26x1.5	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	(Pθ)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
ø20	30	46	70	90	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6
ø25	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/3.25) + 7
ø32	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/3.25) + 7
ø40	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/3.25) + 7

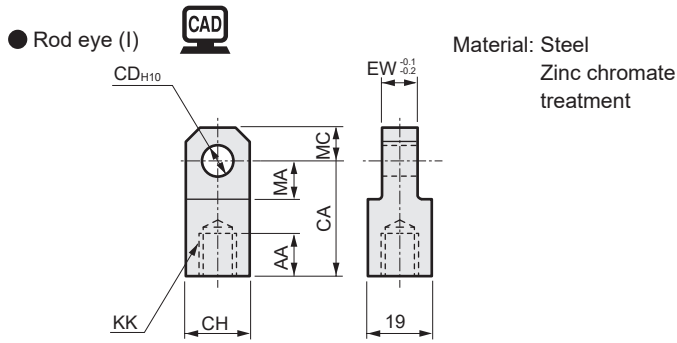
- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

CMK2 Series

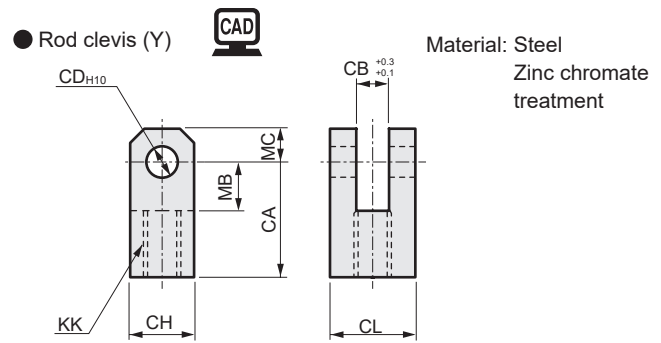
Accessories (rod eye/bracket/pin)

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

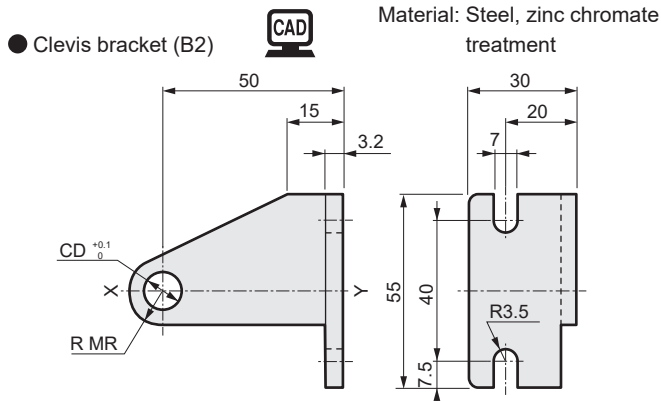


Model No.	Bore size (mm)	AA	CA	CD	CH	EW	KK	MA	MC	Weight (g)
M1-I-20	20	14	30	10	19	8	M8x1.0	13	10	60
M1-I-30	25/32	14	36	12	25	10	M10x1.25	16	12	106
M1-I-40	40	14	36	12	25	10	M12x1.5	16	12	100



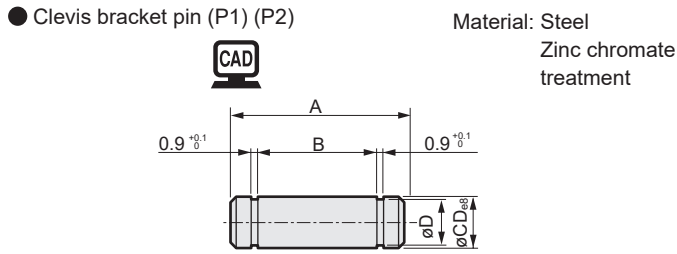
Model No.	Bore size (mm)	CA	CB	CD	CH	CL	KK	MB	MC	Weight (g)
M1-Y-20	20	30	8	10	19	19	M8x1.0	13	10	99
M1-Y-30	25/32	36	10	12	25	25	M10x1.25	16	12	197
M1-Y-40	40	36	10	12	25	25	M12x1.5	16	12	193

Note: A pin and split washer are included.



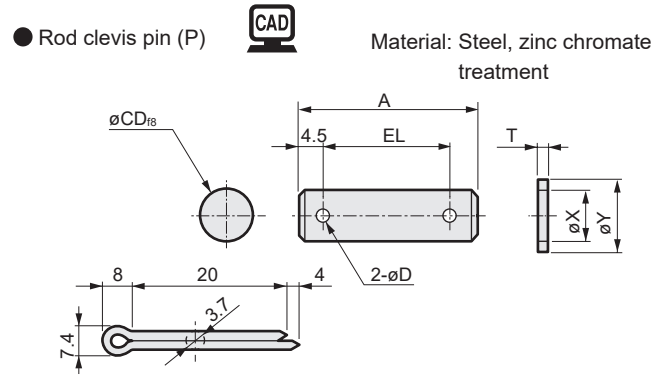
Model No.	Compatible model	Applicable bore size (mm)	CD	MR	Weight (g)
M1-B2-20-CC	CMK2-CC	20/25	8	8	145
M1-B2-30-CC	(Eye bracket integrated)	32	10	11	163
M1-B2-40-CC		40	12	11	170
M1-B2-30-CA	CMK2-CA	20	10	11	158
M1-B2-40-CA	(Eye bracket)	25/32/40	12	11	162
M1-B2-20-TA	CMK2-TA/TB	20	8	8	132
M1-B2-30-TA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



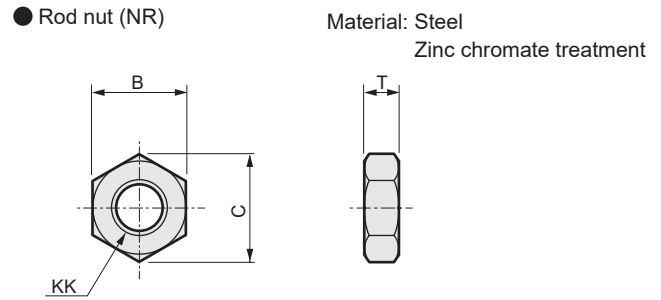
Model No.	Compatible model	Applicable bore size (mm)	A	B	CD	D	Applicable snap ring	Weight (g)
M1-P1-20	CMK2-CC	20/25	33	28	8	7	E 7	13
M1-P1-30		32	33	28	10	9	E 9	21
M1-P1-40		40	37	32	12	9	E 9	32
M1-P2-20	CMK2-CA	20	25	20	10	9	E 9	16
M1-P2-30		25/32/40	27	22	12	9	E 9	24

Note: A pin and snap ring for bracket use are included 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	1.6	10.5	18	29
M1-P-30	25/32/40	46	4	12	37	2.5	12.5	22	50

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



Model No.	Applicable bore size (mm)	B	C	KK	T	Weight (g)
M1-NR-20	20	13	15	M8x1.0	5	3.6
M1-NR-30	25/32	17	19.6	M10x1.25	6	7.8
M1-NR-40	40	19	21.9	M12x1.5	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

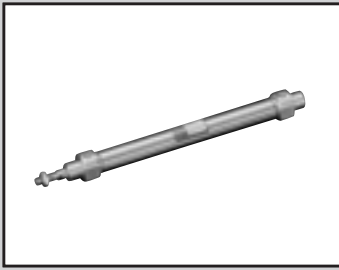
FJ

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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol ● Single acting cylinder/push



Specifications

Item	CMK2-S				
	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		
Applications	For 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		24 VDC ±10%		30 VDC or less		12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 100 mA		5 to 20 mA (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
Indicator	LED (Lit when ON)		LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 µA or less				0 mA						
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142			

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (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)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

Item/mounting	Stroke (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
ø20	0.04	0.05	0.09	0.09	0.14	0.18	0.23	0.27
ø25	0.05	0.06	0.12	0.12	0.18	0.24	0.29	0.35
ø32	0.09	0.11	0.23	0.22	0.32	0.43	0.53	0.64
ø40	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 x $\frac{\text{Product stroke (50)}}{10}$ = 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	
ø20	25	56	88	1.19x10 ²	1.50x10 ²	1.82x10 ²	2.13x10 ²	2.45x10 ²	2.76x10 ²	
ø25	58	1.07x10 ²	1.56x10 ²	2.05x10 ²	2.55x10 ²	3.04x10 ²	3.53x10 ²	4.02x10 ²	4.51x10 ²	
ø32	1.06x10 ²	1.86x10 ²	2.67x10 ²	3.47x10 ²	4.28x10 ²	5.08x10 ²	5.88x10 ²	6.69x10 ²	7.49x10 ²	
ø40	1.51x10 ²	2.77x10 ²	4.03x10 ²	5.28x10 ²	6.54x10 ²	7.80x10 ²	9.10x10 ²	1.03x10 ³	1.16x10 ³	

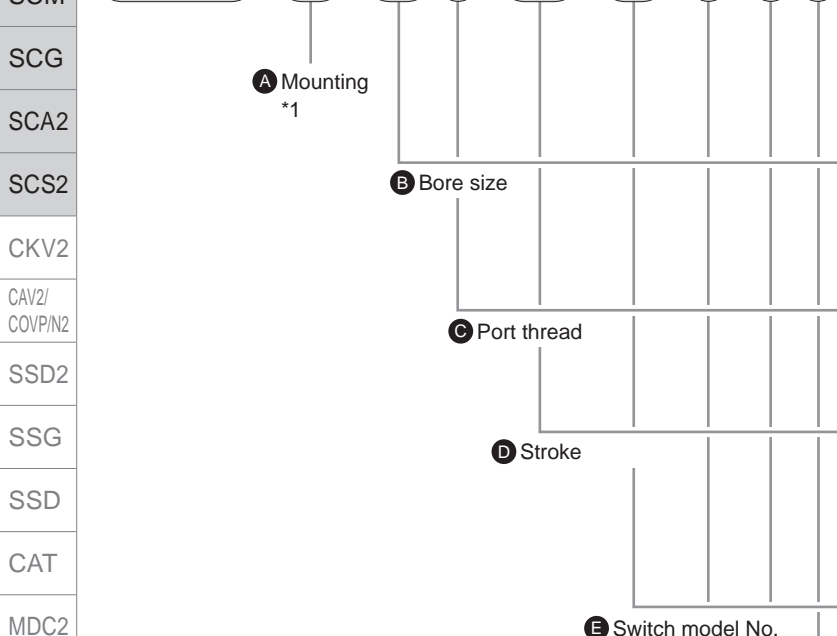
Note: The load above indicates thrust excluding the spring force at the push end.

CMK2-S Series

SCP*3 How to order

CMK2 No 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



⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 100.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is ø6.
- *4 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- *5 : "I" and "Y" cannot be selected together.
- *6 : Refer to Ending Page 85 for custom specifications of rod end form.
- *7 : Refer to page 84 for combination of variations/options.
- *8 : Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
- *9 : For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Example of model No.]

CMK2-S-00-20-100-T0H-R-MI

Model: Medium bore size cylinder, single acting/push

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

Code	Description
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 included)
TA	Rod side trunnion
TB	Head side trunnion

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

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

D Stroke (mm)		
Bore size	Stroke *2	Custom stroke
ø20	5 to 300	In 1 mm increments
ø25	5 to 300	
ø32	5 to 300	
ø40	5 to 300	

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

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

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

G Option			
		Max. ambient temp.†	Instantaneous max. temp.†
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
F	With push-in fitting (straight)		
FE	With push-in fitting (elbow)		
M	Piston rod material (stainless steel) *9		
V	Boss cutoff		
P6	Copper and PTFE free		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

Switch model No.
(Item **E** on page 102)

Bore size
(Item **B** on page 102)

- Switch body only

SW - T0H

Switch model No.
(Item **E** on page 102)

- Mounting bracket set

CMK2 - T - 20

Bore size
(Item **B** on page 102)

Mounting bracket

How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
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

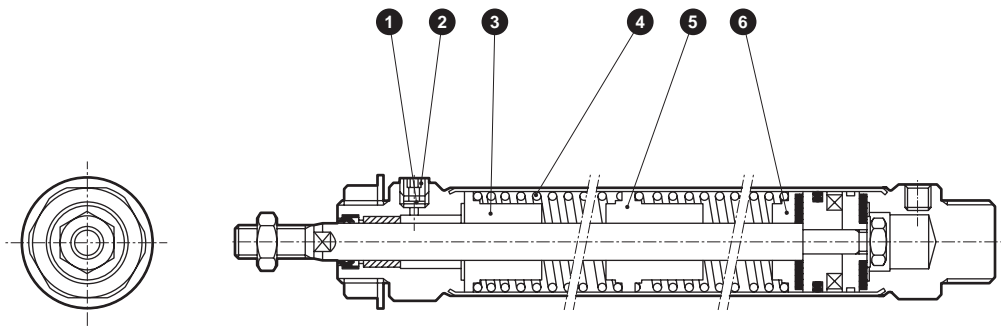
Spd
Contr

Ending

CMK2-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	

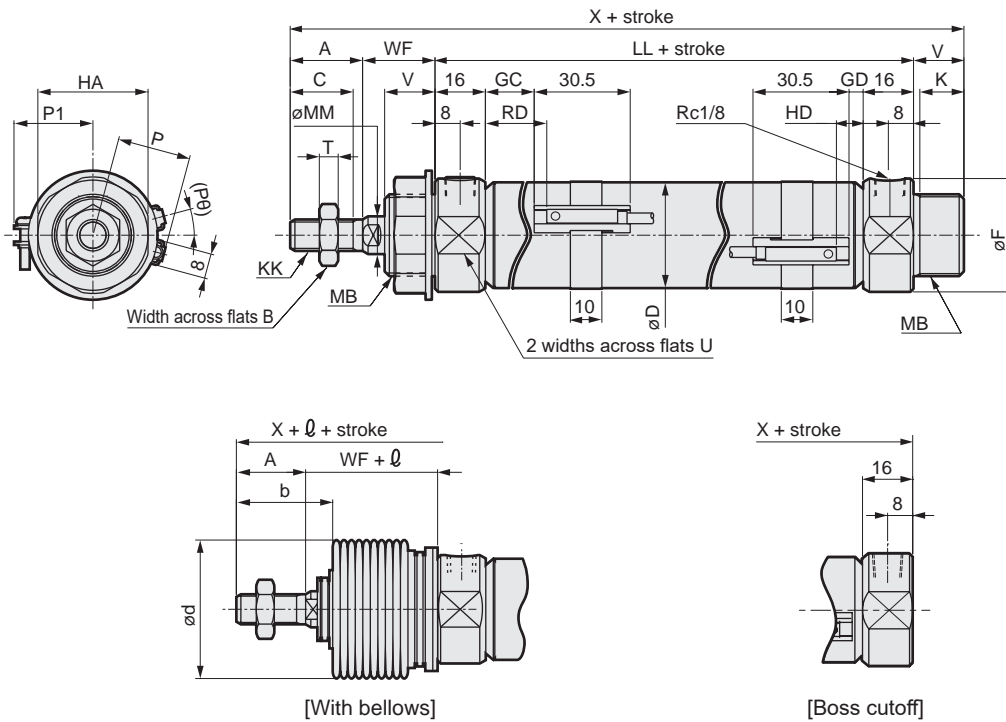
Spring load (Unit: N)

Bore size (mm)	Stroke (mm)	25	50	75	100	150	200	250	300
		At stroke of 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8
ø20	At full stroke operation	31	38	31.5	38	38	38	38	38
	At stroke of 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
ø25	At full stroke operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
	At stroke of 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
ø32	At full stroke operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
	At stroke of 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
ø40	At full stroke 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 92 to 97.
 2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.
 *3: For the \varnothing 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			
ø20	20	13	18	21.4	28	26	12	M 8x1.0	91	93	120	147	174	201	228	M18x1.5	10	5
ø25	23	17	20	26.4	32	35	14	M10x1.25	94	99	129	159	189	219	249	M26x1.5	12	6
ø32	23	17	20	33.6	36	35	14	M10x1.25	94	99	129	159	189	219	249	M26x1.5	12	6
ø40	25	19	22	41.6	45	35	14	M12x1.5	98	103	133	163	193	223	253	M26x1.5	14	7

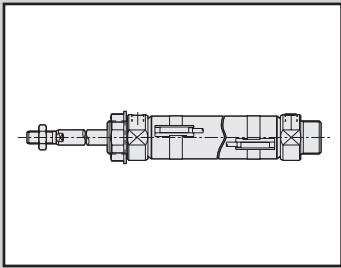
Code	With switch																		
	U	V	WF	X						T0, T5, T2, T3			T2W, T3W			RD			
				25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300	GC	GD	HD	GC	GD	HD	25 or less	Over 25 to 50	Over 50 to 75
ø20	24	14	24	149	151	178	205	232	259	256	4	3	7	6	5	9	33	35	62
ø25	30	16	23	156	161	191	221	251	281	311	5.5	4.5	8.5	7.5	6.5	10.5	34.5	39.5	69.5
ø32	34	16	23	156	161	191	221	251	281	311	5.5	4.5	8.5	7.5	6.5	10.5	34.5	39.5	69.5
ø40	43	16	23	162	167	197	227	257	287	317	7.5	6.5	10.5	9.5	8.5	12.5	36.5	41.5	71.5

Code	With switch													With bellows				
	RD												P	P1	(P0) ^o	b	d	
	T0, T5, T2, T3						T2W, T3W											
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	Over 150 to 200	Over 200 to 250	Over 250 to 300						
ø20	62	89	116	143	170	35	37	64	64	91	118	145	172	17.3	19.5	22	30	30
ø25	69.5	99.5	129.5	159.5	189.5	36.5	41.5	71.5	71.5	101.5	131.5	161.5	191.5	19.8	22.0	18	32	46
ø32	69.5	99.5	129.5	159.5	189.5	36.5	41.5	71.5	71.5	101.5	131.5	161.5	191.5	24.3	25.5	15	32	46
ø40	71.5	101.5	131.5	161.5	191.5	38.5	43.5	73.5	73.5	103.5	133.5	163.5	193.5	28.3	29.5	12	34	46

Code	Boss cutoff type							
	ø	X						
		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
ø20	(Stroke/3) + 6	135	137	164	191	218	245	242
ø25	(Stroke/3.25) + 7	140	145	175	205	235	265	295
ø32	(Stroke/3.25) + 7	140	145	175	205	235	265	295
ø40	(Stroke/3.25) + 7	146	151	181	211	241	271	301

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

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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol

● Single acting cylinder/
 pull type



Specifications

Item	CMK2-SR				
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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 $^{\circ}\text{F}$) 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

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V				
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, 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 (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp	LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less		10 µA or less				0 mA							
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142					

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

Item/mounting	Stroke (S) additional weight							
	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
ø20	0.03	0.03	0.06	0.06	0.09	0.12	0.15	0.18
ø25	0.03	0.04	0.07	0.07	0.11	0.14	0.18	0.21
ø32	0.08	0.09	0.18	0.17	0.25	0.34	0.42	0.51
ø40	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 0.02x $\frac{\text{Product stroke (50)}}{10}$ = 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

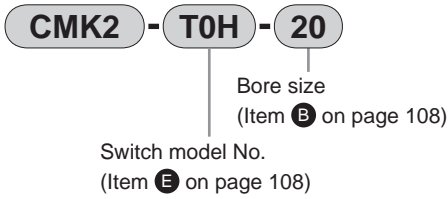
(Unit: N)

Bore size (mm)	Working pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	9	33	56	80	1.03x10 ²	1.27x10 ²	1.50x10 ²	1.74x10 ²	1.98x10 ²
ø25	35	73	1.11x10 ²	1.49x10 ²	1.87x10 ²	2.24x10 ²	2.62x10 ²	3.00x10 ²	3.38x10 ²
ø32	83	1.52x10 ²	2.21x10 ²	2.91x10 ²	3.60x10 ²	4.29x10 ²	4.98x10 ²	5.67x10 ²	6.36x10 ²
ø40	1.21x10 ²	2.31x10 ²	3.41x10 ²	4.51x10 ²	5.62x10 ²	6.72x10 ²	7.82x10 ²	8.92x10 ²	1.00x10 ³

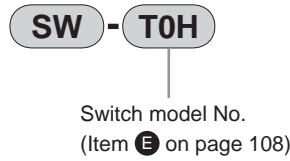
Note: The load above indicates thrust excluding the spring force at the pull end.

How to order switch

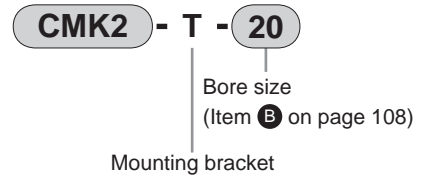
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



How to order mounting bracket

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

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

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

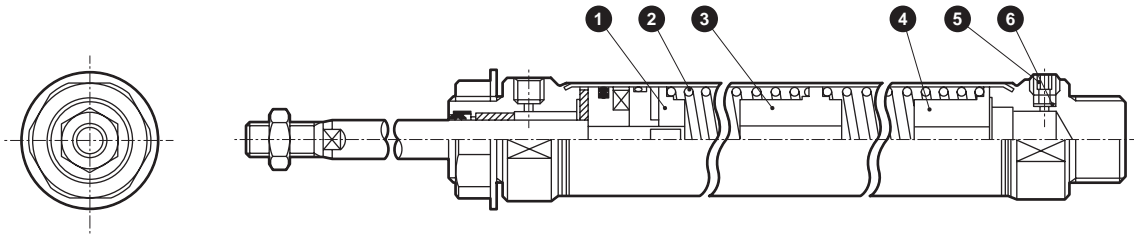
*3: Mounting nut, toothed washer only. Although 1 set is included with the basic of the product (00), use this when needed.

