

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

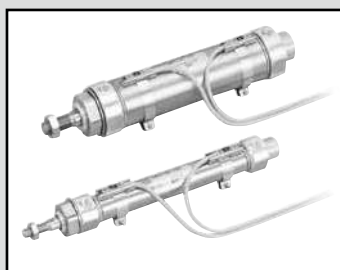
ShkAbs

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	ø20	ø25	ø32	ø40
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	°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 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke length

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

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

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

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

Min. stroke length with switch

(Unit: mm)

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

Item	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)			
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC		1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80						1 m:33	
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49							3 m:87	
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80							5 m:142	

*1: Refer to Ending Page 1 for 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 temperature	Instantaneous max. temp.
J	Polyolefin elastomer	100°C	200°C
L	Silicone rubber glass cloth	250°C	400°C

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
Bore size (mm)											
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 $\frac{\text{Product stroke length (50)}}{10}$ = 0.10kg
 (Example) Product weight of CMK2-FA-32-50-T0H-D Weight of 2 switches.....0.036 kg
 Weight of switch rail + 2 bands0.018 kg
 Product weight.....0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	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
ø25	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
ø32	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
ø40	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

Without 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 length

E Switch model No.

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 86.
- *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.
- *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 : ø20 mm
- C Port thread : Rc thread
- D Stroke length : 100 mm
- E Switch model No. : Reed T0H switch, lead wire 1m
- F Switch quantity : 1 on rod side
- G Option : Boss cutoff
- H Accessory : Rod clevis

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

E Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage AC DC	Display	Lead wire
T0H*	T0V*	Reed	● ●	1-color display	2-wire
T5H*	T5V*		● ●	Without indicator lamp	
T8H*	T8V*		● ●	1-color display	
T1H*	T1V*	Prox.	● ●	1-color display	2-wire
T2H*	T2V*		● ●		3-wire
T3H*	T3V*		● ●	1-color display	3-wire
T3PH*	T3PV*		● ●		3-wire
T2WH*	T2WV*		● ●	2-color display	2-wire
T2YH*	T2YV*		● ●		3-wire
T3WH*	T3WV*		● ●		
T3YH*	T3YV*		● ●	1-color display off-delay	2-wire
T2JH*	T2JV*		● ●		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 *10		

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

F Switch quantity
*8

G Option
*4, *5

H Accessory
*5

How to order switch

- Switch body + mounting bracket set

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

Switch model No. (Item **E** on page 88)

Bore size (Item **B** on page 88)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on page 88)

- Mounting bracket set

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

Mounting bracket

Bore size (Item **B** on page 88)

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.

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

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
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SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