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

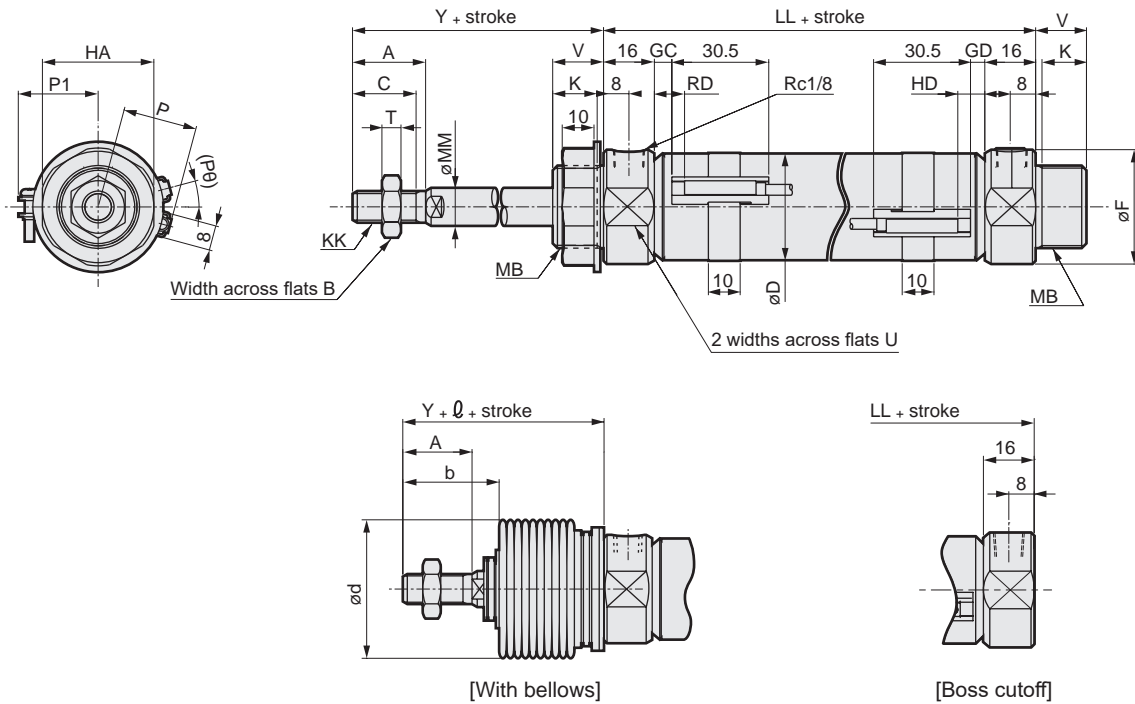
(Unit: N)

Bore size (mm)	Stroke (mm)	25	50	75	100	150	200	250	300
		At stroke of 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8
ø20	At full stroke operation	31	38	31.5	38	38	38	38	38
	At stroke of 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
ø25	At full stroke operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
	At stroke of 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
ø32	At full stroke operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
	At stroke of 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
ø40	At full stroke 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 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED 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			
ø20	20	13	18	21.4	28	26	12	M 8x1.0	91	93	120	147	174	201	228	M18x1.5	10	5
ø25	23	17	20	26.4	32	35	14	M10x1.25	94	99	129	159	189	219	249	M26x1.5	12	6
ø32	23	17	20	33.6	36	35	14	M10x1.25	94	99	129	159	189	219	249	M26x1.5	12	6
ø40	25	19	22	41.6	45	35	14	M12x1.5	98	103	133	163	193	223	253	M26x1.5	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
ø20	24	14	44	4	3	8	6	5	10	32	34	61	61	88	115	142	169
ø25	30	16	46	5.5	4.5	9.5	7.5	6.5	11.5	33.5	38.5	68.5	68.5	98.5	128.5	158.5	188.5
ø32	34	16	46	5.5	4.5	9.5	7.5	6.5	11.5	33.5	38.5	68.5	68.5	98.5	128.5	158.5	188.5
ø40	43	16	48	7.5	6.5	11.5	9.5	8.5	13.5	35.5	40.5	70.5	70.5	100.5	130.5	160.5	190.5

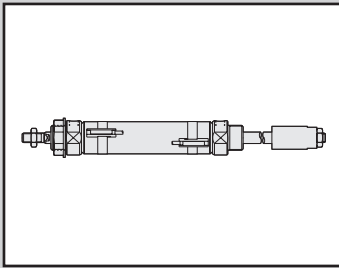
Code	With switch									With bellows					
	HD									P	P1	(P0)°	b	d	l
	25 or less	Over 25 to 50	Over 50 to 75	Over 75 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300							
ø20	34	36	63	63	90	117	144	171	17.3	19.5	22	30	30	(Stroke/3) + 6	
ø25	35.5	40.5	70.5	70.5	100.5	130.5	160.5	190.5	19.8	22.0	18	32	46	(Stroke/3.25) + 7	
ø32	35.5	40.5	70.5	70.5	100.5	130.5	160.5	190.5	24.3	25.5	15	32	46	(Stroke/3.25) + 7	
ø40	37.5	42.5	72.5	72.5	102.5	132.5	162.5	192.5	28.3	29.5	12	34	46	(Stroke/3.25) + 7	

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

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

- 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/
 COV/PIN2
 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

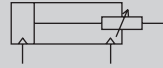


Medium bore size cylinder
 double acting/stroke adjustable (push)

CMK2-P Series

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

JIS symbol ● Double acting/stroke adjustable



Specifications

Item	CMK2-P			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

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

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Adjustable stroke	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
		Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Trunnion (TA/TB)			
ø20	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			
ø25	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			
ø32	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			
ø40	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 $0.02 \times \frac{\text{Product stroke (50)}}{10} = 0.10$ 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									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push/Pull	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push/Pull	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push/Pull	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-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

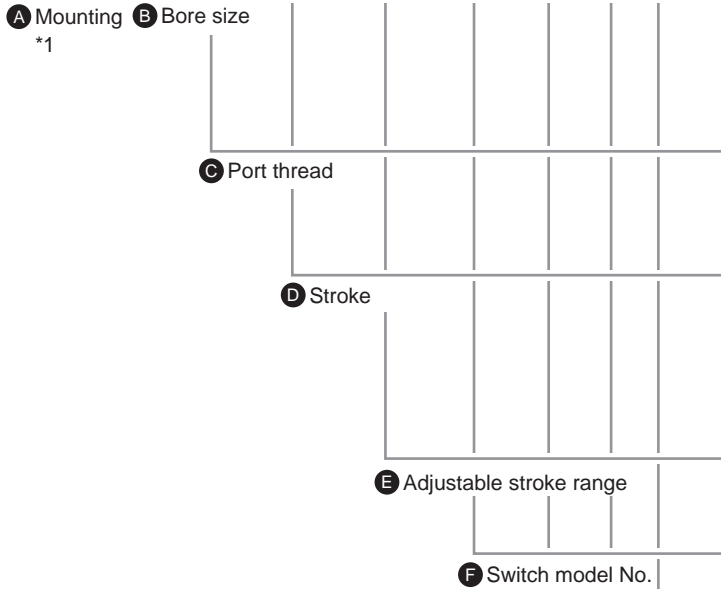
How to order

No 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



⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 112.
- *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 84 for combination of variations/options.
- *8 : Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
- *9 : For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Example of model No.]

CMK2-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 : 100 mm
- E** Adjustable stroke : 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	Description				
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 (made-to-order product)				
GN	G thread (made-to-order product)				
D Stroke (mm)					
Bore size	Stroke *2	Custom stroke			
$\phi 20$	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	Indicator	Lead wire
		AC	DC		
T0H*	T0V*	●	●	1-color LED	2-wire
T5H*	T5V*	●	●	No indicator lamp	
T8H*	T8V*	●	●	1-color LED	
T1H*	T1V*	●	●	1-color LED	2-wire
T2H*	T2V*	●	●	1-color LED	3-wire
T3H*	T3V*	●	●	1-color LED	3-wire
T3PH*	T3PV*	●	●	1-color LED	3-wire
T2WH*	T2WV*	●	●	2-color LED	2-wire
T2YH*	T2YV*	●	●		
T3WH*	T3WV*	●	●		
T3YH*	T3YV*	●	●	1-color LED off-delay	2-wire
T2JH*	T2JV*	●	●		
* 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 included)				
B2	Clevis bracket (pin and snap ring included)				

How to order switch

- Switch body + mounting bracket set

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

Switch model No.
(Item **F** on page 114)

Bore size (Item **B** on
page 114)

- Switch body only

SW - **T0H**

Switch model No.
(Item **F** on page 114)

- Mounting bracket set

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

Mounting bracket

Bore size (Item **B** on
page 114)

How to order mounting bracket

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

*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

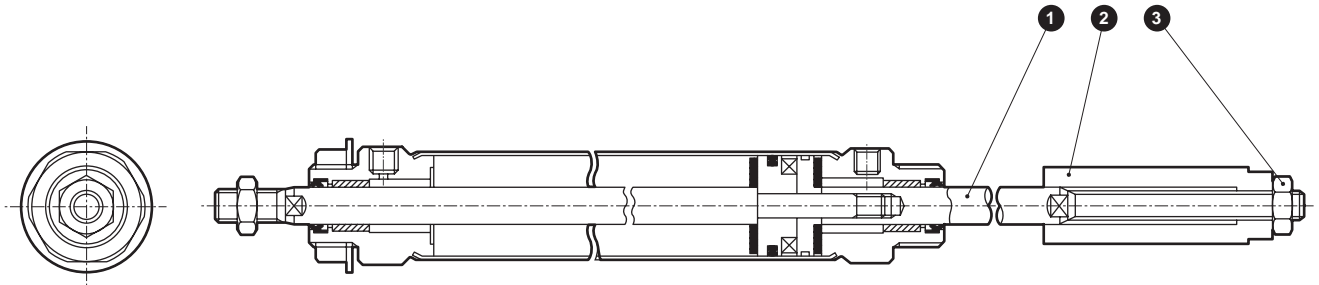
Spd
Contr

Ending

CMK2-P Series

SCP*3 Internal structure and parts list

- 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



Cannot be disassembled

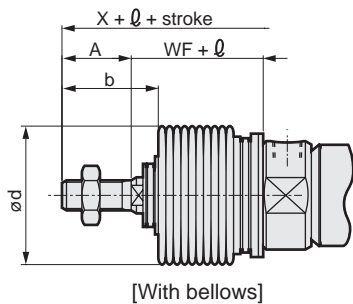
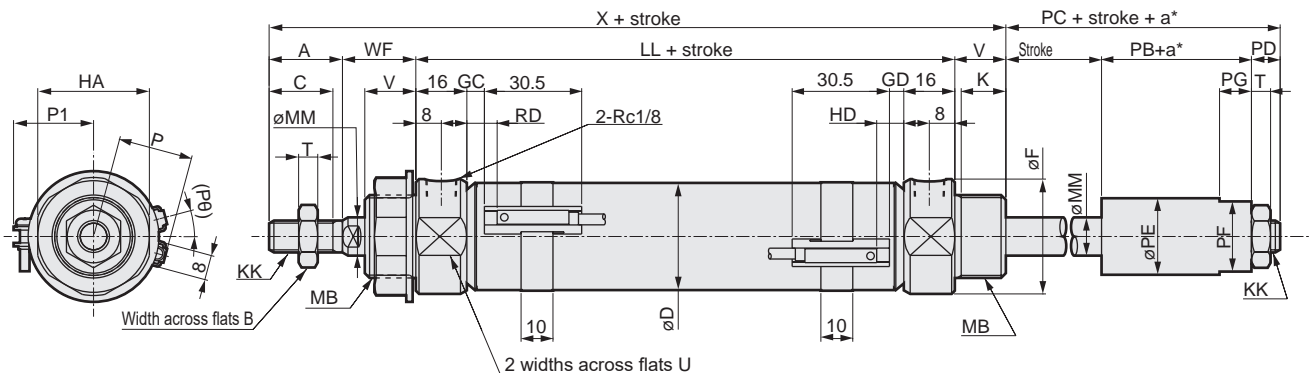
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks
1	Piston rod B	ø20, ø25: Stainless steel ø32, ø40: 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 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.
*2: For the l dimension, round up below the decimal point.

* a: Adjustable stroke.

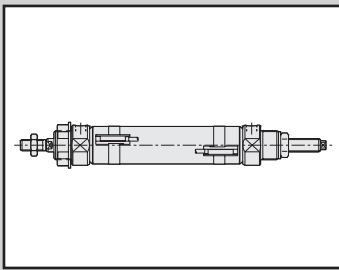
Code	Basic (00) Basic dimensions															
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	X
ø20	20	13	18	21.4	28	26	12	M 8x1.0	66	M18x1.5	10	5	24	14	24	124
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	6	30	16	23	131
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	6	34	16	23	131
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	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			
ø20	21	29	8	16	14	7	4	3	8	7	6	5	10	9	17.3	19.5	22
ø25	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
ø32	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
ø40	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
ø20	30	30	(Stroke/3) + 6
ø25	32	46	(Stroke/3.25) + 7
ø32	32	46	(Stroke/3.25) + 7
ø40	34	46	(Stroke/3.25) + 7

* Dimensions of other mountings are the same as those of the standard. Refer to pages 92 to 97.
* For the dimensions of the accessories, refer to page 98.

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



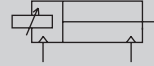
Medium bore size cylinder
 Double acting/stroke adjustable (pull)

CMK2-R Series

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

JIS symbol

● Double acting/stroke adjustable



Specifications

Item	CMK2-R			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Adjustable stroke	Product weight when stroke (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)			
ø20	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			
ø25	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			
ø32	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			
ø40	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 $\frac{\text{Product stroke (50)}}{10}$ =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
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-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

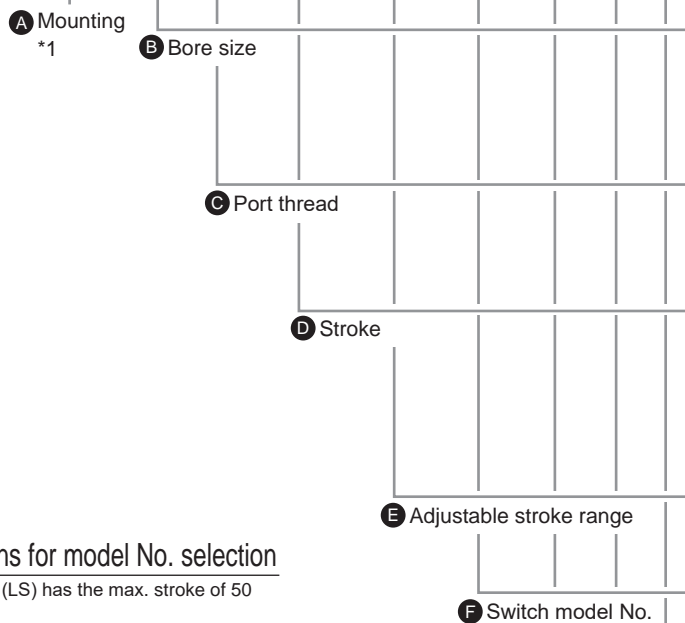
How to order

No 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



⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 118.
- *3 : The max. ambient temperature of bellows of ø25 to ø40 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 ø6.
- *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 84 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 : ø20 mm
- C** Port thread : Rc thread
- D** Stroke : 100 mm
- E** Adjustable stroke : 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	Description
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	ø20	*10
25	ø25	*10
32	ø32	
40	ø40	

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

D Stroke (mm)		
Bore size	Stroke *2	Custom stroke
ø20	25 to 750	In 1 mm increments
ø25	25 to 750	
ø32	25 to 750	
ø40	25 to 750	

E Adjustable stroke range (mm)	
25	25
50	50

F Switch model No.						
Axial lead wire		Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●			2-wire
T2H*	T2V*			●	1-color LED	3-wire
T3H*	T3V*			●		2-wire
T3PH*	T3PV*			●	1-color LED	3-wire
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		
T3YH*	T3YV*			●		3-wire
T2JH*	T2JV*			●	1-color LED 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 included)
B2	Clevis bracket (pin and snap ring included)

How to order switch

- Switch body + mounting bracket set

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

Switch model No. (Item **F** on page 120)
Bore size (Item **B** on page 120)

- Switch body only

SW - **T0H**

Switch model No.
(Item **F** on page 120)

- Mounting bracket set

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

Mounting bracket
Bore size (Item **B** on page 120)

How to order mounting bracket

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

*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

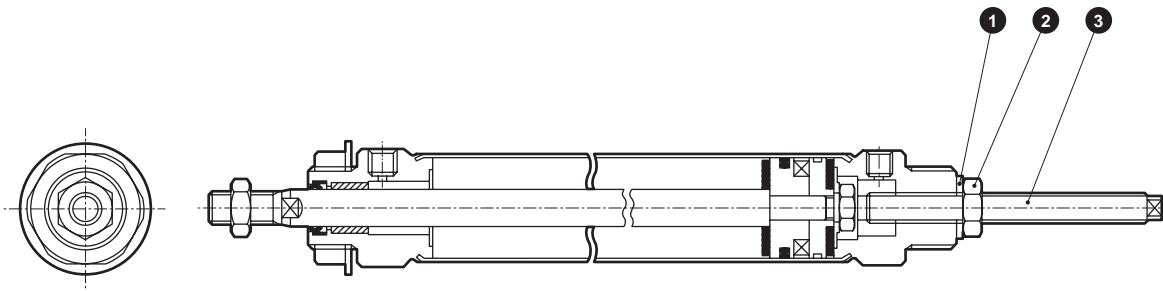
Spd
Contr

Ending

CMK2-R 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

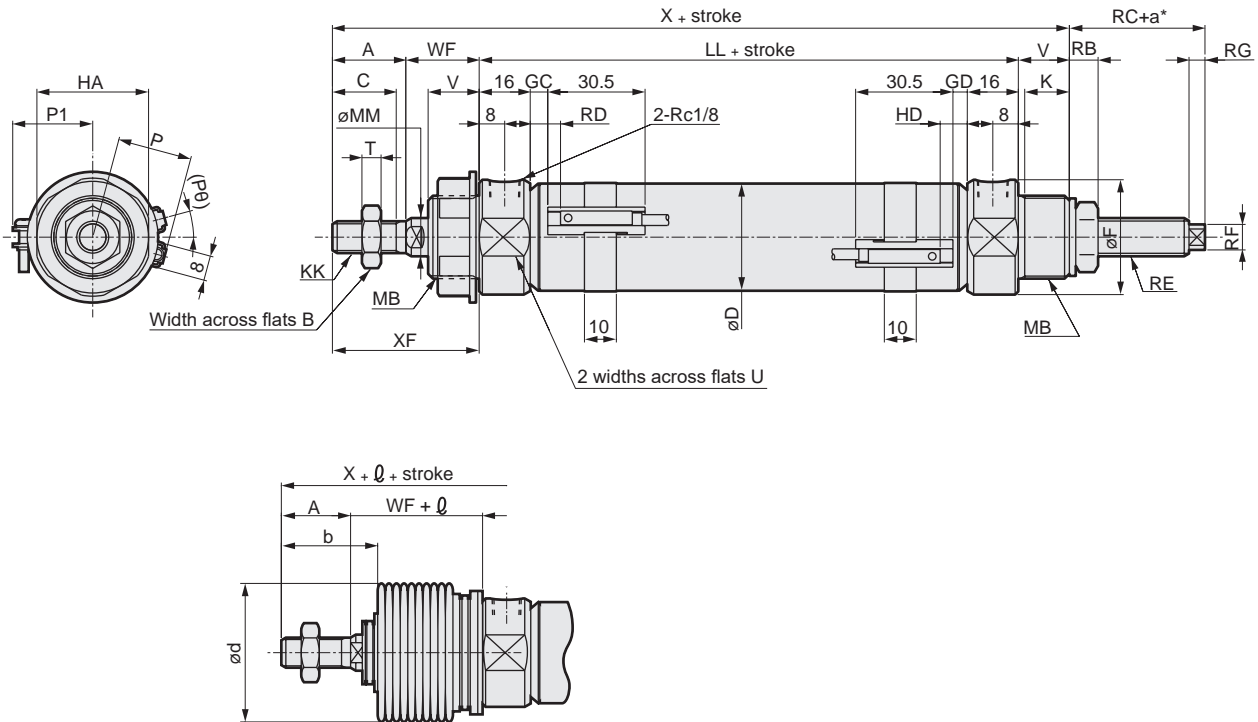
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks
1	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 dimension, round up below the decimal point. * a: Adjustable stroke

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
ø20	20	13	18	21.4	28	26	12	M8x1.0	66	M18x1.5	10	5	24	14	24	124	44
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	6	30	16	23	131	46
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	6	34	16	23	131	46
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	14	7	43	16	23	137	48

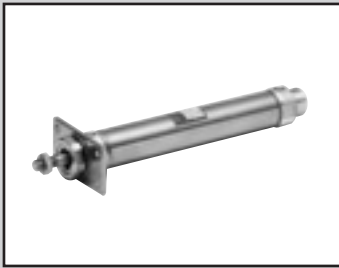
Code	With switch															With bellows		
	RB	RC	RE	RF	RG	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d
						GC	GD	RD	HD	GC	GD	RD	HD					
ø20	6.3	11	M 8x1.0	□5.5	3	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30
ø25	9	17.5	M12x1.5	□8	5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46
ø32	9	17.5	M12x1.5	□8	5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46
ø40	9	16	M12x1.5	□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	l
ø20	(Stroke/3) + 6
ø25	(Stroke/3.25) + 7
ø32	(Stroke/3.25) + 7
ø40	(Stroke/3.25) + 7

* Dimensions of other mountings are the same as those of the standard. Refer to pages 92 to 97.
 * For the dimensions of the accessories, refer to page 98.

- 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/
 COV/PIN2
 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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol ● Double acting cylinder single rod



Specifications

Item	CMK2-T			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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 $^{\circ}\text{C}$	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

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)		Min. stroke (mm)	
		Without bellows	With bellows	Without bellows Bellows "L"	Bellows "J"
$\varnothing 20$	25/50/75/100/	750	650	5	Not supported
$\varnothing 25$	150/200/250/				
$\varnothing 32$	300				
$\varnothing 40$					

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (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)	
$\varnothing 20$	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	0.01
$\varnothing 25$	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36	0.01
$\varnothing 32$	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39	0.02
$\varnothing 40$	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 $0.02 \times \frac{\text{Product stroke (50)}}{10} = 0.10$ 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
$\varnothing 20$	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
$\varnothing 25$	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
$\varnothing 32$	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
$\varnothing 40$	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

E Option
*2, *3

F Accessory
*4

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

B Bore size (mm)		
20	ø20	*7
25	ø25	*7
32	ø32	
40	ø40	

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

D Stroke (mm)		
Bore size	Stroke	Custom stroke
ø20	5 to 750	In 1 mm increments
ø25	5 to 750	
ø32	5 to 750	
ø40	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 included)
B2	Clevis bracket (pin and snap ring included)

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke of 50 mm.
- *2 : Refer to page 124 for the max. and min. strokes 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 84 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 : ø20 mm
- C** Port thread : Rc thread
- D** Stroke : 100 mm
- E** Option : Boss cutoff
- F** Accessory : Rod eye

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

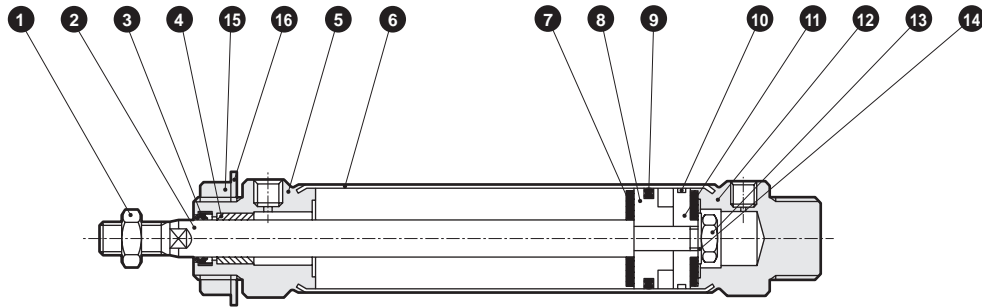
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

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

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	8	Piston A	Aluminum alloy	
2	Piston rod	ø20, ø25: Stainless steel ø32, ø40: Carbon steel	Industrial chrome plating	9	Piston packing	Fluoro rubber	
3	Rod packing	Fluoro rubber		10	Wear ring	Special resin	
4	Bush	ø20: Dry bearing ø25, ø32, ø40: 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 91 to 97.

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

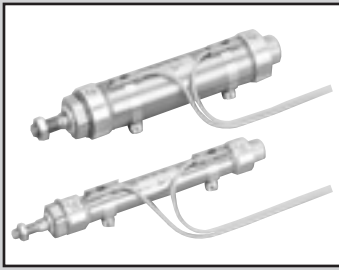
FJ

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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$
 Port size: Rc 1/8

JIS symbol ● Double acting cylinder single rod



Specifications

Item	CMK2			
	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Bore size	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2}_0$ (Up to 200), $^{+2}_0$ (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

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

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

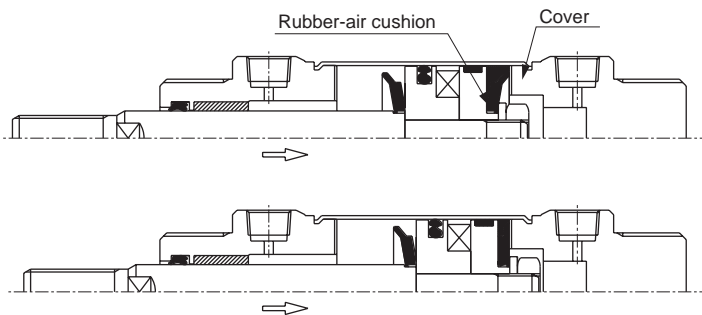
Min. stroke with switch

(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)																		
$\varnothing 20$	10	25	30	35	25	35	50	55	55	50	55	55	50	55				
$\varnothing 25$	10	25	30	35	25	35	50	55	55	50	55	55	50	55				
$\varnothing 32$	10	25	30	35	25	35	50	55	55	50	55	55	50	55				
$\varnothing 40$	10	25	30	35	25	35	50	55	55	50	55	55	50	55				

*1: Up to 3 switches can be mounted.

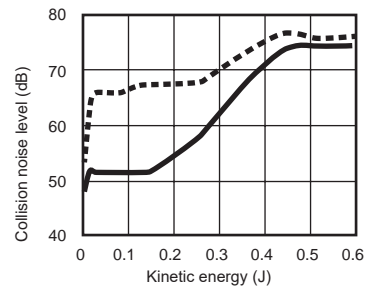
Rubber-air cushion mechanism



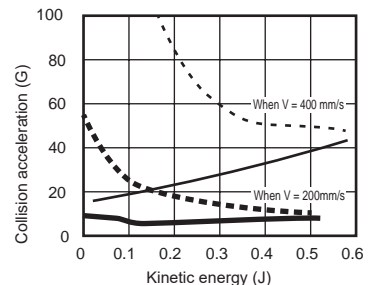
When pulled

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 LED

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

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
∅20	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
∅25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
∅32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
∅40	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 0.02x $\frac{\text{Product stroke (50)}}{10}$ = 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

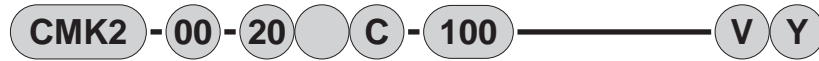
(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa								
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
∅20	Push	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
∅25	Push	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
∅32	Push	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
∅40	Push	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

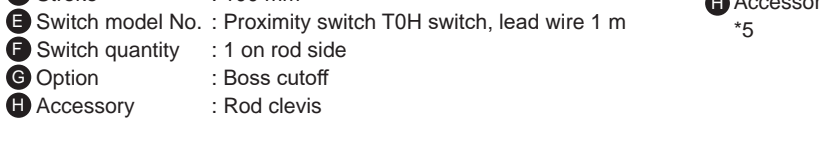
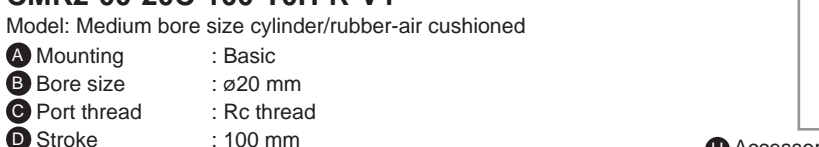
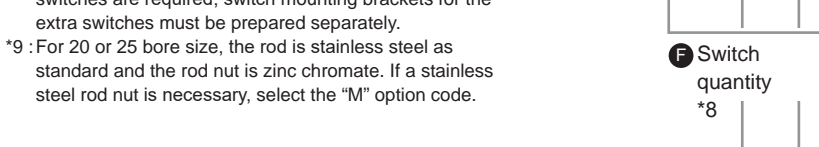
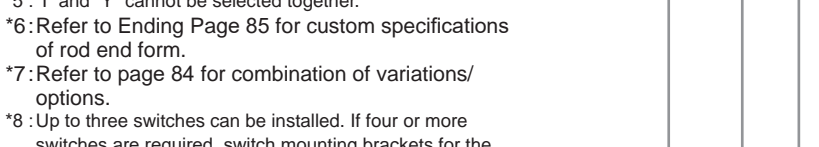
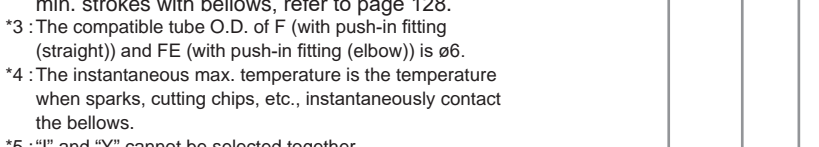
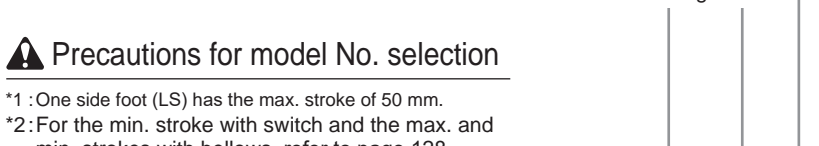
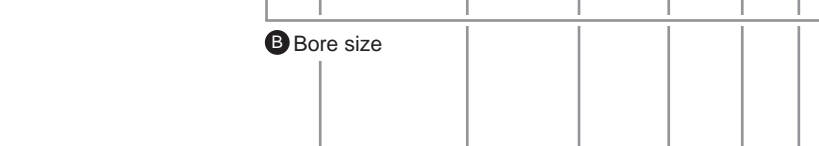
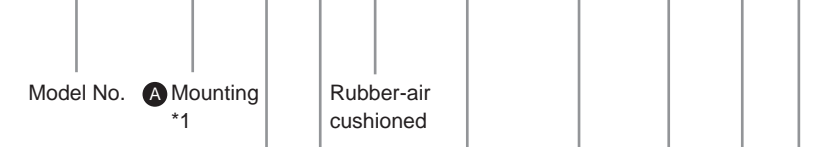
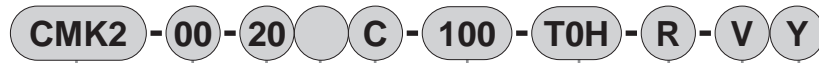
CMK2-*C Series

How to order

● No switch (built-in magnet for switch)



● With switch (built-in magnet for switch)



⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 128.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is ø6.
- *4 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- *5 : "I" and "Y" cannot be selected together.
- *6 : Refer to Ending Page 85 for custom specifications of rod end form.
- *7 : Refer to page 84 for combination of variations/options.
- *8 : Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
- *9 : For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Example of model No.]

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

Model: Medium bore size cylinder/rubber-air cushioned

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

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

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

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

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

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

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

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

Ⓖ 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		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

Bore size (Item **B** on page 130)

Switch model No. (Item **E** on page 130)

- Switch body only

SW - T0H

Switch model No. (Item **E** on page 130)

- Mounting bracket set

CMK2 - T - 20

Bore size (Item **B** on page 130)

Mounting bracket

How to order mounting bracket

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

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

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

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

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

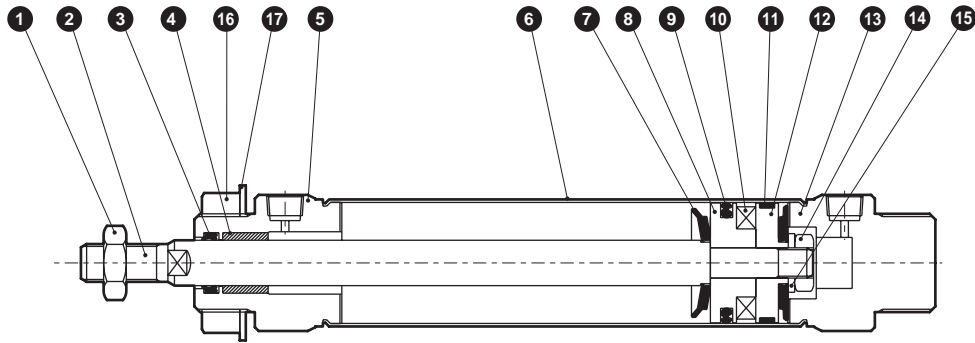
FJ

FK

Spd
Contr

Ending

SCP*3 Internal structure and parts list



Cannot be disassembled

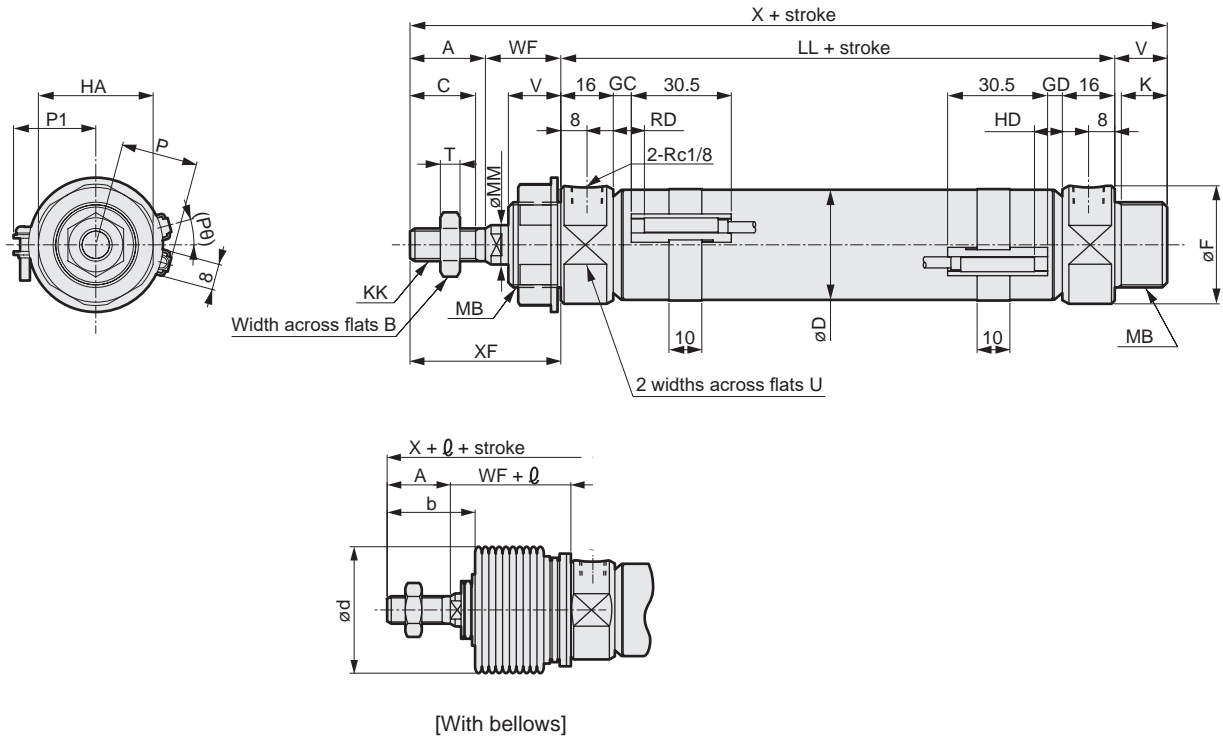
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	11	Wear ring	Polyacetal	
2	Piston rod	ø20/ø25: Stainless steel ø32/ø40: Carbon steel	Industrial chrome plating	12	Piston B	Aluminum alloy	
3	Rod packing	Nitrile rubber		13	Head cover	Aluminum alloy	
4	Bush	ø20: Dry bearing ø25/ø32/ø40: 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 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED 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
ø20	20	13	18	21.4	28	26	12	M8x1.0	66	M18x1.5	10	5	24	14	24	124
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	6	30	16	23	131
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	6	34	16	23	131
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	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								
ø20	44	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6		
ø25	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/3.25) + 7		
ø32	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/3.25) + 7		
ø40	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/3.25) + 7		

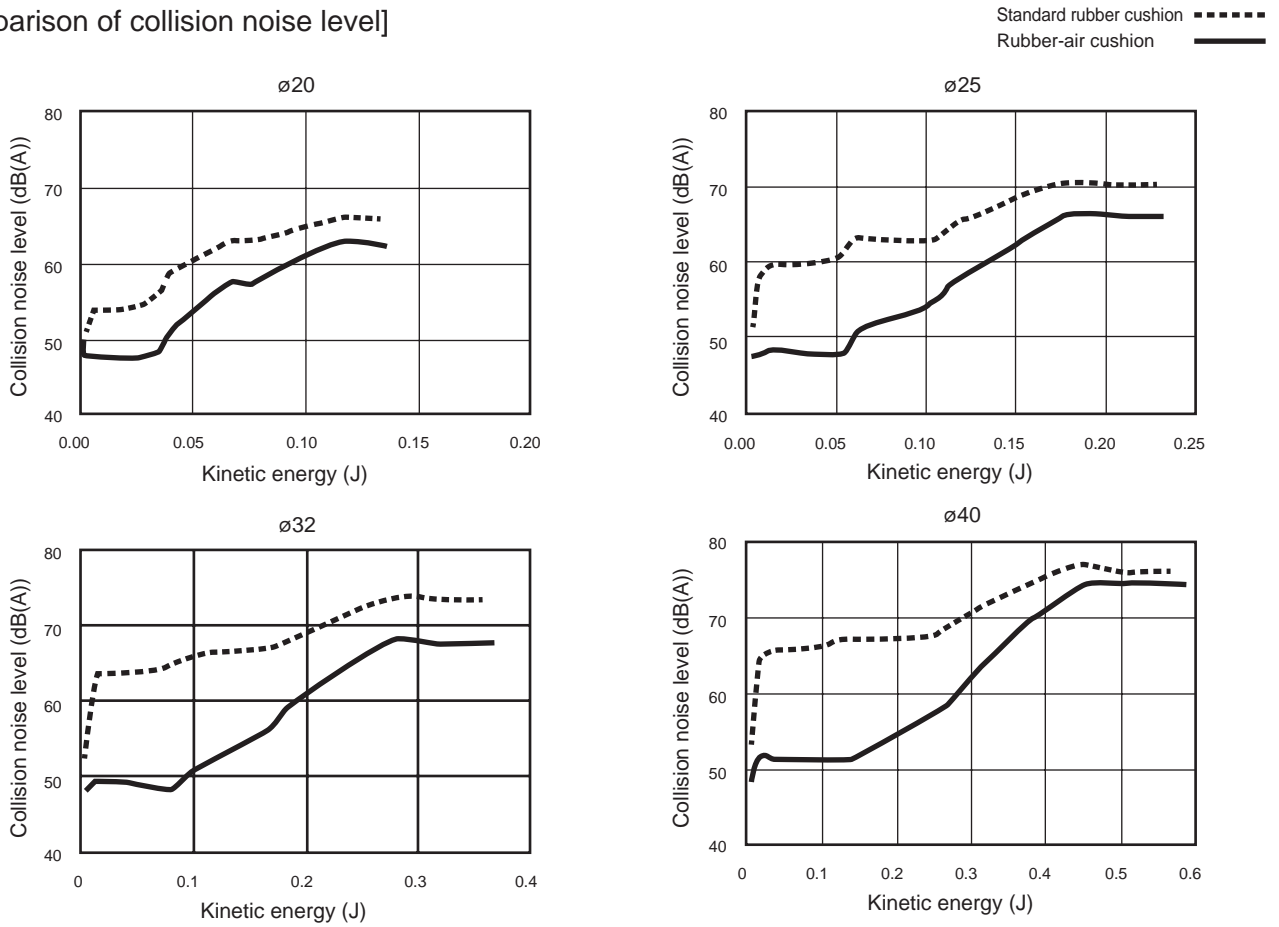
* Refer to pages 92 to 97 for mountings other than the basic one (00).
* For the dimensions of the accessories, refer to page 98.

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

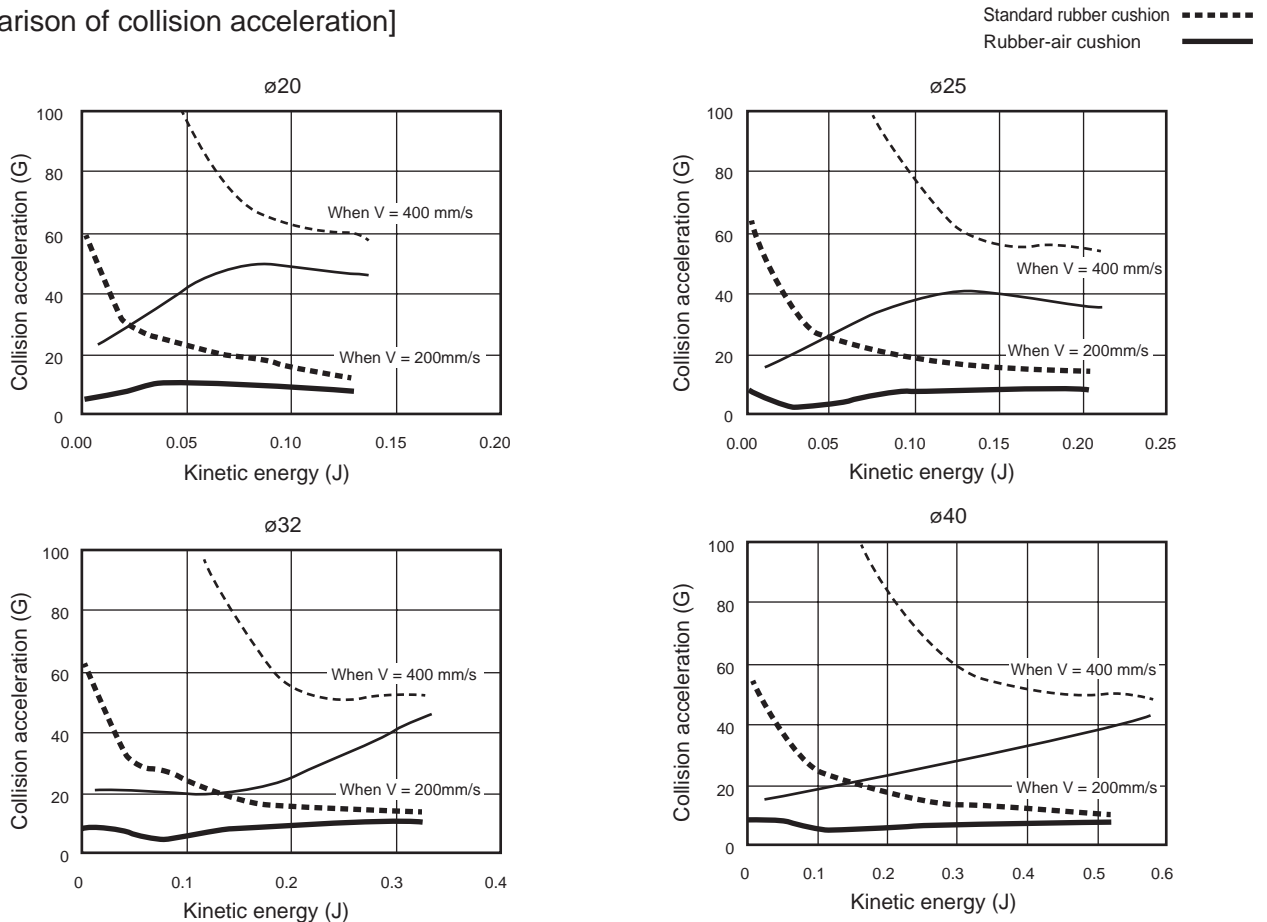
- SCP*3
- CMK2**
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/
MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd
Contr
- Ending

Technical data

[Comparison of collision noise level]

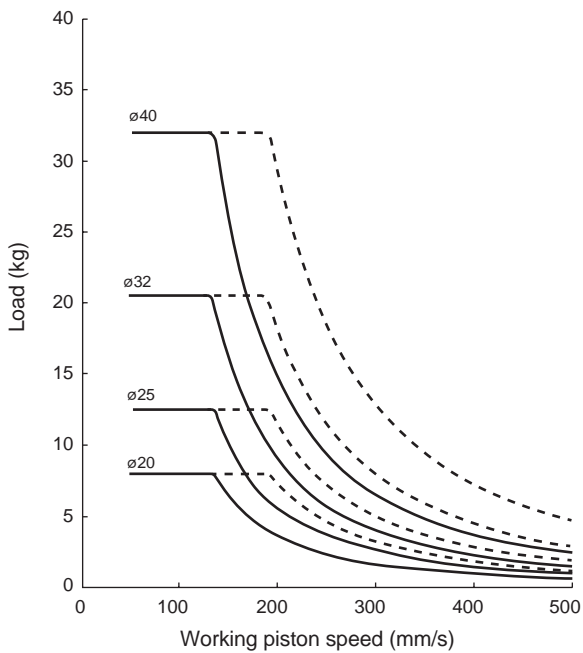


[Comparison of collision acceleration]



Technical data

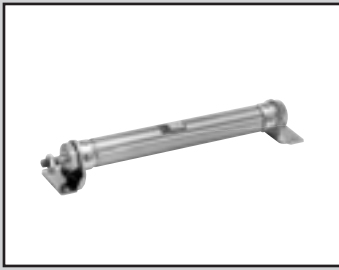
[Allowable energy value]



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

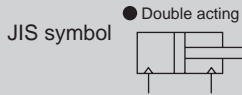
SCP*3
 CMK2
 CMA2
 SCM
 SCG
 SCA2
 SCS2
 CKV2
 CAV2/
 COVPIN2
 SSD2
 SSG
 SSD
 CAT
 MDC2
 MVC
 SMG
 MSD/
 MSDG
 FC*
 STK
 SRL3
 SRG3
 SRM3
 SRT3
 MRL2
 MRG2
 SM-25
 ShkAbs
 FJ
 FK
 Spd
 Contr
 Ending



Medium bore size cylinder
 double acting/air cushioned

CMK2-C Series

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



Specifications

Item	CMK2-C			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Actuation	Double acting/air cushioned			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.1 (≈ 15 psi, 1 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)			
Port size	Rc 1/8			
Stroke tolerance mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	50 to 700			
Cushion	Air cushion			
Effective cushion length mm	12			
Allowable absorbed energy J	0.34	0.46	0.88	1.27
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			

Stroke

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V				
Applications	For 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		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 (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA		
Indicator	LED (Lit when ON)		LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 µA or less				0 mA								
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142		1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142			

*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.
 *2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.
 *3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (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)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product weight of CMK2-C-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 0.02x $\frac{\text{Product stroke (50)}}{10}$ =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
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-C Series

- 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

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke

E Switch model No.

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 of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 136.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is $\phi 6$.
- *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 84 for combination of variations/options.
- *8 : Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
- *9 : For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Example of model No.]