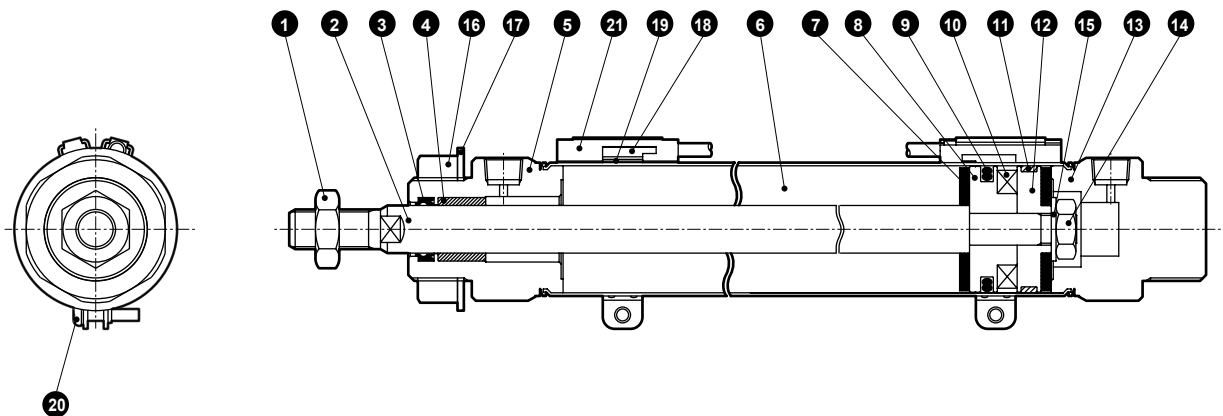
FJ

FK

Spd
Contr

Ending

Internal structure and parts list



Cannot be disassembled

● Note: This product is 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	

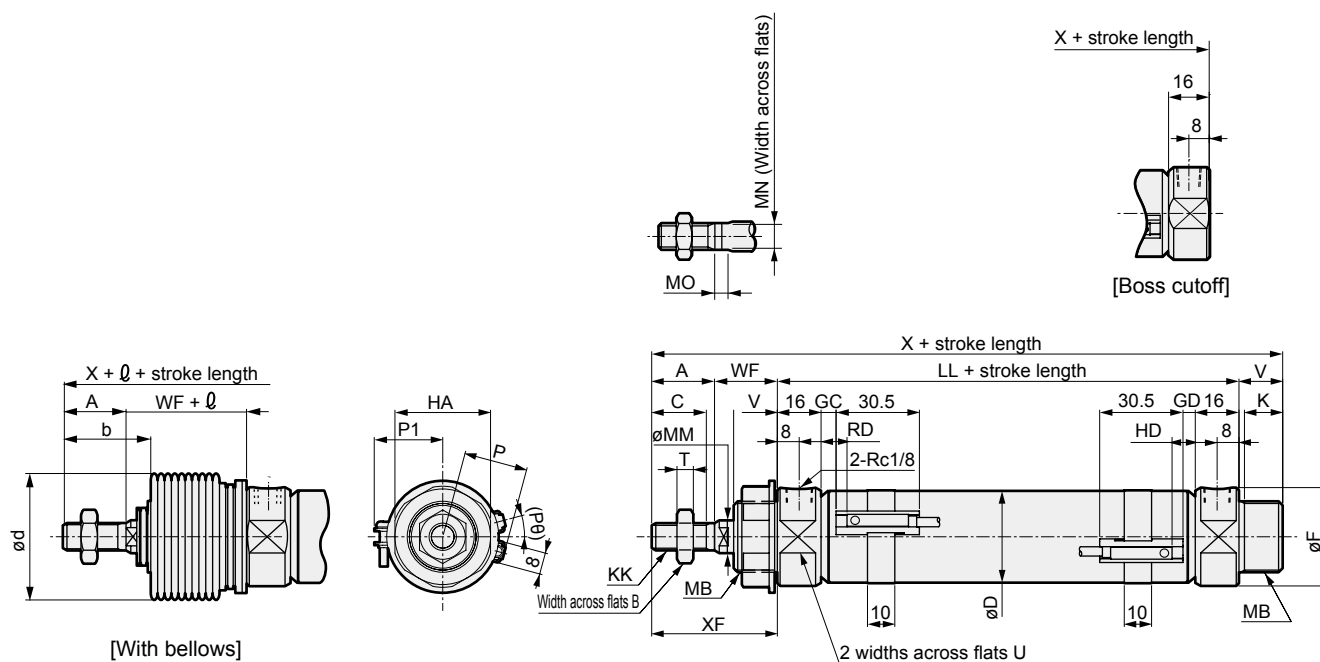
*1: Oleoresin bearing for copper and PTFE free.

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.

- 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 8×1.0	66	M18×1.5	10	8	5	5	24	14	24	124	44
ø25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	10	5	6	30	16	23	131	46
ø32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	10	5	6	34	16	23	131	46
ø40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	12	6	7	43	16	23	137	48
Code	With switch											With bellows				Boss cutoff			
	T0, T5, T2, T3				T2W, T3W				P	P1	(P0) ^a	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 length/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 length/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 length/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 length/3.25) + 7	121				

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

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

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

SCP*3

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SRT3

MRI 2

MRG2

SM-25

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EJ

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Spd

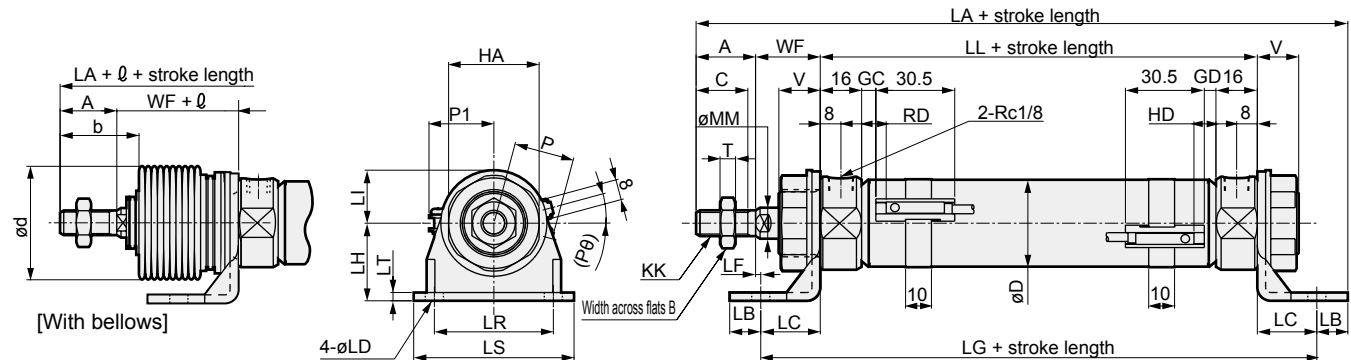
Findings

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Dimensions



● Axial foot (LB)