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

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

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

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

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

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

D Stroke (mm)		
Bore size	Stroke *2	Custom stroke
$\phi 20$	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		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	1-color LED	3-wire
T3PH*	T3PV*			●		
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*		●			
T3YH*	T3YV*		●	1-color LED 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		

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

How to order switch

- Switch body + mounting bracket set

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

Switch model No. (Item **E** on page 138) Bore size (Item **B** on page 138)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on page 138)

- Mounting bracket set

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

Mounting bracket Bore size (Item **B** on page 138)

How to order mounting bracket

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

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

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

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

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

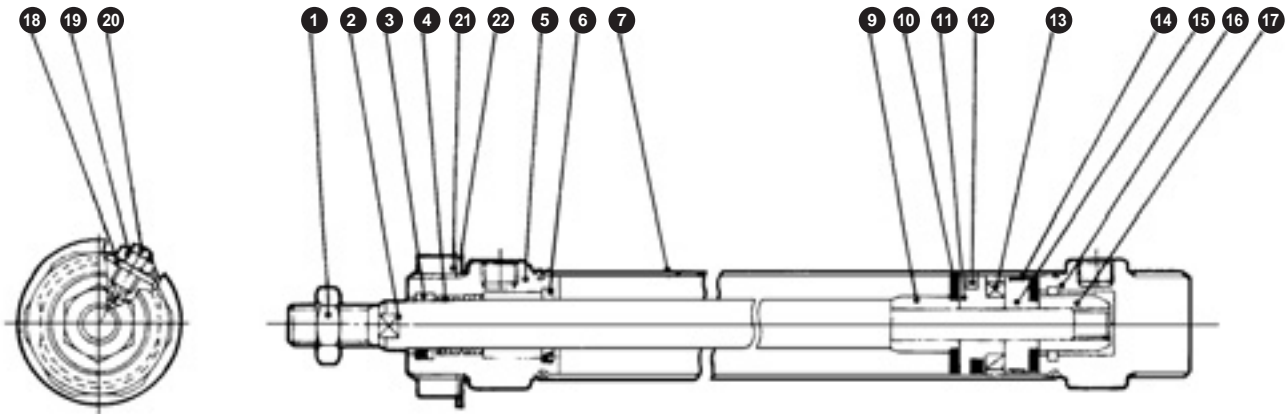
FK

Spd
Contr

Ending

CMK2-C Series

SCP*3 Internal structure and parts list



Cannot be disassembled

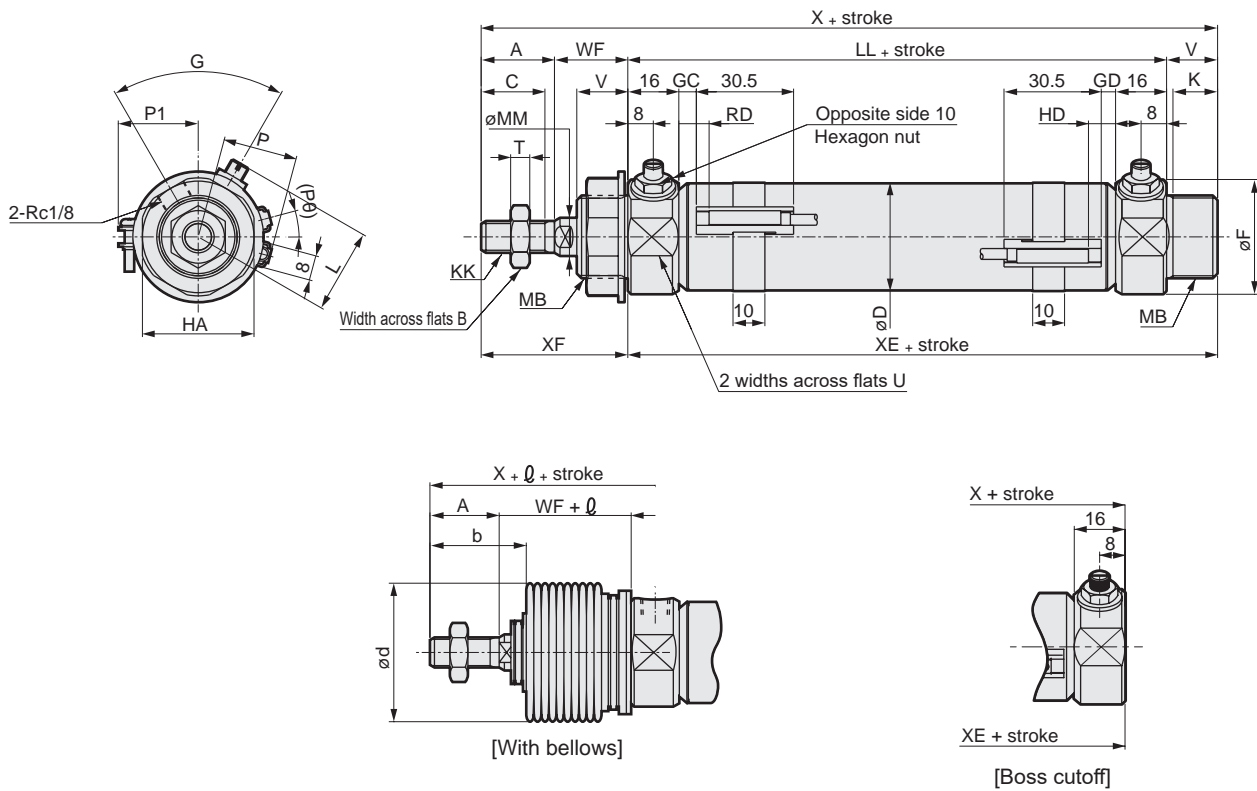
● Note: This product is caulked and cannot be disassembled.

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

Dimensions



● Basic (00)



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

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

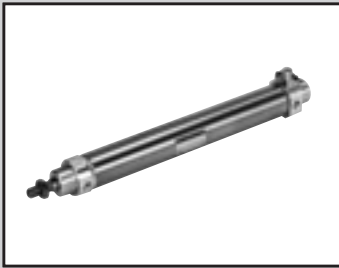
Code	A	B	C	D	F	G	HA	K	KK	L	LL	MB	MM	T	U	V	WF	X	XE	XF
Bore size (mm)																				
ø20	20	13	18	21.4	28	70	26	12	M 8x1.0	23 to 25	66	M18x1.5	10	5	24	14	24	124	80	44
ø25	23	17	20	26.4	32	60	35	14	M10x1.25	25 to 27	69	M26x1.5	12	6	30	16	23	131	85	46
ø32	23	17	20	33.6	36	60	35	14	M10x1.25	25 to 26.5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

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

* Dimensions of other mountings are the same as those of the standard. Refer to pages 92 to 97.
 * For the dimensions of the accessories, refer to page 98.

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

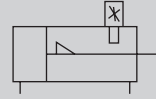
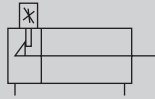


Medium bore size cylinder/
 double acting/position locking

CMK2-Q Series

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

JIS symbol



Specifications

Item	CMK2-Q			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Be sure to read the Safety precautions for the position locking on pages 200 to 203 before use.

Switch specifications

● 1-color/2-color LED

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

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

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

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

Cylinder weight

● CMK2-Q-H

(Unit: kg)

Item/mounting	Product weight when stroke (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)			
ø20	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
ø25	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39		0.005	0.01
ø32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
ø40	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 (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)			
ø20	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
ø25	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39		0.005	0.01
ø32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
ø40	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 $\frac{\text{Product stroke (50)}}{10}$ =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									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-Q Series

SCP*3 How to order

No 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

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 142 for min. stroke with switch.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is $\phi 6$.
- *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 84 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 : $\phi 20$ mm
- C Port thread : Rc thread
- D Stroke : 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	Description
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 included)
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 (made-to-order product)
GN	G thread (made-to-order product)

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

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

F Switch model No.						
Axial lead wire		Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●	□	1-color LED	2-wire
T2H*	T2V*		□	●		
T3H*	T3V*		□	●	1-color LED	3-wire
T3PH*	T3PV*		□	●		
T2WH*	T2WV*		□	●	2-color LED	2-wire
T2YH*	T2YV*		□	●		
T3WH*	T3WV*		□	●	2-color LED	3-wire
T3YH*	T3YV*		□	●		
T2JH*	T2JV*	□	●	1-color LED 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 included)
B2	Clevis bracket (pin and snap ring included)

How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

Bore size (Item **B** on page 144)

Switch model No. (Item **F** on page 144)

- Switch body only

SW - T0H

Switch model No. (Item **F** on page 144)

- Mounting bracket set

CMK2 - T - 20

Bore size (Item **B** on page 144)

Mounting bracket

How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Basic (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB)	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

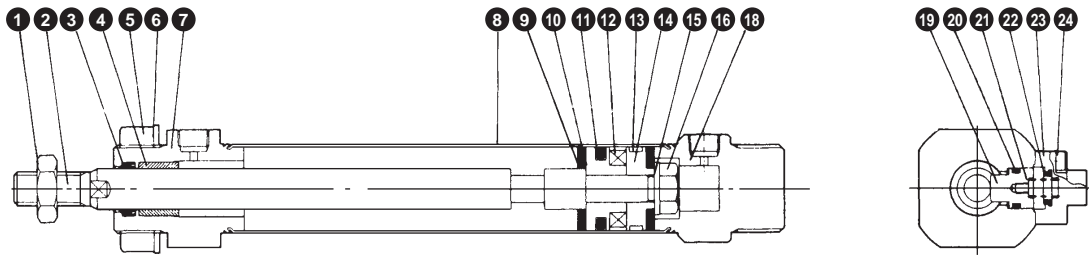
Spd
Contr

Ending

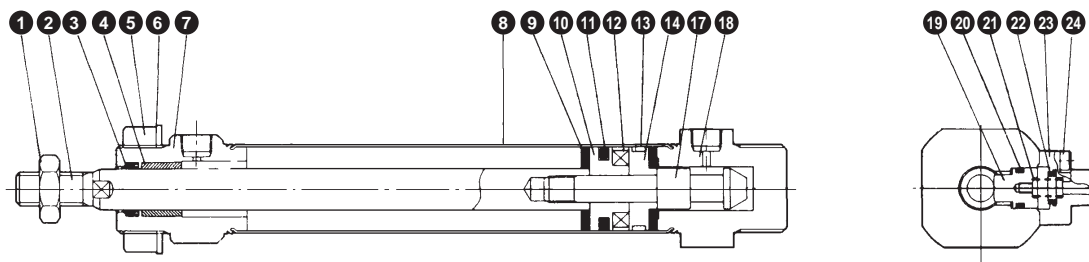
CMK2-Q Series

Internal structure and parts list

● CMK2-Q (rod side position locking)



● CMK2-Q (head side position locking)



Cannot be disassembled

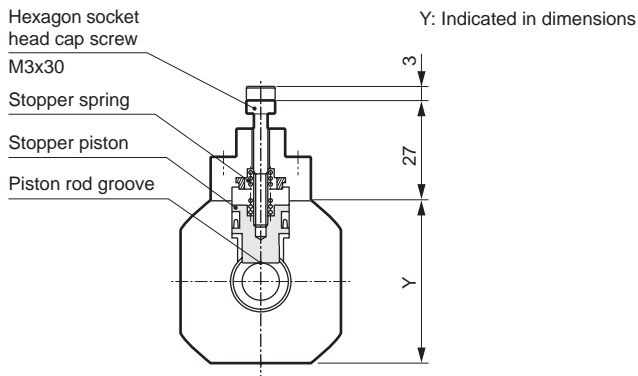
Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	12	Magnet	Plastic	
2	Piston rod	ø20, ø25: Stainless steel ø32, ø40: 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	ø20 ø25, ø32, ø40 *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.

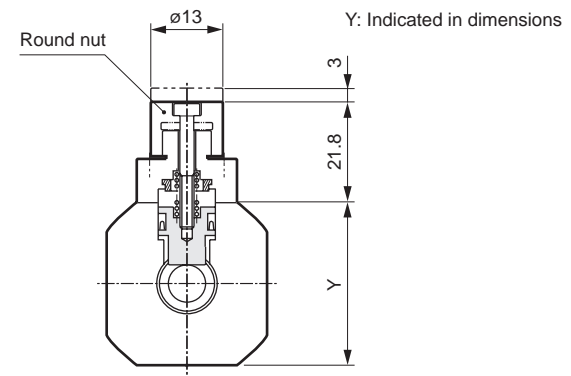
[Explanation of manual override]

● 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)

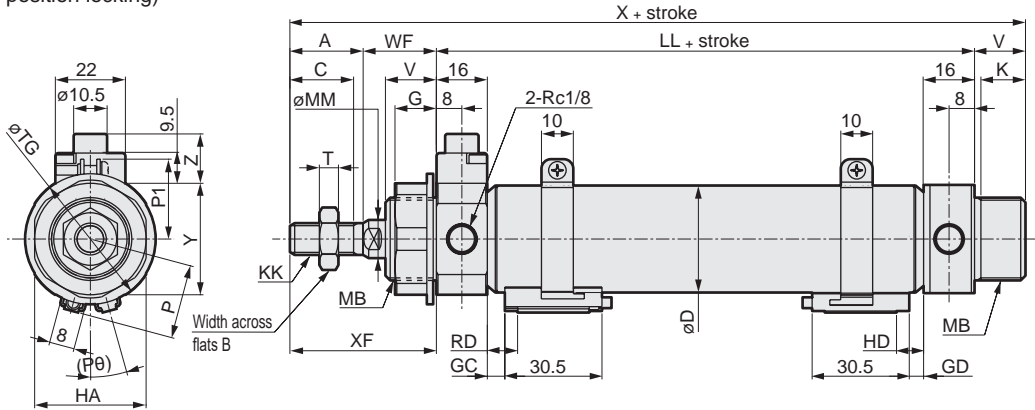


By rotating the round nut leftward (counterclockwise), the stopper piston moves and the lock is released. Rotating the round nut to the right (clockwise) to set it in the locked position causes the stopper piston to return. When it fits into the piston rod groove, the piston is locked.

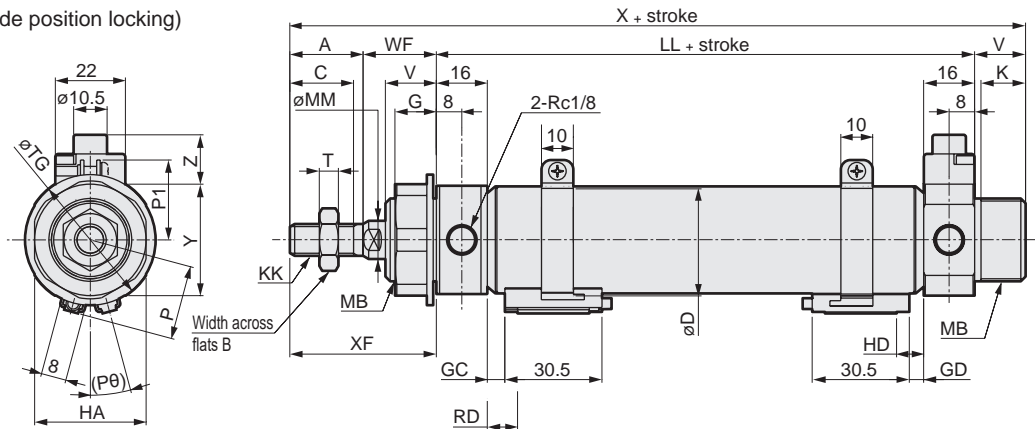
Dimensions



- 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 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.

Code	Basic (00) Basic dimensions										
Bore size (mm)	A	B	C	D	G	HA	K	KK	LL	MB	MM
ø20	20	13	18	21.4	(11)	26	12	M 8x1.0	66	M18x1.5	10
ø25	23	17	20	26.4	(13)	35	14	M10x1.25	69	M26x1.5	12
ø32	23	17	20	33.6	(13)	35	14	M10x1.25	69	M26x1.5	12
ø40	25	19	22	41.6	(13)	35	14	M12x1.5	73	M26x1.5	14

Code									With switch		
	T	TG	V	WF	X	XF	Y	Z	T0, T5, T2, T3		
Bore size (mm)									GC	GD	RD
ø20	5	29	14	24	124	44	31	15.5	4	3	8
ø25	6	41	16	23	131	46	35	15.5	5.5	4.5	9.5
ø32	6	41	16	23	131	46	35	15.5	5.5	4.5	9.5
ø40	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			
ø20	7	6	5	10	9	17.3	19.5	22
ø25	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18
ø32	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15
ø40	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 92 to 97.

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

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

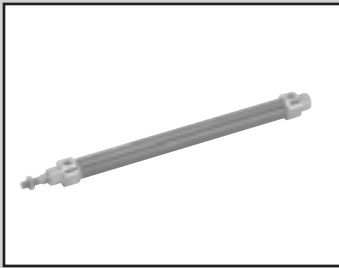
FJ

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



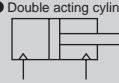
Medium bore size cylinder
 double acting/fine speed

CMK2-F Series

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

JIS symbol

● Double acting cylinder single rod



Specifications

Item	CMK2-F			
	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
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

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)		Min. stroke (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 is available in 1 mm increments.

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

Min. stroke with switch

(Unit: mm)

Switch quantity Bore size (mm)	1					2					3				
	Proximity			Reed		Proximity			Reed		Proximity			Reed	
	T2, T3	T2W, T3W	T1, T ^{*Y*}	T0, T5	T8	T2, T3	T2W, T3W	T1, T ^{*Y*}	T0, T5	T8	T2, T3	T2W, T3W	T1, T ^{*Y*}	T0, T5	T8
$\phi 20$			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 LED

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

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(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 $\frac{\text{Product stroke (50)}}{10}$ =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
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-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

● No 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

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 of 50 mm.
- *2 : Refer to page 148 for min. stroke 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 84 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 : $\varnothing 20$ mm
- C** Port thread : Rc thread
- D** Stroke : 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	Description
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 included)
TA	Rod side trunnion
TB	Head side trunnion

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

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

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

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

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

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

G Option	
M	Piston rod material (stainless steel) *7
V	Boss cutoff

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

How to order switch

- Switch body + mounting bracket set

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

Bore size (Item **B** on page 150)

Switch model No. (Item **E** on page 150)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on page 150)

- Mounting bracket set

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

Bore size (Item **B** on page 150)

Mounting bracket

How to order mounting bracket

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

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

*2: For axial foot (two-sided), 2 sets of 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 91 to 97.

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

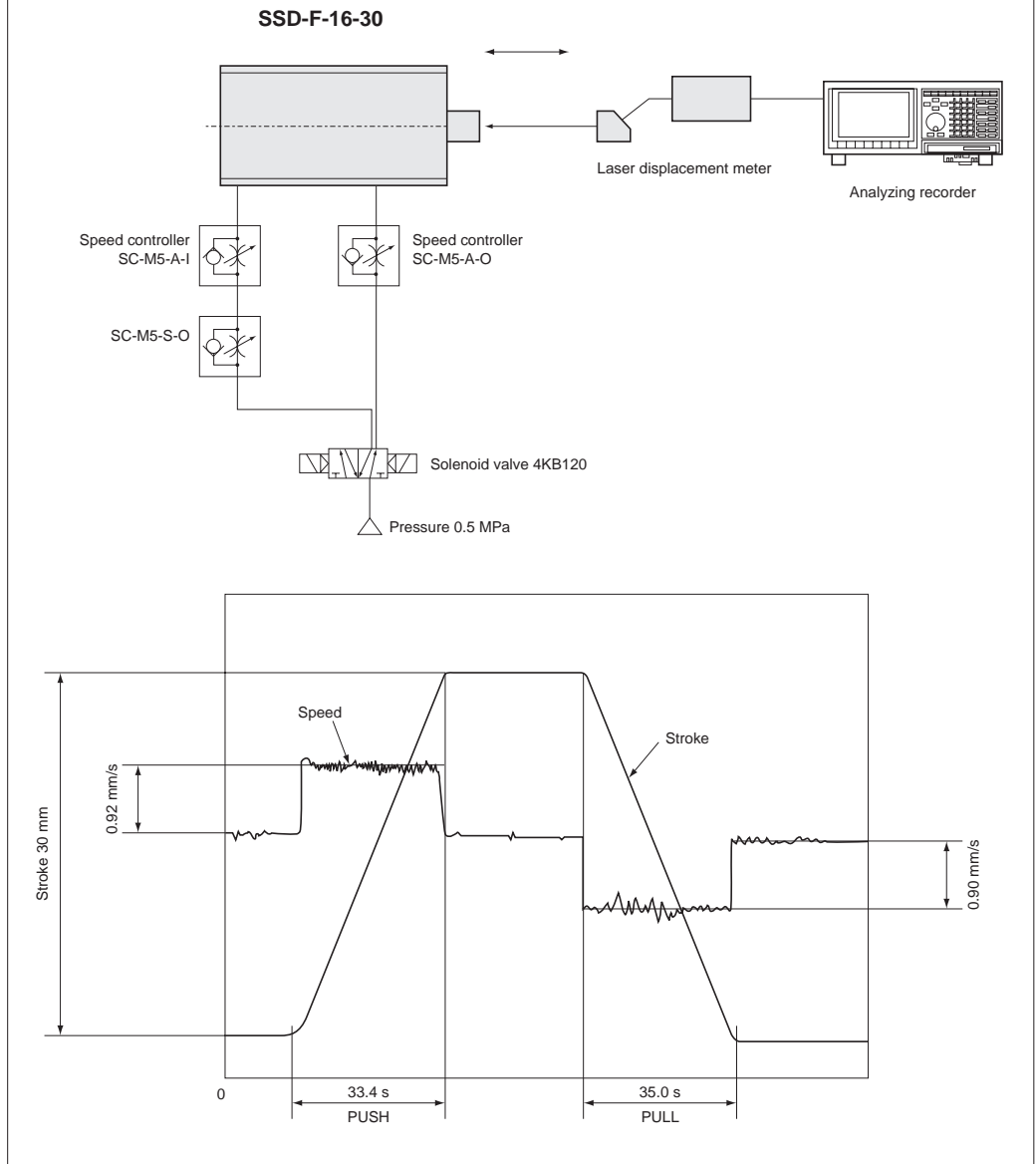
FK

Spd
Contr

Ending

Measurement data

● Measuring method



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

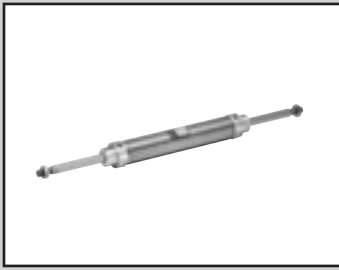
FJ

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/double rod

CMK2-D Series

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

JIS symbol ● Double acting cylinder double rod



Specifications

Item	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

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)		Min. stroke (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 is available in 1 mm increments.

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

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

Min. stroke with switch

(Unit: mm)

Switch quantity Bore size (mm)	1						2						3					
	Proximity			Reed			Proximity			Reed			Proximity			Reed		
	T2, T3	T2W, T3W	T1, T ⁺ Y ⁺	T0, T5	T8		T2, T3	T2W, T3W	T1, T ⁺ Y ⁺	T0, T5	T8		T2, T3	T2W, T3W	T1, T ⁺ Y ⁺	T0, T5	T8	
$\phi 20$	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 LED

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

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (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)			
ø20	0.21	0.36	0.29	0.27	0.26	Refer to the weight in the switch specifications.	0.005	0.02
ø25	0.32	0.58	0.45	0.47	0.42		0.005	0.02
ø32	0.36	0.62	0.49	0.51	0.46		0.009	0.03
ø40	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									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push/Pull	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push/Pull	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push/Pull	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-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

No 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

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 of 50 mm.

*2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 154.

*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 84 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-J-I

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 : 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 temp. 100°C, instantaneous max. temp. 200°C
- H Accessory : Rod eye

Code	Description
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 (made-to-order product)
GN	G thread (made-to-order product)

D Stroke (mm)		
Bore size	Stroke *2	Custom stroke
$\phi 20$	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		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	1-color LED	3-wire
T3PH*	T3PV*			●		
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*		●	2-color LED	3-wire	
T3YH*	T3YV*		●			
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

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

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

G Option			
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
F	With push-in fitting (straight)		
FE	With push-in fitting (elbow)		
M	Piston rod material (stainless steel) *8		
P6	Copper and PTFE free		

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

How to order switch

- Switch body + mounting bracket set

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

Bore size (Item **B** on page 156)

Switch model No. (Item **E** on page 156)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on page 156)

- Mounting bracket set

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

Bore size (Item **B** on page 156)

Mounting bracket

How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Basic (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA)	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

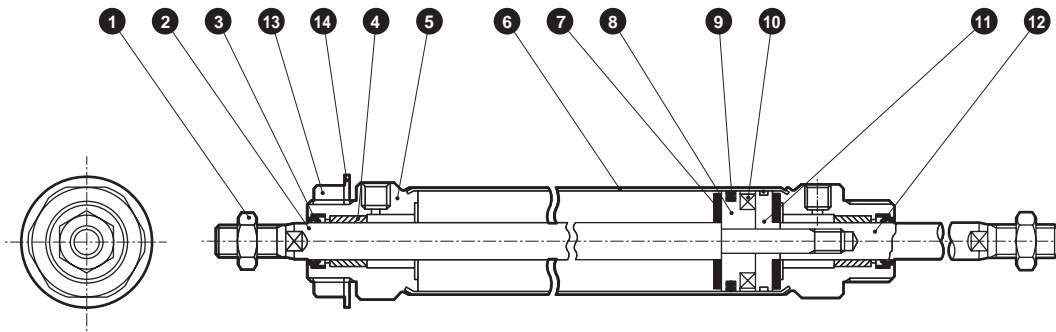
FK

Spd
Contr

Ending

CMK2-D Series

SCP*3 Internal structure and parts list



Cannot be disassembled

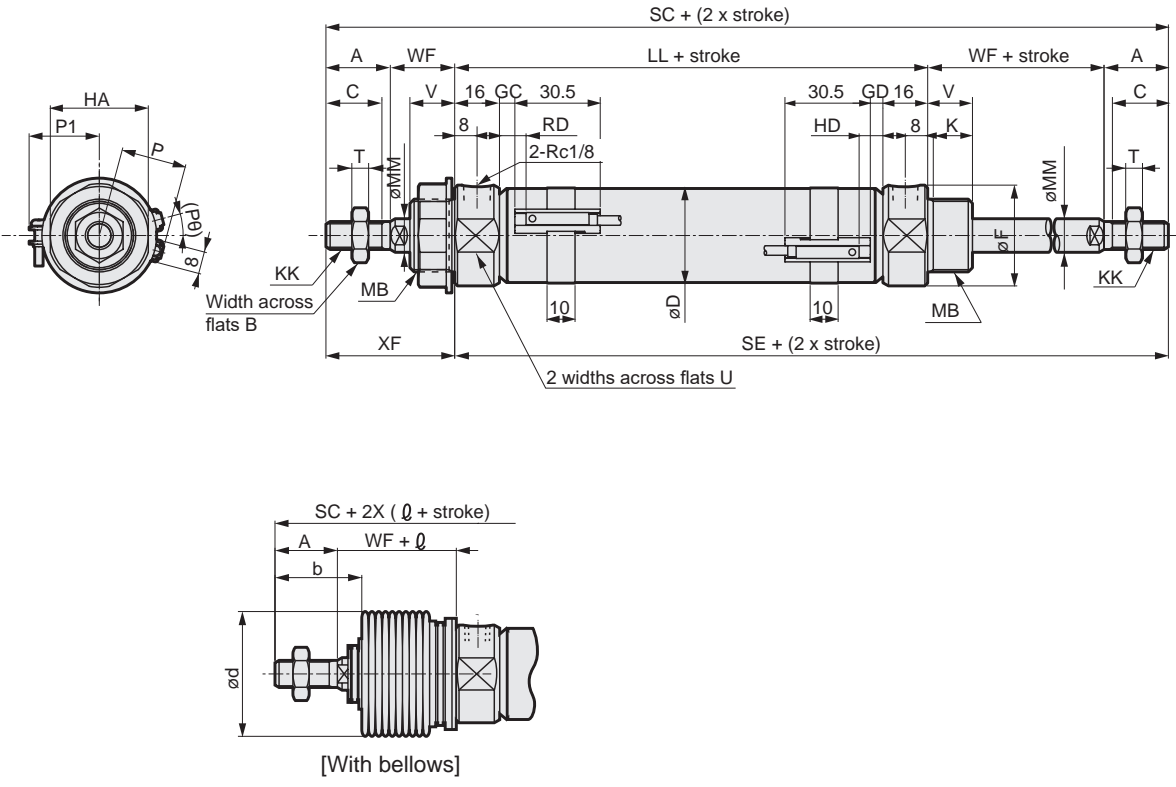
● Note: This product is caulked and cannot be disassembled.

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	ø20, ø25: Stainless steel ø32, ø40: Carbon steel	Industrial chrome plating	12	Piston rod B	ø20, ø25: Stainless steel ø32, ø40: Carbon steel	Industrial chrome plating
3	Rod packing	Nitrile rubber		13	Nut	Steel	Zinc chromate
4	Bush	ø20: Dry bearing ø25, ø32, ø40: 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 198 for HD, RD and protruding dimensions of T1, T8* and 2-color LED switches.
 *2 : For the l dimension, round up below the decimal point.
 *3 : The positions for the left and right widths across flats are unspecified.

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

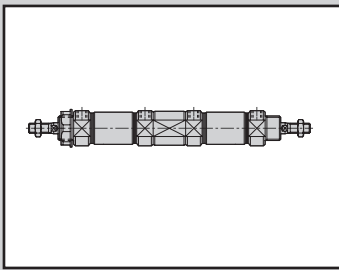
Code	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	XF	SC	SE	With switch	
																			T0, T5, T2, T3	GC
ø20	20	13	18	21.4	28	26	12	M 8x1.0	66	M18x1.5	10	5	24	14	24	44	154	110	4	3
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	6	30	16	23	46	161	115	5.5	4.5
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	6	34	16	23	46	161	115	5.5	4.5
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	14	7	43	16	23	48	169	121	7.5	6.5

Code	With bellows											
	T2W, T3W				P	P1	(Pθ)°	b	d	l		
Bore size (mm)	RD	HD	GC	GD								
ø20	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6
ø25	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke/3.25) + 7
ø32	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke/3.25) + 7
ø40	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke/3.25) + 7

* Dimensions of other mountings are the same as those of the standard. Refer to pages 92 to 97.
 * For the dimensions of the accessories, refer to page 98.

- 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/
 COV/PIN2
 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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol

● Double acting cylinder back to back



Specifications

Item	CMK2-B				
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V				
Applications	For 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 (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA		
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)				
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 µA or less				0 mA								
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142		1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142				

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (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)			
ø20	0.17	0.32	0.23	0.03	0.18	0.09	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.41	0.03	0.29	0.18		0.005	0.01
ø32	0.30	0.56	0.45	0.05	0.31	0.20		0.009	0.02
ø40	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 $\frac{\text{Product stroke (50)}}{10}$ = 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

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

[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 $\frac{\text{Product stroke (50)}}{10}$ = 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
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-B Series

How to order

No switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Mounting B Bore size

C Port thread

D Stroke

D Stroke

E Switch model No.

E Switch model No.

F Switch quantity
*7

F Switch quantity

G Option
*2
*3

H Accessory

Code	Description
A Mounting	
00	Basic
LB	Axial foot (Both sides)
FA	Rod side flange

B Bore size (mm)		
20	∅20	*8
25	∅25	*8
32	∅32	
40	∅40	

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

D Stroke (mm)		
Bore size	Stroke *1	Custom stroke
∅20	5 to 750	In 1 mm increments
∅25	5 to 750	
∅32	5 to 750	
∅40	5 to 750	

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

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

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

G Option			
		Max. ambient temp. ;	Instantaneous max. temp. ;
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
F	With push-in fitting (straight)		
FE	With push-in fitting (elbow)		
M	Piston rod material (stainless steel) *8		
P6	Copper and PTFE free		

H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin included)

⚠ Precautions for model No. selection

*1: For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 160.

*2: The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is ∅6.

*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 84 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.

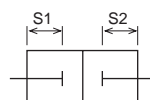
*8: For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[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 : ∅20 mm
- C** Port thread : Rc thread
- D** Stroke (S1) : 25 mm
- E** Switch model No. (S1): Reed T0H switch
Lead wire 1 m 1st stage stroke 25 mm (S1)
2nd stage stroke 50 mm (S2)
Total stroke 75 mm S1 + S2
- F** Switch quantity (S1) : 2
- D** Stroke (S2) : 50 mm
- E** Switch model No. (S2): Reed T0H switch, lead wire 1 m
- F** Switch quantity (S2) : 1 on rod side
- G** Option : Bellows, max. ambient temp. 100°C, instantaneous max. temp. 200°C
- H** Accessory : Rod eye



How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

Bore size (Item **B** on page 162)

Switch model No. (Item **E** on page 162)

- Switch body only

SW - T0H

Switch model No. (Item **E** on page 162)

- Mounting bracket set

CMK2 - T - 20

Bore size (Item **B** on page 162)

Mounting bracket

How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Basic (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB)	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

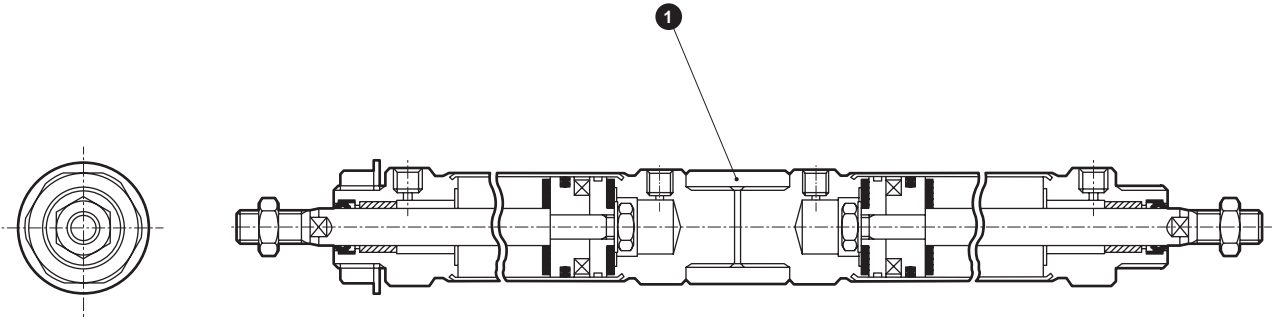
Spd
Contr

Ending

CMK2-B Series

SCP*3 Internal structure and parts list

- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/
COVPIN2
- 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



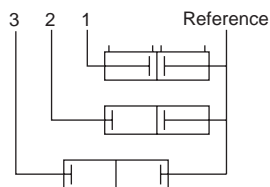
● Note: This product is caulked and cannot be disassembled.

Cannot be disassembled

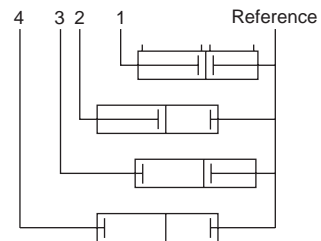
No.	Part name	Material	Remarks
1	Adaptor	Aluminum alloy	

Applications

Three positions are available when the same strokes are combined.

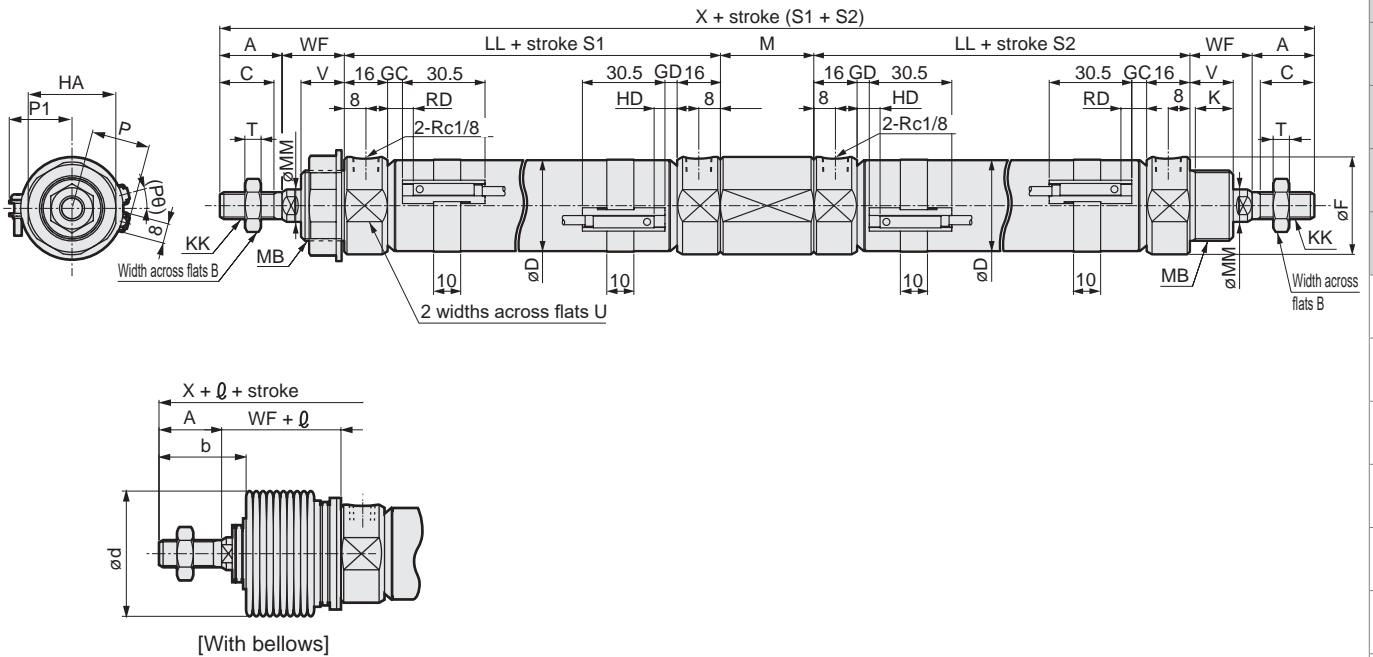


Four positions are available when different strokes are combined.



Dimensions

● Basic (00)



1: Refer to page 198 for HD, RD and protruding dimensions of T1, T8* and 2-color LED switches.
 *2: For the \varnothing 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
ø20	20	13	18	21.4	28	26	12	M 8x1.0	66	29 to 30.5	M18x1.5	10	5	24	14	24	249 to 250.5
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	33 to 34.5	M26x1.5	12	6	30	16	23	263 to 264.5
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	33 to 34.5	M26x1.5	12	6	34	16	23	263 to 264.5
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	33 to 34.5	M26x1.5	14	7	43	16	23	275 to 276.5

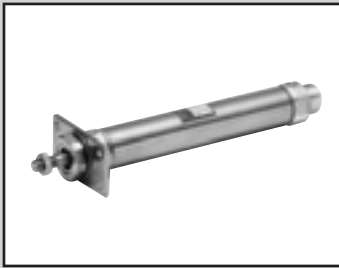
Code	With switch									With bellows				
	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ
Bore size (mm)	GC	GD	RD	HD	GC	GD	RD	HD						
ø20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6
ø25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke/3.25) + 7
ø32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5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

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 92 to 97.
- * For the dimensions of the accessories, refer to page 98.

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

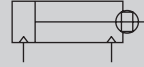


Medium bore size cylinder
 double acting/rotation-stop

CMK2-M Series

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

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



Specifications

Item	CMK2-M			
	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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 is 0 mm (except for piston rod deflection)

Stroke

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V				
Applications	For 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 (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA		
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)				
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 µA or less				0 mA								
Weight g	1 m:33	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 detailed switch specifications and dimensions.

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 00mm								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)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(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 $0.02x \frac{\text{Product stroke (50)}}{10} = 0.10$ 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
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-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

No 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

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 of 50 mm.

*2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 166.

*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 84 for combination of variations/options.

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

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

[Example of model No.]

CMK2-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 : 100 mm
- E Switch model No. : Reed T0H switch, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : Boss cutoff
- H Accessory : Rod eye

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

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

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

D Stroke (mm)		
Bore size	Stroke *2	Custom stroke
$\phi 20$	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		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●	●	1-color LED	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●	1-color LED	3-wire
T3PH*	T3PV*		●	●		
T2WH*	T2WV*		●	●		
T2YH*	T2YV*		●	●	2-color LED	2-wire
T3WH*	T3WV*		●	●		
T3YH*	T3YV*	●	●	1-color LED 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 included)
B2	Clevis bracket (pin and snap ring included)

How to order switch

- Switch body + mounting bracket set

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

Bore size (Item **E** on page 168)

Switch model No. (Item **E** on page 168)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on page 168)

- Mounting bracket set

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

Bore size (Item **E** on page 168)

Mounting bracket

How to order mounting bracket

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

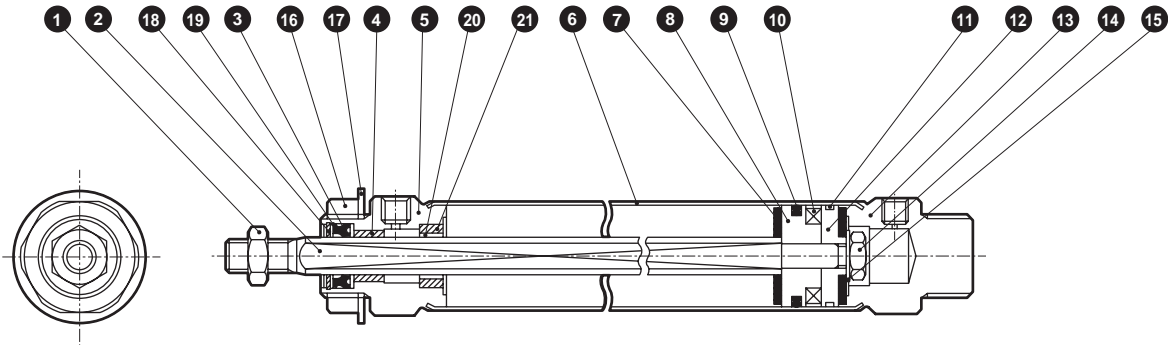
FK

Spd
Contr

Ending

CMK2-M 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	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	ø20: Dry bearing ø25, ø32, ø40: 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

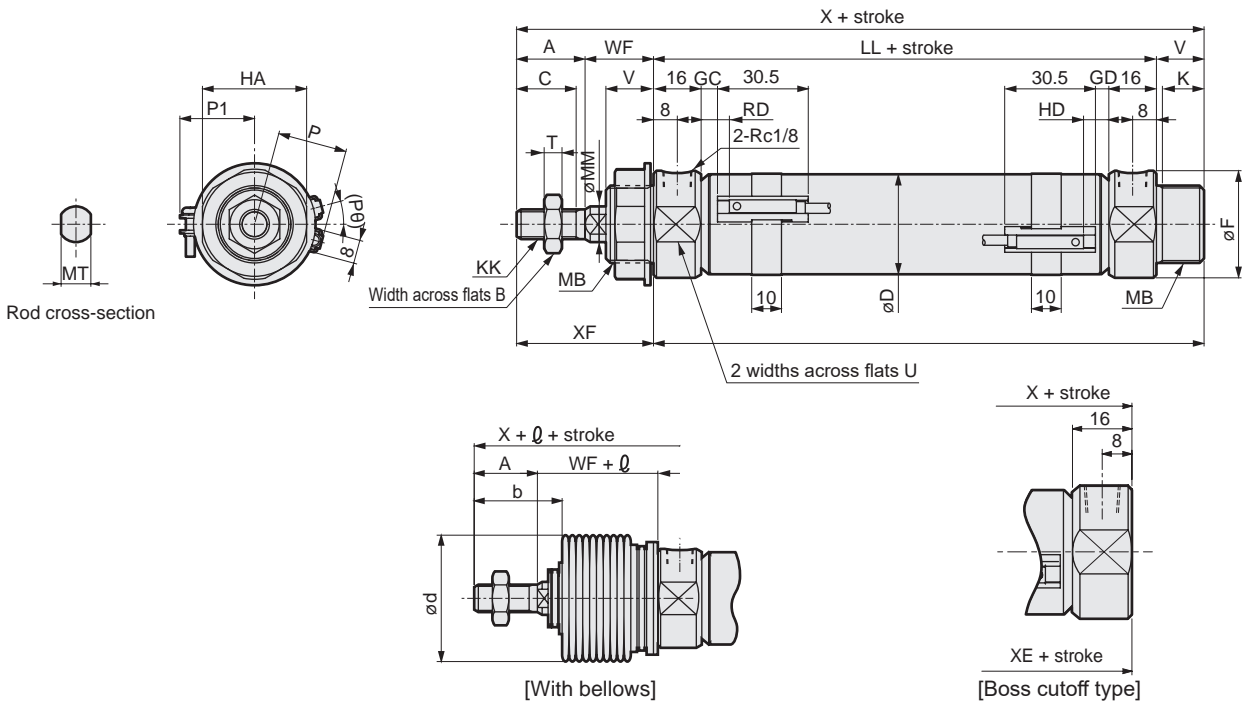
● Note : Mounting bracket will be shipped with the product.

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 198 for HD, RD and protruding dimensions of T1, T8* and 2-color LED 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
ø20	20	13	18	21.4	28	26	12	M 8x1.0	66	M18x1.5	10	8	5	24	14	24	124	80	44
ø25	23	17	20	26.4	32	35	14	M10x1.25	69	M26x1.5	12	10	6	30	16	23	131	85	46
ø32	23	17	20	33.6	36	35	14	M10x1.25	69	M26x1.5	12	10	6	34	16	23	131	85	46
ø40	25	19	22	41.6	45	35	14	M12x1.5	73	M26x1.5	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	∅	X	XE
Bore size (mm)	GC	GD	RD	HD	GC	GD	RD	HD								
ø20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6	110	66
ø25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke/3.25) + 7	115	69
ø32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke/3.25) + 7	115	69
ø40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke/3.25) + 7	121	73

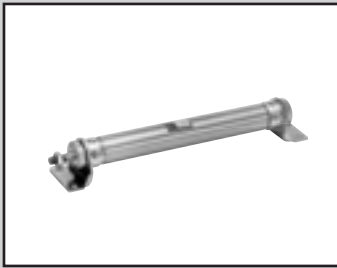
* Dimensions of other mountings are the same as those of the standard. Refer to pages 92 to 97.
 * For the dimensions of the accessories, refer to page 98.

- 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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$



Specifications

Item	CMK2-Z				
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

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

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

Min. stroke with switch

(Unit: mm)

Switch quantity	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)																		
$\varnothing 20$	10						25	30	35	25	35	50	55	55	50	55		
$\varnothing 25$	10						25	30	35	25	35	50	55	55	50	55		
$\varnothing 32$	10						25	30	35	25	35	50	55	55	50	55		
$\varnothing 40$	10						25	30	35	25	35	50	55	55	50	55		

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

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

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
ø20	0.18	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
ø25	0.28	0.54	0.41	0.43	0.52	0.28	0.52	0.38		0.005	0.01
ø32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
ø40	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 $\frac{\text{Product stroke (50)}}{10}$ = 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
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-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

No 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

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 of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 172.
- *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, cutting chips, etc., instantaneously contact the bellows.
- *5 : "I" and "Y" cannot be selected together.
- *6 : Refer to Ending Page 85 for custom specifications of rod end form.
- *7 : Refer to page 84 for combination of variations/options.
- *8 : Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
- *9 : For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Example of model No.]

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

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

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

Code	Description				
A Mounting					
00	Basic				
LB	Axial foot (Both sides)				
LS	Axial foot (One side)				
FA	Rod side flange				
FB	Head side flange				
CA	Eye bracket				
CC	Eye bracket integrated				
CC1	Eye bracket, bush pressfit				
CB	Clevis bracket (pin and split washer pin included)				
TA	Rod side trunnion				
TB	Head side trunnion				
B Bore size (mm)					
20	$\phi 20$	*9			
25	$\phi 25$	*9			
32	$\phi 32$				
40	$\phi 40$				
C Port thread					
Blank	Rc thread				
NN	NPT thread (made-to-order product)				
GN	G thread (made-to-order product)				
D Stroke (mm)					
Bore size	Stroke *2	Bore size			
$\phi 20$	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	Indicator	Lead wire
		AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED
T5H*	T5V*	Reed	●	●	No indicator lamp
T8H*	T8V*	Reed	●	●	1-color LED
T1H*	T1V*	Proximity	●	●	1-color LED
T2H*	T2V*		●	●	
T3H*	T3V*	Proximity	●	●	1-color LED
T3PH*	T3PV*	Proximity	●	●	
T2WH*	T2WV*	Proximity	●	●	2-color LED
T2YH*	T2YV*	Proximity	●	●	
T3WH*	T3WV*	Proximity	●	●	2-color LED
T3YH*	T3YV*	Proximity	●	●	
T2JH*	T2JV*	Proximity	●	●	1-color LED 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					
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) *9				
V	Boss cutoff				
P6	Copper and PTFE free (made-to-order product)				
H Accessory					
I	Rod eye				
Y	Rod clevis (pin and split washer pin included)				
B2	Clevis bracket (pin and snap ring included)				

How to order switch

● Switch body + mounting bracket set

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

Bore size (Item **B** on page 174)

Switch model No. (Item **E** on page 174)

● Switch body only

SW - **T0H**

Switch model No. (Item **E** on page 174)

● Mounting bracket set

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

Bore size (Item **B** on page 174)

Mounting bracket

How to order mounting bracket

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

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

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

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

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
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

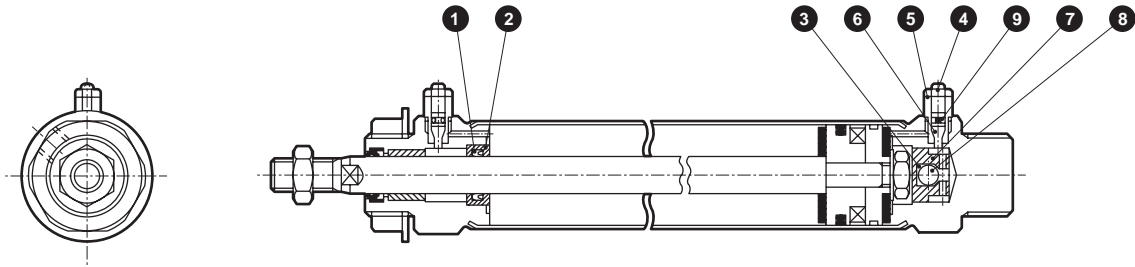
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

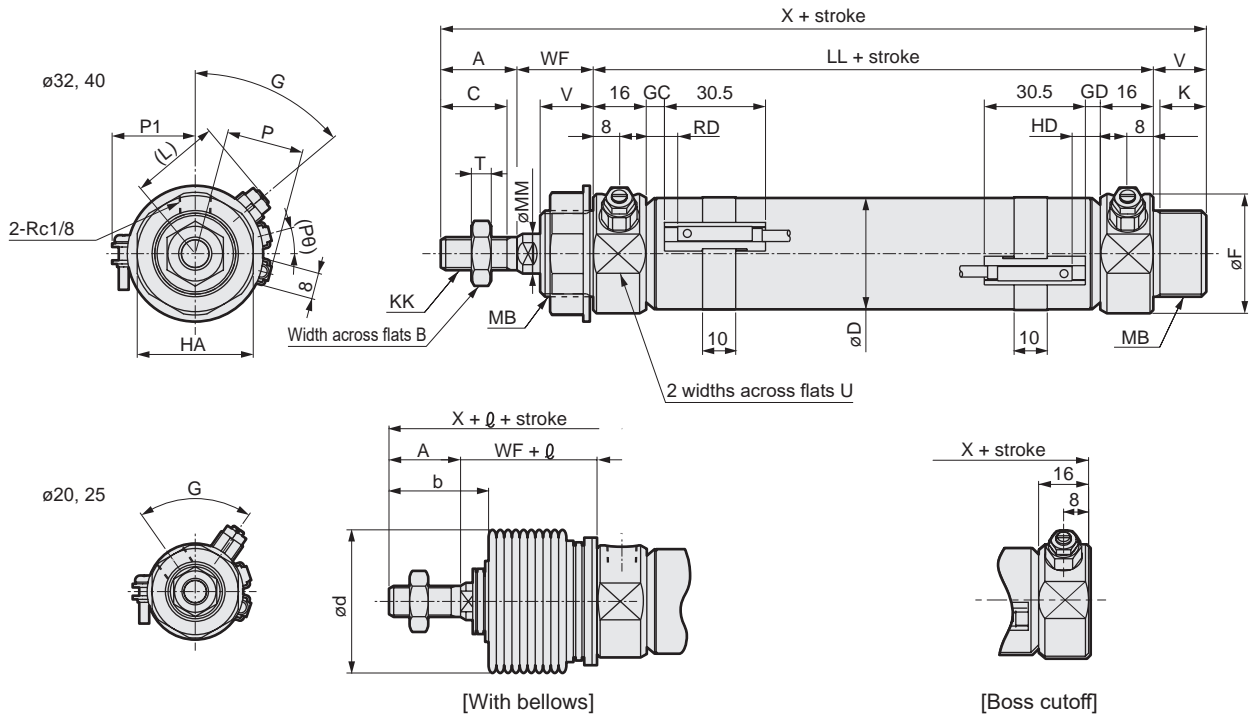
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	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 198 for HD, RD and protruding dimensions of T1, T8* and 2-color LED switches.
*2 : For the \varnothing 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	
ø20	20	13	18	21.4	28	70°	26	12	M 8x1.0	23	66	M18x1.5	10	5	24	14	24	124	
ø25	23	17	20	26.4	32	60°	35	14	M10x1.25	26	69	M26x1.5	12	6	30	16	23	131	
ø32	23	17	20	33.6	36	50°	35	14	M10x1.25	27	69	M26x1.5	12	6	34	16	23	131	
ø40	25	19	22	41.6	45	50°	35	14	M12x1.5	31	73	M26x1.5	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							
ø20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6	110
ø25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke/3.25) + 7	115
ø32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke/3.25) + 7	115
ø40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke/3.25) + 7	121

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

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

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

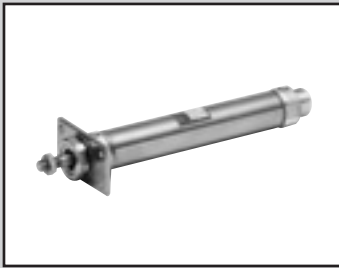
FJ

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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol ● Double acting cylinder single rod



Specifications

Item	CMK2-H				
	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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

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

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

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

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

Min. stroke with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		
Applications	For 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	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		3 m:87 5 m:142		1 m:33 3 m:87 5 m:142			

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (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)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(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 $\frac{\text{Product stroke (50)}}{10}$ =0.10 kg
 Weight of 2 switches0.036 kg
 Weight of switch rail + 2 bands0.018 kg
 Product weight0.45 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									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-H 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

No switch (built-in magnet for switch)

CMK2-H-00-20-100-V-I

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke

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 of 50 mm.
- *2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 178.
- *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 84 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-V-I

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

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

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

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

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

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

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●	●	1-color LED	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●	1-color LED	3-wire
T3PH*	T3PV*		●	●		
T2WH*	T2WV*		●	●	2-color LED	2-wire
T2YH*	T2YV*		●	●		
T3WH*	T3WV*	●	●			
T3YH*	T3YV*	●	●	1-color LED 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
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 included)
B2	Clevis bracket (pin and snap ring included)

How to order switch

● Switch body + mounting bracket set

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

Bore size (Item **B** on page 180)

Switch model No. (Item **E** on page 180)

● Switch body only

SW - **T0H**

Switch model No. (Item **E** on page 180)

● Mounting bracket set

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

Bore size (Item **E** on page 180)

Mounting bracket

How to order mounting bracket

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

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

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

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

Internal structure

Same as standard. Refer to page 90.

Dimensions

Same as standard. Refer to pages 91 to 97.

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/coolant proof

CMK2-G2/G3 Series

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

JIS symbol



Specifications

Item	CMK2-G2/G3			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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 $^{\circ}\text{C}$	-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

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

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

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

Switch specifications

Type/model No.	Proximity switch specifications	
Item	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 *3	30 VDC or less, 50 mA or less
Indicator	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: Refer to Ending Page 1 for detailed switch specifications and dimensions.

*2: Switches with connectors are also available. Refer to Ending Page 1.

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (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)			
ø20	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
ø25	0.27	0.53	0.40	0.42	0.51	0.27	0.51	0.37		0.005	0.01
ø32	0.31	0.57	0.44	0.46	0.55	0.31	0.55	0.41		0.009	0.02
ø40	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 0.02x $\frac{\text{Product stroke (50)}}{10}$ = 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									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-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

No 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

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 of 50 mm.

*2 : Refer to page 182 for the min. stroke with switch.

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

*4 : Refer to page 84 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 : ø32 mm

D Port thread : Rc thread

E Stroke : 100 mm

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

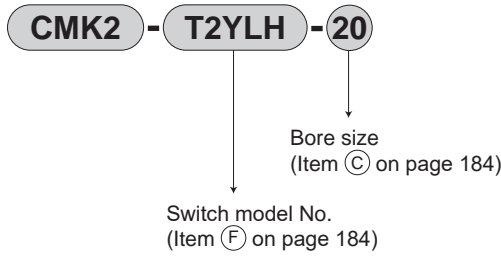
G Switch quantity : 1 on rod side

H Accessory : Rod clevis

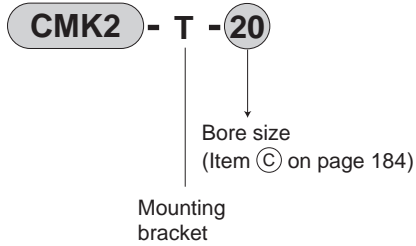
Code	Description					
A Degree of protection level						
G2	Coolant proof scraper + packing NBR					
G3	Coolant proof scraper + packing FKM					
B Mounting						
00	Basic					
LB	Axial foot (Both sides)					
LS	Axial foot (One side)					
FA	Rod side flange					
FB	Head side flange					
CA	Eye bracket					
CC	Eye bracket integrated					
CC1	Eye bracket bush pressfit					
CB	Clevis bracket (pin and split washer pin included)					
TA	Rod side trunnion					
TB	Head side trunnion					
C Bore size (mm)						
20	ø20					
25	ø25					
32	ø32					
40	ø40					
D Port thread						
Blank	Rc thread					
NN	NPT thread (made-to-order product)					
GN	G thread (made-to-order product)					
E Stroke (mm)						
	Bore size	Stroke *2	Custom stroke			
	ø20	5 to 750	In 1 mm increments			
	ø25	5 to 750				
	ø32	5 to 750				
	ø40	5 to 750				
F Switch model No.						
	Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire
	T2YLH*	T2YLV*	Proximity	DC	2-color LED	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 included)				
	B2	Clevis bracket (pin and snap ring included)				

How to order switch

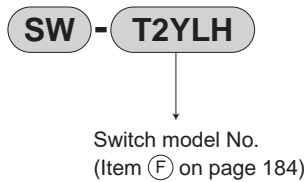
- Switch body + mounting bracket set



- Mounting bracket set



- Switch body only



How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
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 ø40 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/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-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

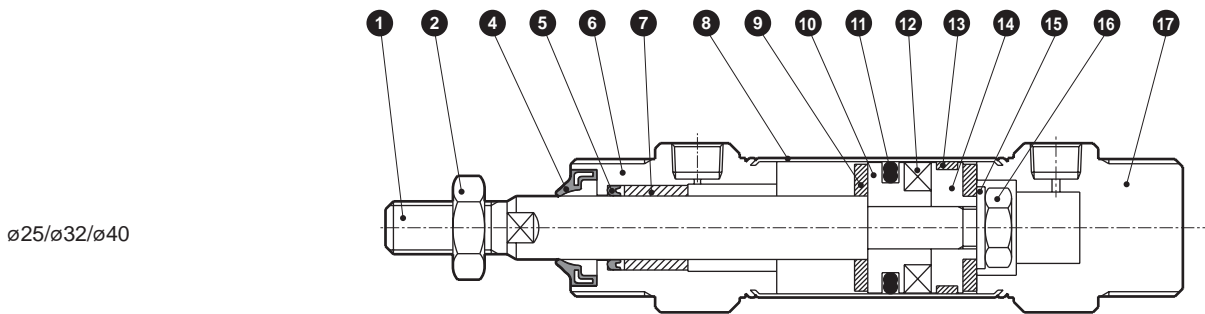
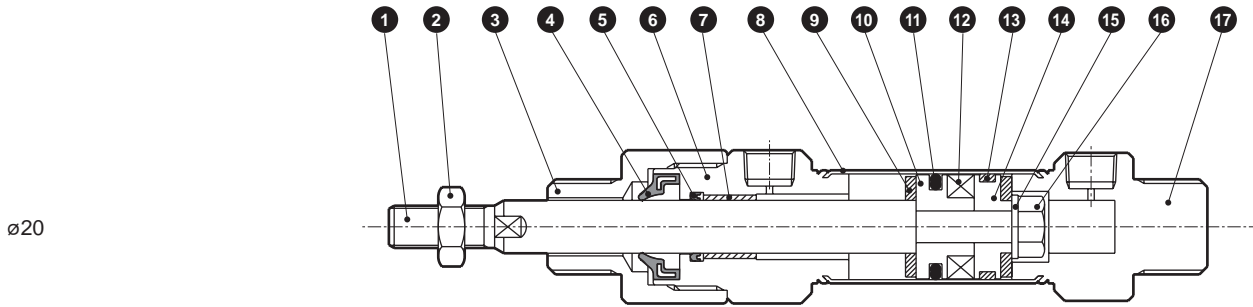
Internal structure and parts list

● Degree of protection: Packing NBR

CMK2-G2

● Degree of protection: Packing FKM

CMK2-G3



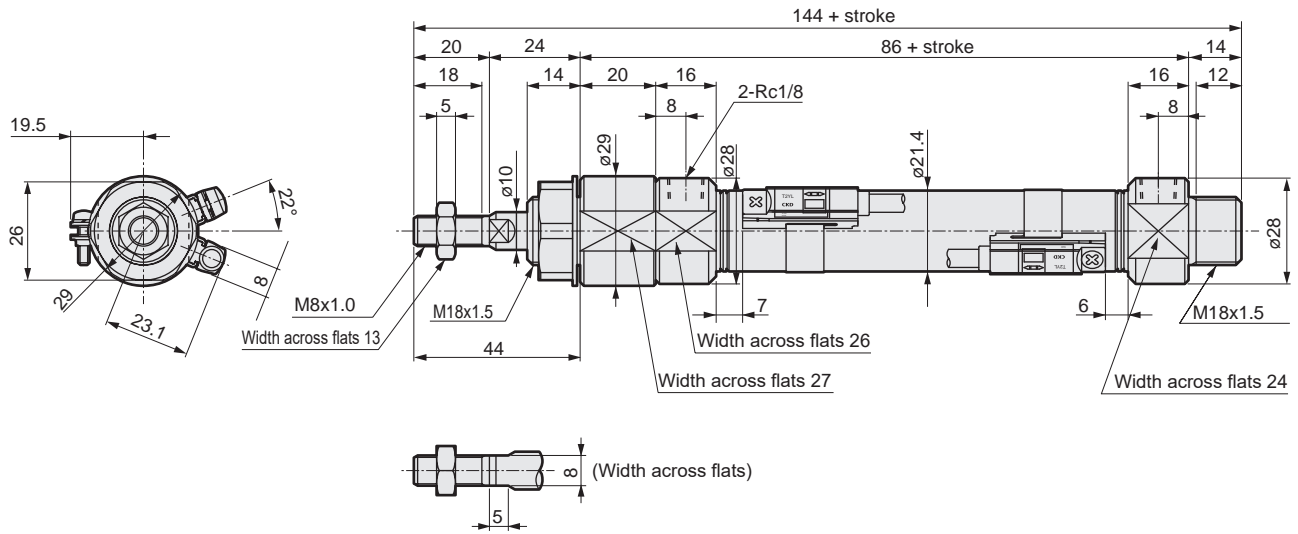
Cannot be disassembled

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	ø20: DU dry bearing		17	Head cover	Aluminum alloy	Chromate treatment
		ø25, ø32, ø40: Copper-based					
8	Cylinder tube	Stainless steel					

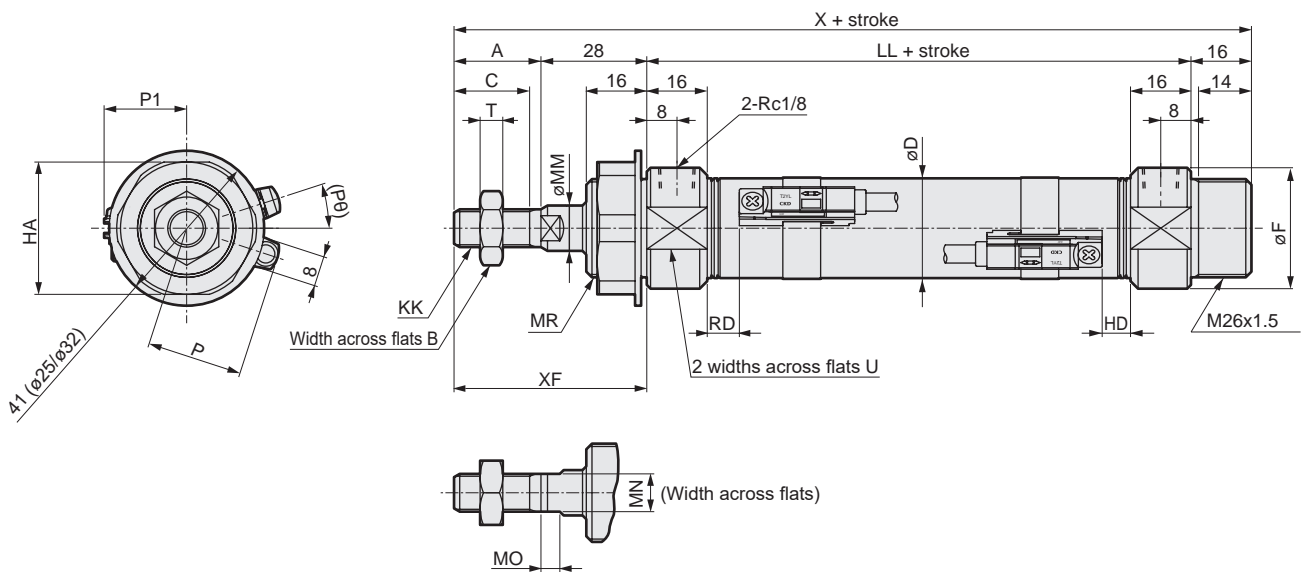
Dimensions

● Basic (00) $\phi 20$



* Position unspecified for adapter width across flats.

● Basic (00) $\phi 25/\phi 32/\phi 40$



*1: Toothed washer is not supplied with $\phi 40$.

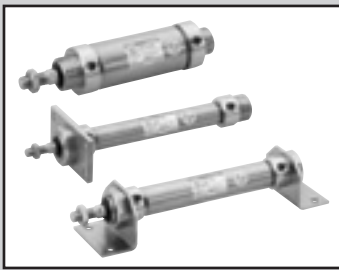
Code	Basic (00) Basic dimensions															
Bore size (mm)	A	B	C	D	F	HA	KK	LL	MM	MN	MO	MR	T	U	X	XF
$\phi 25$	23	17	20	26.4	32	35	M10x1.25	69	12	10	5	M26x1.5	6	30	136	51
$\phi 32$	23	17	20	33.6	36	35	M10x1.25	69	12	10	5	M26x1.5	6	34	136	51
$\phi 40$	25	19	22	41.6	45	38	M12x1.5	73	14	12	6	M30x1.5	7	43	142	53

Code	With switch				
Bore size (mm)	RD	HD	P	(P0) ^o	P1
$\phi 25$	8.5	7.5	25.6	18	22.0
$\phi 32$	8.5	7.5	30.1	15	25.5
$\phi 40$	10.5	9.5	34.1	12	29.5

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

- 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



Small bore size cylinder double acting/exterior 100% stainless steel/water resistant

CMK2-JG2/JG3 Series

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

JIS symbol



Specifications

1 MPa \approx 145.0 psi, 1 MPa = 10 bar

Item	CMK2-JG2/JG3			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Actuation	Double acting/water resistant			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (\approx 145 psi, 10 bar)			
Min. working pressure MPa	0.15 (\approx 22 psi, 2 bar)			
Proof pressure MPa	1.6 (\approx 232 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	$^{+2.0}_0$ (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

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
$\varnothing 20, \varnothing 25, \varnothing 32, \varnothing 40$	25, 50, 75, 100, 150, 200, 250, 300	750	5	25

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

*2: One side foot (LS) has maximum stroke of 50 mm.

Switch specifications

Type/model No.	Proximity switch specifications	
Item	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 *2	30 VDC or less, 50 mA or less
Indicator	Red/green LED (Lit when ON)	
Leakage current	1 mA or less	10 µA or less
Impact resistance	980 m/S ²	
Weight	g 1 m: 33 3 m: 87 5 m: 142	

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

*2: Switches with connectors are also available. Refer to Ending Page 1.

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Switch rail + Band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA, FB)	Eye bracket (CC)			
ø20	0.31	0.57	0.44	0.46	0.37	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.32	0.58	0.45	0.47	0.39		0.005	0.01
ø32	0.43	0.69	0.56	0.58	0.55		0.009	0.02
ø40	0.65	0.91	0.78	0.80	0.90		0.009	0.02

(Example) Product weight of CMK2-JG2-FA-32-50-T2YL-D

Product weight when S = 0 mm ...	0.56 kg
Additional weight when S = 50 mm ...	Additional weight when S = 10 mm $0.02 \times \frac{\text{Product stroke (50)}}{10} = 0.10 \text{ kg}$
Weight of 2 switches	0.062 kg
Weight of switch rail + 2 bands ...	0.018 kg
Product weight	0.56 kg + 0.1 kg + 0.062 kg + 0.018 kg = 0.74 kg

Theoretical thrust table

(Unit: N)

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

CMK2-JG2/JG3 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

No switch



With switch



A Variation

B Mounting
*1

C Bore size

D Stroke

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

F Switch quantity
*3

G Option

H Accessory
*4

⚠ Precautions for model No. selection

- *1: One side foot (LS) has maximum stroke of 50 mm.
- *2: Refer to page 1 for min. stroke with switch.
- *3: 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.
- *4: "I" and "Y" cannot be selected together.

[Example of model No.]

CMK2-JG2-CC-32-50-T2YLH-D-FP1Y

Model: Small bore size cylinder

A Variation : Exterior 100% stainless steel + water resistant scraper + packing NBR

B Mounting format : Eye bracket integrated

C Bore size : ø32

D Stroke : 50 mm

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

F Switch quantity : 2 pcs. included

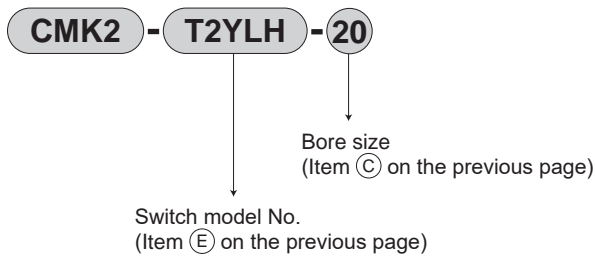
G Option : Food grade grease specification

H Accessory : Rod clevis

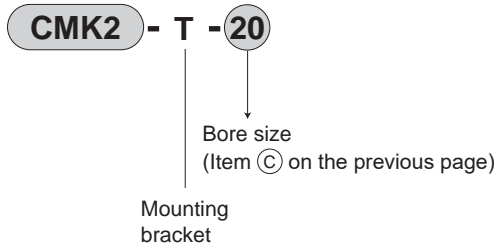
Code	Description				
A Variation					
JG2	Exterior 100% stainless steel + water resistant scraper + packing NBR				
JG3	Exterior 100% stainless steel + water resistant scraper + packing FKM				
B Mounting					
00	Basic				
LB	Axial foot (Both sides)				
LS	Axial foot (One side)				
FA	Rod side flange				
FB	Head side flange				
CC	Eye bracket integrated				
C Bore size (mm)					
20	ø20				
25	ø25				
32	ø32				
40	ø40				
D Stroke (mm)					
Bore size	Stroke *2	Custom stroke			
ø20	5 to 750	In 1 mm increments			
ø25	5 to 750				
ø32	5 to 750				
ø40	5 to 750				
E Switch model No.					
Lead wire Straight	Lead wire Radial	Contact	Voltage	Indicator	Lead wire
T2YLH*	T2YLV*	Proximity	DC	2-color LED	2-wire
T3YLH*	T3YLV*				3-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					
Blank	Standard				
FP1	Food-grade (NSF H1) grease				
V	Boss cutoff				
H Accessory					
I	Rod eye				
Y	Rod clevis (pin and snap ring included)				

How to order switch

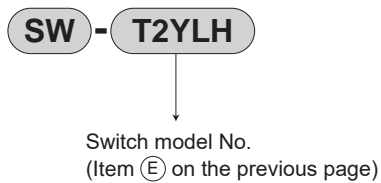
- Switch body + mounting bracket set



- Mounting bracket set



- Switch body only



How to order mounting brackets

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Axial foot (LB, LS)	CMK2-JG2-20-LS	CMK2-JG2-20-LS	CMK2-JG2-20-LS	CMK2-JG2-40-LS CMK2-JG2-20-LS (LB head side)
Flange (FA, FB)	CMK2-JG2-20-FA	CMK2-JG2-20-FA	CMK2-JG2-20-FA	CMK2-JG2-20-FA (for FB) CMK2-JG2-40-FA (for FA)

*1: For mounting brackets, mounting nuts are included with the axial foot and flange.

2: For axial foot (LB), two sets of the above "CMK2-JG2--LS" are required.

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-JG2/JG3 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

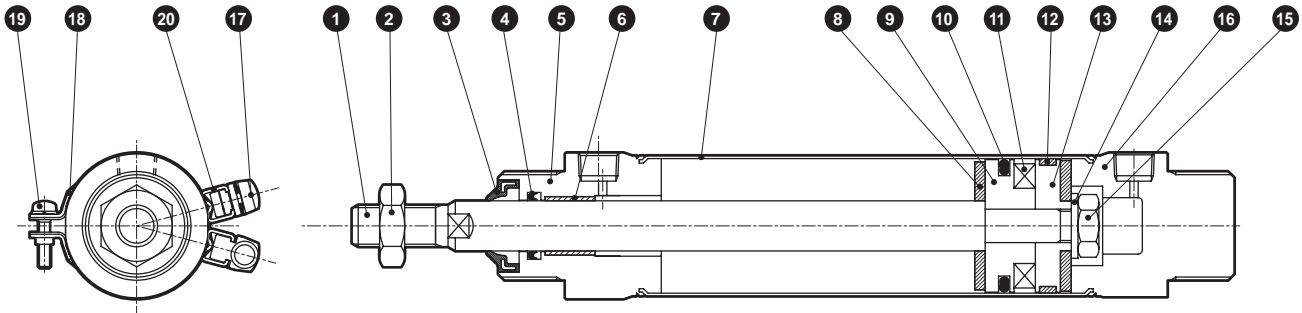
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel		10	Piston Packing	JG2	Nitrile rubber
2	Rod nut	Stainless steel				JG3	Fluoro rubber
3	Scraper	JG2	Nitrile rubber	11	Magnet	-	
		JG3	Fluoro rubber	12	Wear ring	Resin	
4	Rod Packing	JG2	Nitrile rubber	13	Piston B	Aluminum alloy	
		JG3	Fluoro rubber	14	Spacer	Steel	Zinc chromate
5	Rod cover	Stainless steel		15	Hexagon nut	Steel	Zinc chromate
6	Bush	Dry bearing		16	Head cover	Stainless steel	
7	Cylinder tube	Stainless steel		17	Switch	-	With switch only
8	Cushion rubber	Urethane rubber		18	Band	Stainless steel	With switch only
9	Piston A	Aluminum alloy		19	Pan head machine screw	Stainless steel	With switch only
				20	Switch rail	Stainless steel	With switch only

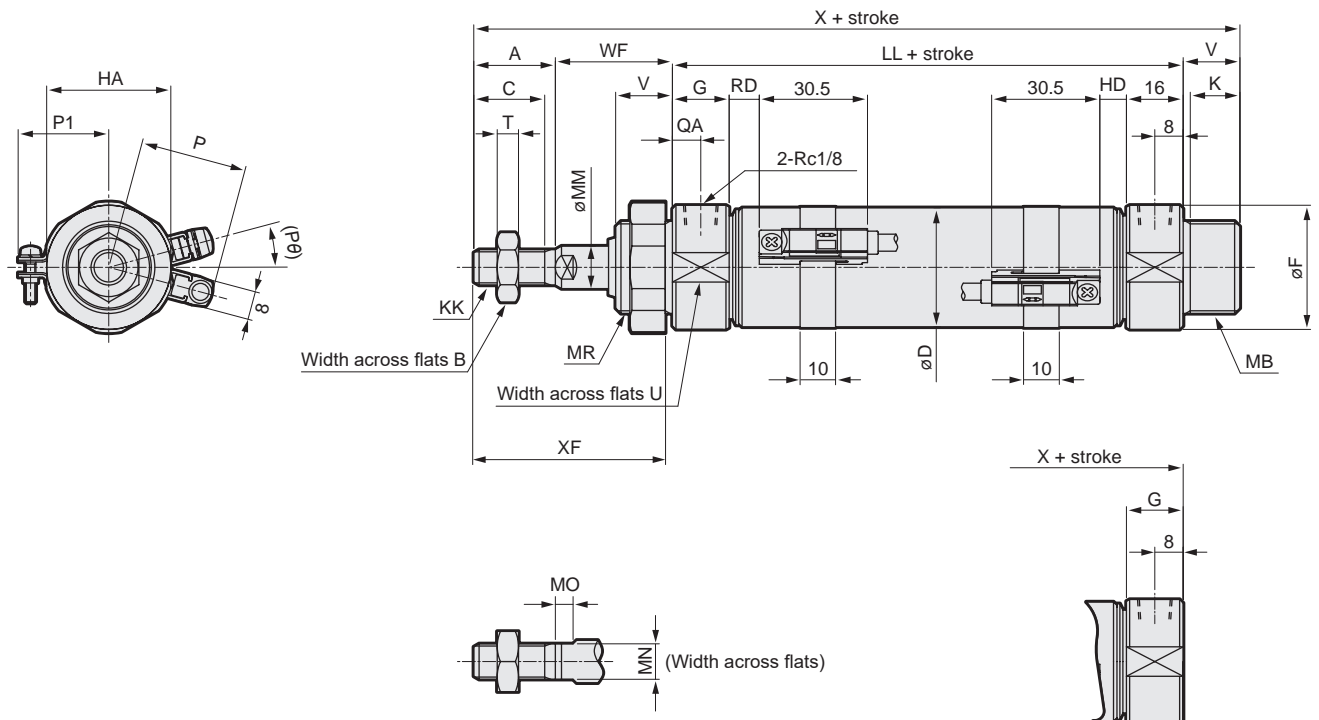
Material of mounting bracket

Mounting	Material
LB/LS	Stainless steel
FA/FB	Stainless steel

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

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	G	QA	HA	K	KK	LL	MR	MB	MM	MN	MO	T
ø20	20	13	18	21.4	30	16	8	35	14	M8x1.0	66	M26x1.5	M26x1.5	10	8	5	5
ø25	23	17	20	26.4	32	16	8	35	14	M10x1.25	69	M26x1.5	M26x1.5	12	10	5	6
ø32	23	17	20	33.6	36	16	8	35	14	M10x1.25	69	M26x1.5	M26x1.5	12	10	5	6
ø40	25	19	22	41.6	45	16	8	38	14	M12x1.5	73	M30x1.5	M26x1.5	14	12	6	7

Code	With switch					Boss cutoff type					
Bore size (mm)	U	V	WF	X	XF	RD	HD	P	P1	(Pθ)°	X
ø20	28	16	28	130	48	7	6	23.1	19.5	22	114
ø25	30	16	28	136	51	8.5	7.5	25.6	22	18	120
ø32	34	16	28	136	51	8.5	7.5	30.1	25.5	15	120
ø40	43	16	28	142	53	10.5	9.5	34.1	29.5	12	126

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

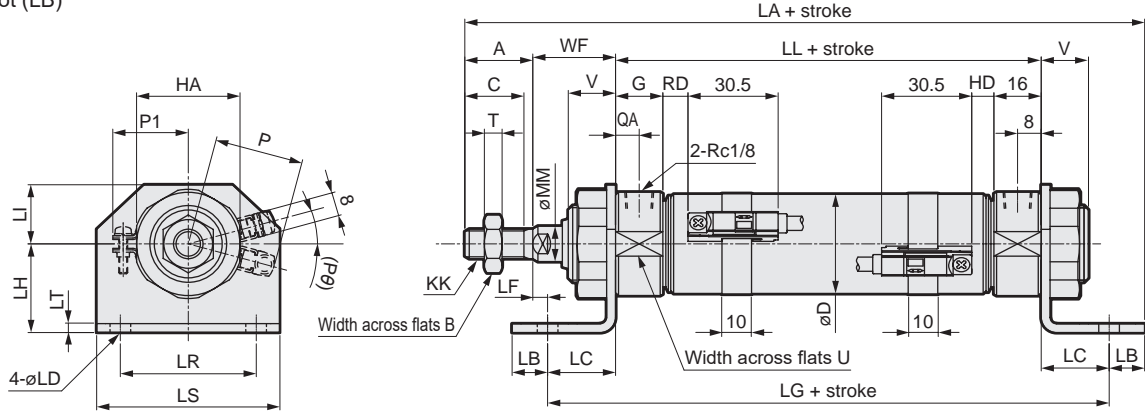
Spd
Contr

Ending

CMK2-JG2/JG3 Series

Dimensions

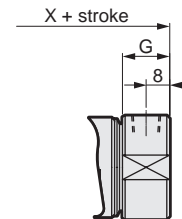
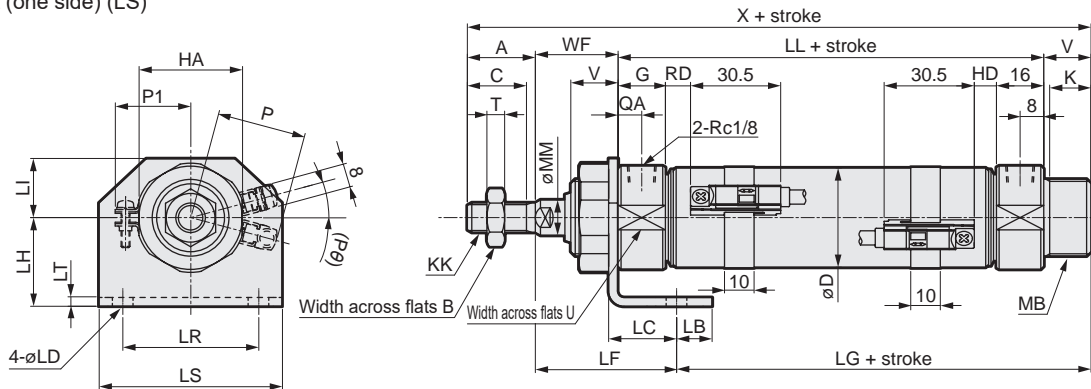
● Axial foot (LB)



Code	Axial foot (LB) Basic dimensions														Mounting dimensions				
Bore size (mm)	A	B	C	D	G	QA	HA	KK	LL	MM	T	U	V	WF	LA	LB	LC	LD	LF
∅20	20	13	18	21.4	16	8	35	M8x1.0	66	10	5	28	16	28	149	12	23	7	5
∅25	23	17	20	26.4	16	8	35	M10x1.25	69	12	6	30	16	28	155	12	23	7	5
∅32	23	17	20	33.6	16	8	35	M10x1.25	69	12	6	34	16	28	155	12	23	7	5
∅40	25	19	22	41.6	16	8	38	M12x1.5	73	14	7	43	16	28	161	12	23	7	5

Code	With switch										
Bore size (mm)	LG	LH	LI	LR	LS	LT	RD	HD	P	P1	(Pθ)°
∅20	112	30	20	46	62	3	7	6	23.1	19.5	22
∅25	115	30	20	46	62	3	8.5	7.5	25.6	22	18
∅32	115	30	20	46	62	3	8.5	7.5	30.1	25.5	15
∅40	119	30	20	46	62	3	10.5	9.5	34.1	29.5	12

● Axial foot (one side) (LS)



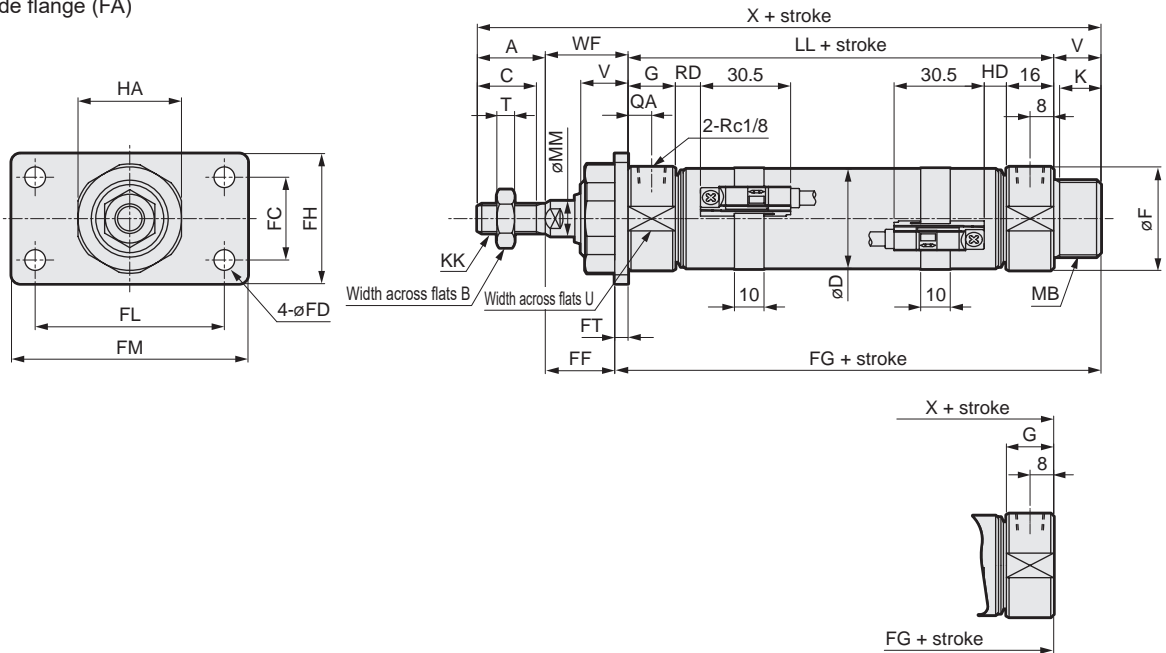
*1: Max. stroke: 50.

Code	Axial foot (LS) Basic dimensions																
Bore size (mm)	A	B	C	D	G	QA	HA	K	KK	LL	MB	MM	T	U	V	WF	X
∅20	20	13	18	21.4	16	8	35	14	M8x1.0	66	M26x1.5	10	5	28	16	28	130
∅25	23	17	20	26.4	16	8	35	14	M10x1.25	69	M26x1.5	12	6	30	16	28	136
∅32	23	17	20	33.6	16	8	35	14	M10x1.25	69	M26x1.5	12	6	34	16	28	136
∅40	25	19	22	41.6	16	8	38	14	M12x1.5	73	M26x1.5	14	7	43	16	28	142

Code	Mounting dimensions										With switch					Boss cutoff type	
Bore size (mm)	LB	LC	LD	LF	LG	LH	LI	LR	LS	LT	RD	HD	P	P1	(Pθ)°	X	LG
∅20	12	23	7	48	62	30	20	46	62	3	7	6	23.1	19.5	22	114	46
∅25	12	23	7	48	65	30	20	46	62	3	8.5	7.5	25.6	22	18	120	49
∅32	12	23	7	48	65	30	20	46	62	3	8.5	7.5	30.1	25.5	15	120	49
∅40	12	23	7	48	69	30	20	46	62	3	10.5	9.5	34.1	29.5	12	126	53

Dimensions

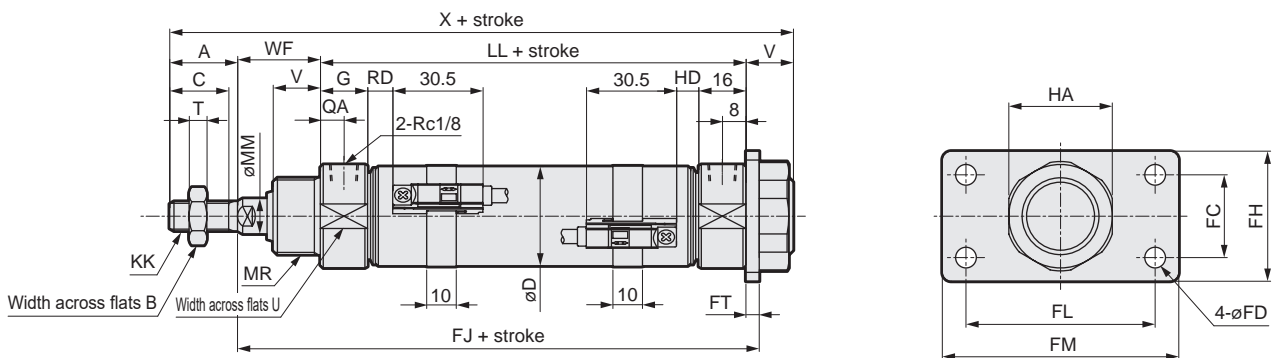
● Rod side flange (FA)



Code	Rod side flange (FA) Basic dimensions																	
Bore size (mm)	A	B	C	D	F	G	QA	HA	K	KK	LL	MB	MM	T	U	V	WF	X
ϕ 20	20	13	18	21.4	30	16	8	35	14	M8x1.0	66	M26x1.5	10	5	28	16	28	130
ϕ 25	23	17	20	26.4	32	16	8	35	14	M10x1.25	69	M26x1.5	12	6	30	16	28	136
ϕ 32	23	17	20	33.6	36	16	8	35	14	M10x1.25	69	M26x1.5	12	6	34	16	28	136
ϕ 40	25	19	22	41.6	45	16	8	38	14	M12x1.5	73	M26x1.5	14	7	43	16	28	142

Code	Mounting dimensions								With switch					Boss cutoff type	
Bore size (mm)	FC	FD	FF	FG	FH	FL	FM	FT	RD	HD	P	P1	(P θ) $^\circ$	X	FG
ϕ 20	28	7	23	87	44	64	80	5	7	6	23.1	19.5	22	114	71
ϕ 25	28	7	23	90	44	64	80	5	8.5	7.5	25.6	22	18	120	74
ϕ 32	28	7	23	90	44	64	80	5	8.5	7.5	30.1	25.5	15	120	74
ϕ 40	28	7	23	94	44	64	80	5	10.5	9.5	34.1	29.5	12	126	78

● Head side flange (FB)



Code	Head side flange (FB) Basic dimensions																
Bore size (mm)	A	B	C	D	G	QA	HA	K	KK	LL	MR	MM	T	U	V	WF	X
ϕ 20	20	13	18	21.4	16	8	35	14	M8x1.0	66	M26x1.5	10	5	28	16	28	130
ϕ 25	23	17	20	26.4	16	8	35	14	M10x1.25	69	M26x1.5	12	6	30	16	28	136
ϕ 32	23	17	20	33.6	16	8	35	14	M10x1.25	69	M26x1.5	12	6	34	16	28	136
ϕ 40	25	19	22	41.6	16	8	38	14	M12x1.5	73	M30x1.5	14	7	43	16	28	142

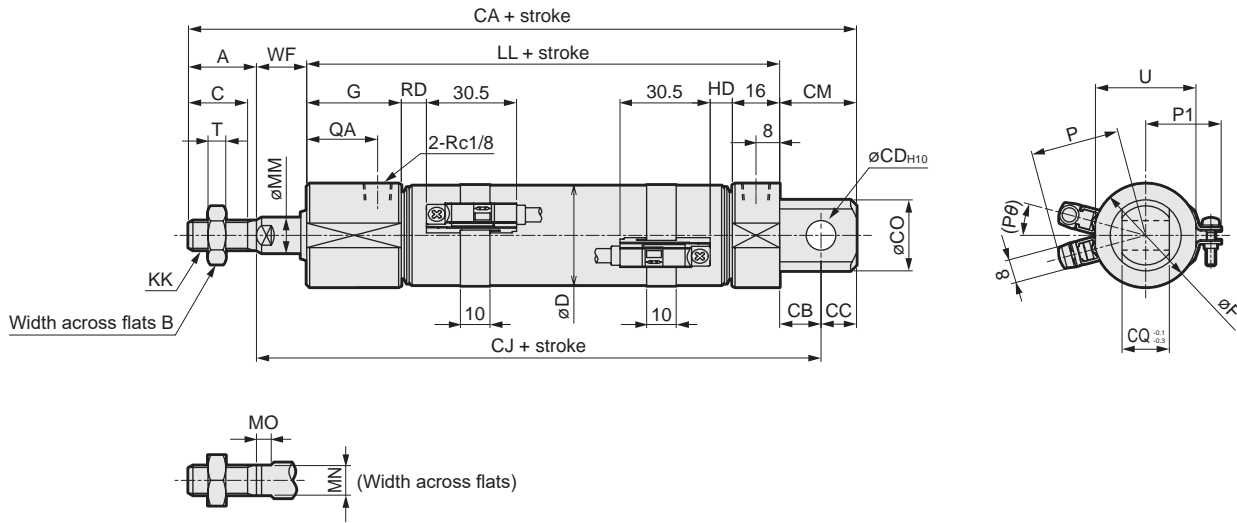
Code	Mounting dimensions								With switch				
Bore size (mm)	FC	FD	FH	FJ	FL	FM	FT	RD	HD	P	P1	(P θ) $^\circ$	
ϕ 20	28	7	44	99	64	80	5	7	6	23.1	19.5	22	
ϕ 25	28	7	44	102	64	80	5	8.5	7.5	25.6	22	18	
ϕ 32	28	7	44	102	64	80	5	8.5	7.5	30.1	25.5	15	
ϕ 40	28	7	44	106	64	80	5	10.5	9.5	34.1	29.5	12	

- 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-JG2/JG3 Series

Dimensions

● Eye bracket integrated (CC)



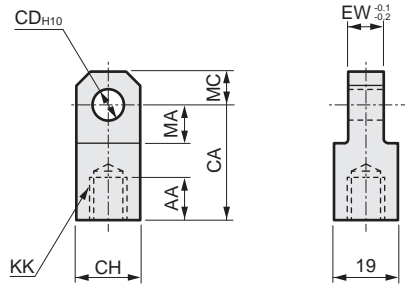
Code	Eye bracket integrated (CC) Basic dimensions												Mounting dimensions						
Bore size (mm)	A	B	C	D	F	G	QA	KK	LL	MM	T	U	WF	CA	CB	CC	CD	CJ	CM
$\phi 20$	20	13	18	21.4	30	32	24	M8x1.0	82	10	5	28	12	135	12	9	8	106	21
$\phi 25$	23	17	20	26.4	32	32	24	M10x1.25	85	12	6	30	12	141	12	9	8	109	21
$\phi 32$	23	17	20	33.6	36	32	24	M10x1.25	85	12	6	34	12	146	14	12	10	111	26
$\phi 40$	25	19	22	41.6	45	32	24	M12x1.5	89	14	7	43	12	156	16	14	12	117	30

Code	With switch						
Bore size (mm)	CO	CQ	RD	HD	P	P1	(P θ)°
$\phi 20$	22	16	7	6	23.1	19.5	22
$\phi 25$	24	16	8.5	7.5	25.6	22	18
$\phi 32$	24	16	8.5	7.5	30.1	25.5	15
$\phi 40$	30	20	10.5	9.5	34.1	29.5	12

Accessory dimensions

● Rod eye (I)

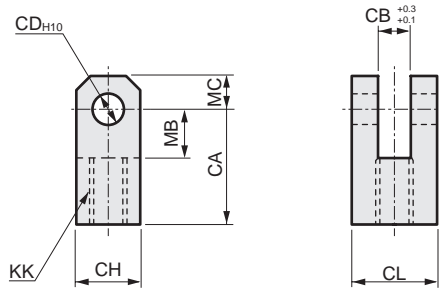
Material: Stainless steel



Model No.	Applicable bore size (mm)	AA	CA	CD	CH	EW	KK	MA	MC	Weight (g)
M1-I-20S	20	14	30	10	19	8	M8x1.0	13	10	60
M1-I-30S	25 / 32	14	36	12	25	10	M10x1.25	16	12	106
M1-I-40S	40	14	36	12	25	10	M12x1.5	16	12	100

● Rod clevis (Y)

Material: Stainless steel

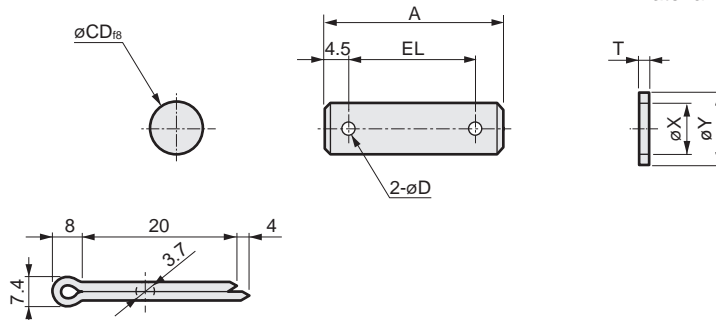


Model No.	Applicable bore size (mm)	CA	CB	CD	CH	CL	KK	MB	MC	Weight (g)
M1-Y-20S	20	30	8	10	19	19	M8x1.0	13	10	99
M1-Y-30S	25 / 32	36	10	12	25	25	M10x1.25	16	12	197
M1-Y-40S	40	36	10	12	25	25	M12x1.5	16	12	193

Note: A pin and split washer pin are included.

● Rod clevis pin (P)

Material: Stainless steel



Model No.	Applicable bore size (mm)	A	D	CD	EL	T	X	Y	Weight (g)
M1-P-20S	20	37	4	10	28	1.6	10.5	18	29
M1-P-30S	25/32/40	46	4	12	37	2.3	12.5	22	50

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

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

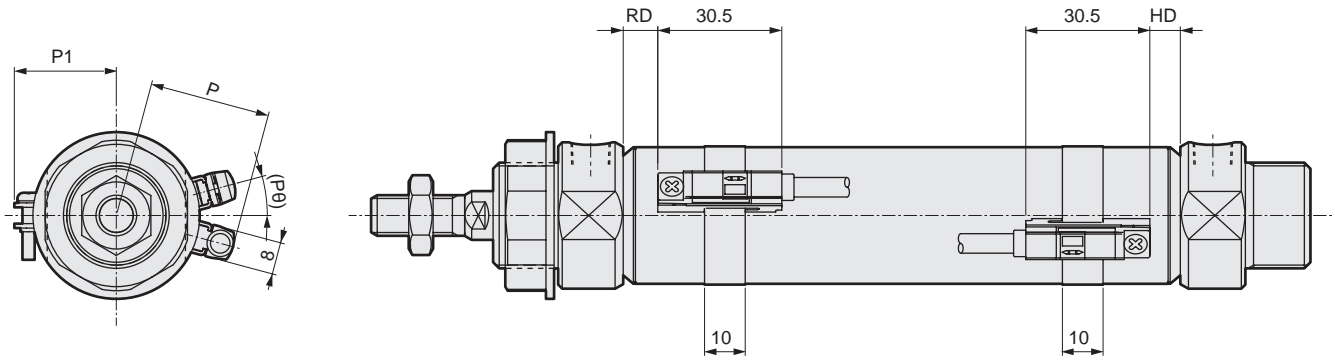
Spd
Contr

Ending

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

● CMK2-**-**-T₃YH/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 LED switch mounting dimensions

Code	1-color LED (T1, T8)		2-color LED (T Y) ²		P	P1	(Pθ) ^o	
	RD *1		HD *2					
	T1, T ₃ Y	T8	T1, T ₃ Y	T8				
∅20	7.0	2.0	6.0	1	28.5	23.1	19.5	22
∅25	8.5	3.5	7.5	2.5	31.0	25.6	22.0	18
∅32	8.5	3.5	7.5	2.5	35.5	30.1	25.5	15
∅40	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

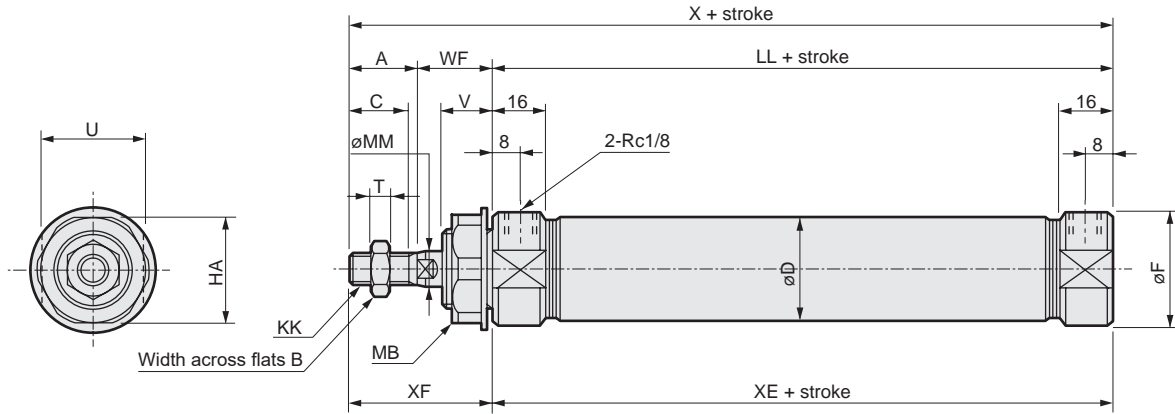
Code	RD													
	T1, T ₃ Y							T8						
	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300
∅20	32.0	34.0	61.0	88.0	115.0	142.0	169.0	27.0	29.0	56.0	83.0	110.0	137.0	164.0
∅25	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
∅32	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
∅40	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 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
∅20	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
∅25	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
∅32	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
∅40	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

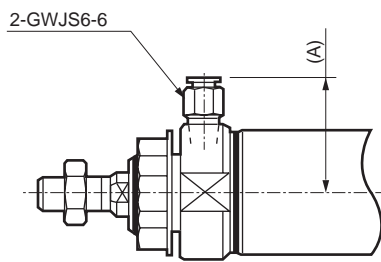
● Boss cutoff (V)



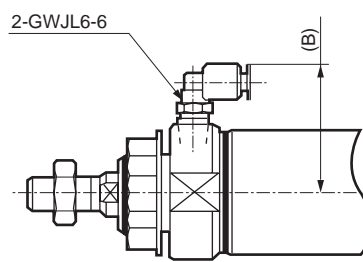
Note: Dimensions of other mountings are the same as those of the standard. Refer to pages 91 to 97. (Mountable, mounting: 00, LS, FA, TA)

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
ø20	20	13	18	21.4	28	26	M 8x1.0	66	M18x1.5	10	5	24	14	24	110	66	44
ø25	23	17	20	26.4	32	35	M10x1.25	69	M26x1.5	12	6	30	16	23	115	69	46
ø32	23	17	20	33.6	36	35	M10x1.25	69	M26x1.5	12	6	34	16	23	115	69	46
ø40	25	19	22	41.6	45	35	M12x1.5	73	M26x1.5	14	7	43	16	23	121	73	48

● With push-in fitting (-F)



● With push-in fitting (-FE)



Code	A	B
Bore size (mm)	A	B
ø20	30.5	34.5
ø25	32.5	36.5
ø32	34.5	38.5
ø40	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



Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

SCP*3

CMK2

CMA2

Product-specific cautions: Medium bore size cylinder CMK2 Series

SCM

Design/selection

SCG

1. Fine speed CMK2-F

SCA2

CAUTION

SCS2

- Use without lubrication.
 - Applying lubrication may cause changes in characteristics.
- Assemble the speed controller near the cylinder.
 - When installed at a distant place from the cylinder, the adjustment becomes unstable.
 - Use the SC-M3/M5, SC3W, SCD-M3/M5 or SC3U Series speed controller.

CKV2

CAV2/COVPIN2

SSD2

SSG

SSD

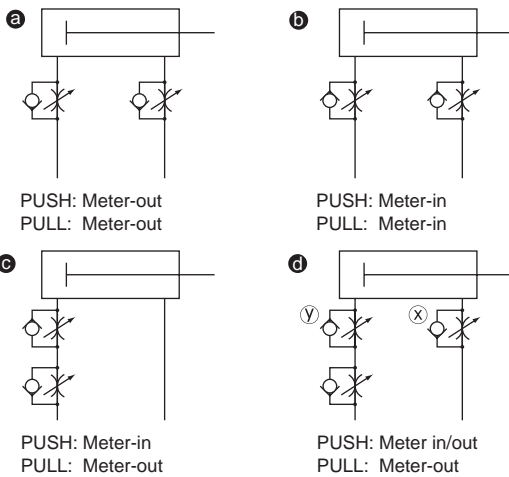
- In general, the speed is stabler at higher air pressure and lower load factor.
 - Use at a 50% or less load factor.

CAT

MDC2

MVC

- Stable speed control is achieved with a meter-out circuit.
 - When fine speed activation is performed with operating direction PUSH for the single rod cylinder, the popping out phenomenon occurs when operation starts if the load resistance is low. For countermeasures, use the **b**, **c** or **d** circuits. Note that circuit **d** is most stable.

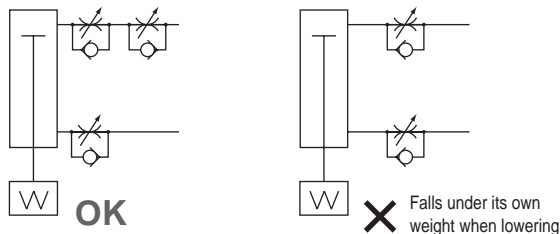


Speed adjustment method for PUSH operation of **d** circuit:

1. Set the speed with the speed controller x.
2. Restrict the speed with the speed controller y until there is no popping out.
3. Check the speed again.

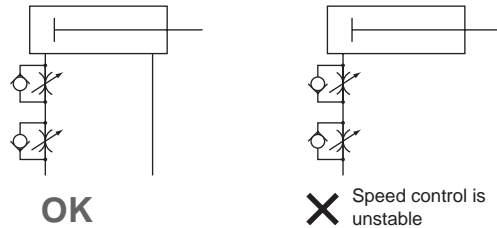
(*1) When comparing **b**, **c** and **d**, the **d** circuit is the most stable.

(*2) For vertical mounting, combine the cylinder with a meter-out circuit, as it will fall under its own weight when a meter-in circuit is used.



CKD

(*3) Use the circuit shown in the figure below for the serial connection of the speed controllers.



(Guidelines for pop-out generation)

Popping out occurs in the following cases.

· Thrust > Resistance

* Resistance: Thrust caused by residual pressure on the exhaust side (in the fine speed, suction pressure = residual pressure) + { When using horizontally: frictional force caused by load / When using vertically: load self-weight }

- Do not apply a lateral load to the cylinder.
 - Also install the sliding guide so that it is not twisted.
 - With a lateral load, operation will become unstable.
- Avoid using this product where vibration is present.
 - The product will be adversely affected by vibration and operation will become unstable.

2. Coolant proof CMK2-G2/G3

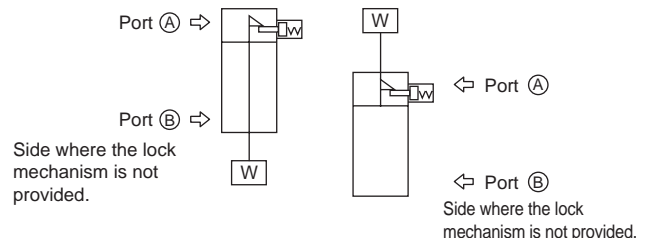
CAUTION

- Do not apply an eccentric load to the piston rod. The service life of the scraper or bearing could be shortened.
- If the piston rod is not exposed to splattered coolant or water, use the G or G1 Series.
 - In the case that the G2 or G3 Series are not exposed to splattering of coolant or water, the lubrication of the piston rod will run out and the service life will be shortened.
- Mount a speed controller on the cylinder.
 - Mount a speed controller on the cylinder.
 - Use each cylinder within the applicable working piston speed range.

3. Position locking CMK2-Q

WARNING

- If pressure is supplied to port **A** when both ports are not pressurized and the piston is locked, the lock may not be released or the piston rod may suddenly pop out just after the lock is released. This can be extremely hazardous. To release the lock mechanism, make sure to supply pressure to port **B**. Check that load is not applied to the lock mechanism.



- For usage where the drop rate is increased using the quick exhaust valve, the lock may not release normally because the cylinder body starts operating before the lock pin.

For the position locking cylinder, do not use the quick exhaust valve.

- Do not use 3-position solenoid valves.

Do not use the cylinder in combination with 3-position (especially closed center metal seal) solenoid valves. If the port at the side where the lock mechanism is provided is pressurized, the lock cannot be engaged. Even if it is locked once, the air leaked from the solenoid valve may enter the cylinder, and the lock may be released after a certain period of time.

⚠ CAUTION

- Cylinder load factor must be 50% or less.
 - If the load factor is high, the lock may not be released, or the lock section may be damaged.
- Do not use multiple synchronized cylinders.
 - Do not use in such a way that 1 workpiece is moved by synchronizing 2 or more position locking cylinders. Lock release may fail for one of the cylinders.

4. Low hydraulic CMK2-H

⚠ CAUTION

- This product is a pneumatic cylinder which enables the use of hydraulic fluid as its working fluid. Not compliant with JIS standards on activation and leak inspection for hydraulic cylinders.

5. Exterior 100% stainless steel/water resistant (CMK2-JG2/JG3)

⚠ CAUTION

- Use only after carefully confirming component structural materials (only exterior parts are stainless steel), valve structure, working fluids, and compatibility with the working environment.
- The cylinder bearings contain a minute amount of mineral oil. Within the product specifications range, it is processed so as not to discharge, but carefully consider the installation location.
- Do not apply eccentric load to the piston rod. The service life of the scraper or bearing could be shortened.
- Mount the speed controller on the cylinder.
 - Mount the speed controller on the cylinder. Use each cylinder within the applicable working piston speed range.
- If not exposed to splashes of water, the piston rod lubrication will run out, shortening the service life.

Mounting, installation and adjustment

1. Common

⚠ CAUTION

- Do not rotate the cover.
 - If the cover is turned when mounting the cylinder or screwing the pipe fitting into the port, damage from the cover connection could occur.

2. Single acting CMK2-S/SR

⚠ CAUTION

- Do not leave in a pressurized state.
 - If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

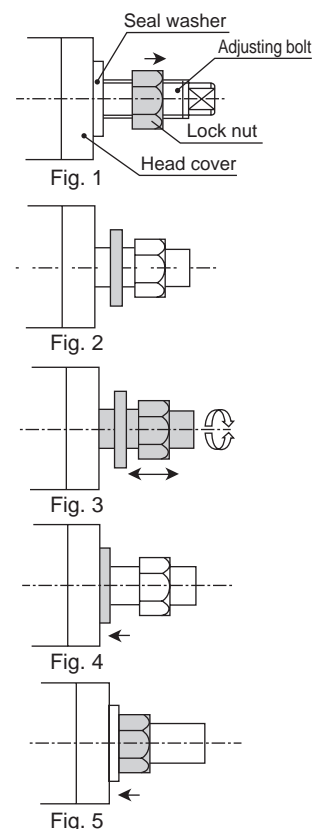
3. Stroke adjustable CMK2-P/R

⚠ CAUTION

- Securely lock the adjustable stroke bolt with the lock nut.
- Observe steps (1) to (5) when adjusting the stroke. If adjustments are not made this way, the seal washer will be damaged after one or two adjustments.

■ [Adjustable stroke procedure]

- (1) First loosen the lock nut as shown in Fig. 1.
- (2) Second, remove the seal washer from the head cover by hand, and make a state as shown in Fig. 2.
- (3) Turn the angle adjustment bolt, nut and seal washer together as shown in Fig. 3, and adjust the stroke. Check that the rubber section of the seal washer does not bite into the thread part.
- (4) After adjusting the stroke, move the seal washer near the head cover by hand as shown in Fig. 4.
- (5) Tighten with the lock nut as shown in Fig. 5. Check that the rubber section of the seal washer does not bite into the thread part.



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

- After adjusting the stroke, securely tighten the lock nut with the tightening torque in Table 1. Ensure that the lock nut does not loosen and cause external leakage in the course of usage.

Table 1 Tightening torque

Unit: Nm

Bore size	CMK2-P (push)	CMK2-R (pull)
ø20	15.8	11.9
ø25	33.4	37
ø32	33.4	37
ø40	55.8	37

- Because a seal washer is used for sealing the stud bolt, the sealing cannot withstand frequent usage.

- If the stroke is adjusted, the cushion cannot function.

4. Heat resistance CMK2-T

⚠ CAUTION

- Magnet is not built in.

5. Rubber-air cushioned CMK2-*C

⚠ CAUTION

- Note that, structurally, the stroke end position cannot be retained if air supply is cut off.

When detecting the stroke end by switch, set the switch position with pneumatic pressure applied, as otherwise the position may be out of the detection range.

6. Position locking CMK2-Q

⚠ CAUTION

- The lock mechanism functions at the stroke end, so that if the stopper is engaged during the stroke by the external stopper, the lock mechanism may not work and the piston could fall. When setting a load, make sure to check that the lock mechanism functions before installing the product.

- Supply pressure equal to or higher than the min. working pressure to the port on the lock mechanism side for each model.

- When the piping at the side where the lock mechanism is provided is long and thin, or when the speed controller is far away from the cylinder port, note that it takes time to engage the lock. Clogging in the silencer mounted on the EXH. port of the solenoid valve may also cause the same result.

7. Fine speed CMK2-F

⚠ CAUTION

- Perform adjustment such as centering so that a lateral load is not applied to the cylinder. Adjust and install the sliding guide so that it is not twisted.

- When the load or the resistance fluctuates, operation becomes unstable.

- With a large difference between static friction and kinematic friction of the guide, operation becomes unstable.

8. Rotation-stop CMK2-M

⚠ CAUTION

- Do not use the product so as to apply rotation torque to the piston rod.

The bushing for the rotation lock may deform and significantly shorten the service life.

- When fixing a workpiece onto the tip of the piston rod, retract the piston rod to the stroke end and apply a wrench to the section protruding from the rod's parallel section. Tighten so that torque is not applied to the cylinder body.

9. Exterior 100% stainless steel/water resistant (CMK2-JG2/JG3)

⚠ CAUTION

- Apply grease when using the pin to prevent seizing.

Use/maintenance

1. Common (with T-switch)

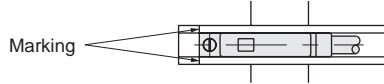
⚠ CAUTION

- When moving the switch position to the stroke direction

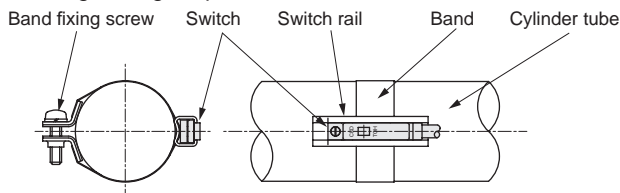
- The 1-color LED switch can be fine-tuned by ± 3 mm from the default. If the adjusting range exceeds ± 3 mm, or when fine-tuning the 2-color LED switch, move the band position.

- Loosen the switch fixing screw, shift the switch along the rail, then tighten at the specified position. When using T2, T3, T0, or T5, use a flathead screwdriver (clockwork screwdriver, precision screwdriver, etc.) with a grip diameter of 5 to 6 mm, a 2.4 mm or smaller tip, and a thickness of 0.3 mm or less to tighten the screws with a tightening torque of 0.1 to 0.2 N·m. When using T1, T*C, T2J, T2Y, T3Y, or T8, tighten the screw with a tightening torque of 0.5 to 0.7 N·m.

- The switch bracket rail has a marking 4 mm from the rail end. Use as a guide to the mounting position when replacing the switch.
Switch rail markings are set to the default switch max. sensitivity position.
The max. sensitivity position will change when the switch is changed or when the band is moved. Adjust the position accordingly in this case.



- When moving the switch position to the circumferential direction
 - Loosen the band fixing screw, shift the switch rail in the circumferential direction, then tighten at the specified position. Tightening torque is 0.6 to 0.8N·m.
- Shifting the band position
 - Loosen the band fixing screw, shift the switch rail and band along the cylinder tube, and tighten at the specified position. Tightening torque is 0.6 to 0.8N·m.



2. Rubber-air cushioned CMK2-*C

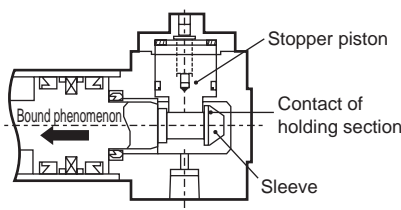
CAUTION

- Do not rapidly discharge air from the cylinder after performing low speed operation outside the catalog specifications range. (Example: Removing piping or coupler, etc.)
Otherwise the rubber-air cushion may fall. Especially when the air pressure is high, this becomes more likely. Therefore, be careful.

3. Position locking CMK2-Q

WARNING

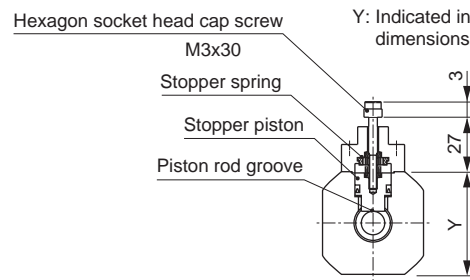
- For safety purposes, prevent the load from falling under its own weight during maintenance.
- When stopping the piston with an external buffer device (shock absorber, etc.), adjust it so that there is no bound.
If the piston bounds at the stroke end, the sleeve and stopper piston will collide strongly and may result in damage of the locking mechanism.
Inspect the piston once or twice a year to make sure there is no damage to the retainer caused by this phenomenon.



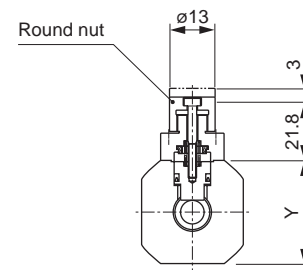
CAUTION

- Because this cylinder is non-disassembly, do not apply excessive force to the end cover or tube.
If a back pressure is applied to the lock mechanism side, the lock may be released. Use a discrete solenoid valve for brake release, or use an individual exhaust manifold.

- After the lock mechanism is manually operated, make sure to return the manual override to the original state before use. Do not perform manual operation except for adjustment, as it is dangerous.
- When mounting or adjusting the cylinder, release the lock.
If mounting work, etc., is done while the lock is engaged, the lock part may be damaged.
- Use the speed controller with meter-out control.
If the meter-in control is used, the lock may not be released.
- At the side where the lock mechanism is attached, be sure to use the cylinder from the stroke end.
If the cylinder piston does not reach the stroke end, the lock may not be engaged or the lock may not be released.
- Manual override non-locking release method
By screwing the hexagon socket head cap screw into the stopper piston and pulling the bolt 4 mm with force of 20 N or more, the stopper piston moves and the lock is released. (When horizontally installed with no load or 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.



- Manual override locking release method
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.



4. Exterior 100% stainless steel/water resistant (CMK2-JG2/JG3)

CAUTION

- It is recommended to minimize cleaning of the sliding section and to apply grease after cleaning.
If water splattering is temporary, periodically apply grease.
Contact CKD for details on maintenance greases.
- After installation, check for leaks from pipes, for proper wire connections and that the product is installed correctly.
- Do not use the product as footing or place any heavy objects on top of the product.
- If the product has been out of use for one month or more, perform a test run before starting actual operation.

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