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

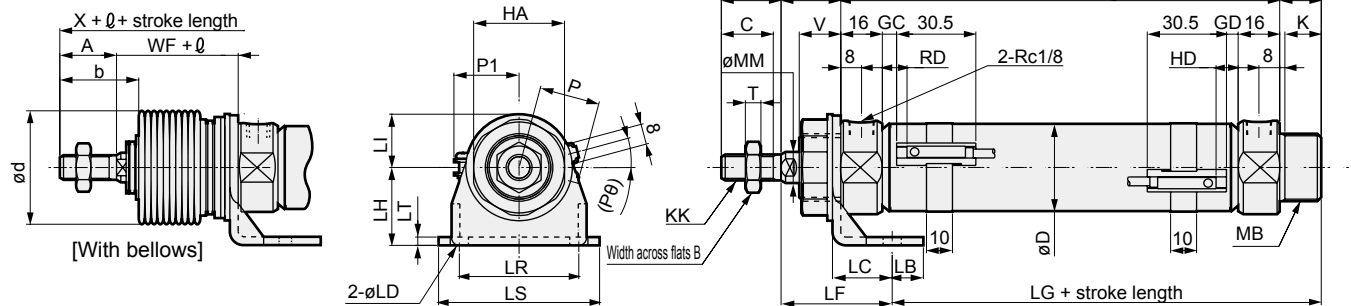
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*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
ø20	20	13	18	21.4	26	M 8×1.0	66	10	5	14	24	138	10	18	6	6	102	25	15
ø25	23	17	20	26.4	35	M10×1.25	69	12	6	16	23	150	12	23	7	0	115	30	20
ø32	23	17	20	33.6	35	M10×1.25	69	12	6	16	23	150	12	23	7	0	115	30	20
ø40	25	19	22	41.6	35	M12×1.5	73	14	7	16	23	156	12	23	7	0	119	30	20

Code	With switch											With bellows							
Bore size (mm)	LR	LS	LT	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ		
ø20	30	44	3.2	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6		
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 length/3.25) + 7		
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 length/3.25) + 7		
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 length/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 display switches.

*3 : Max. stroke length: 50.

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

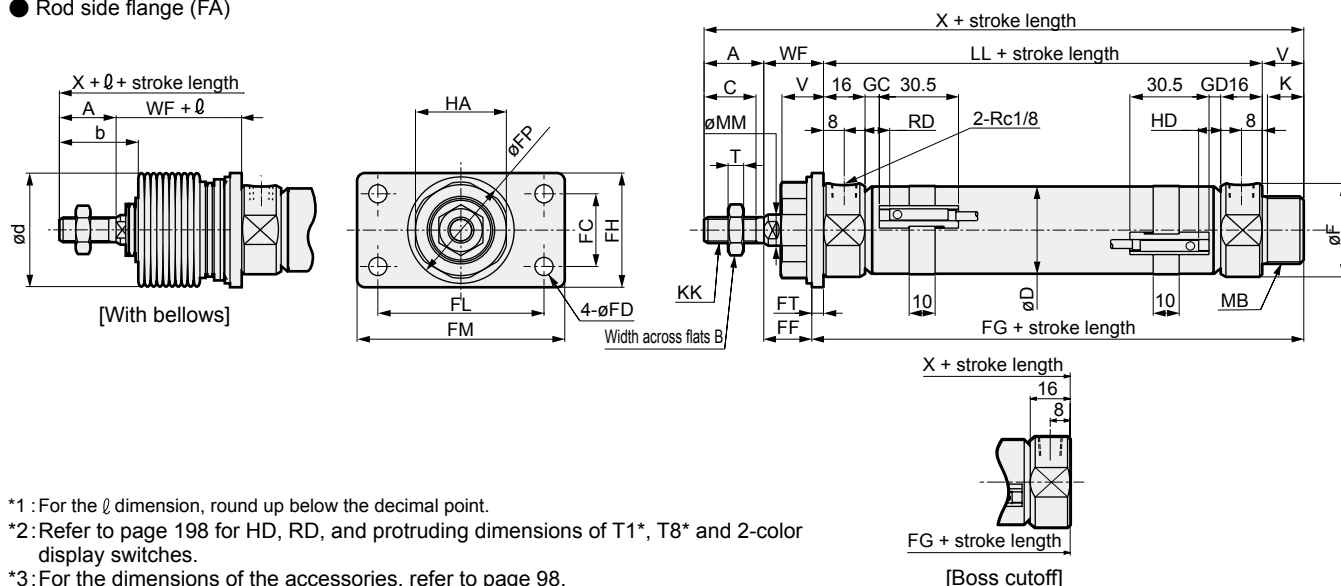
Code	Axial foot (single) (LS) basic dimensions														Mounting dimensions					
Bore size (mm)	A	B	C	D	HA	K	KK	LL	MB	MM	T	V	WF	X	LB	LC	LD	LF	LG	LH
ø20	20	13	18	21.4	26	12	M 8×1.0	66	M18×1.5	10	5	14	24	124	10	18	6	38.8	65.2	25
ø25	23	17	20	26.4	35	14	M10×1.25	69	M26×1.5	12	6	16	23	131	12	23	7	42.8	65.2	30
ø32	23	17	20	33.6	35	14	M10×1.25	69	M26×1.5	12	6	16	23	131	12	23	7	42.8	65.2	30
ø40	25	19	22	41.6	35	14	M12×1.5	73	M26×1.5	14	7	16	23	137	12	23	7	42.8	69.2	30

Code					With switch										With bellows			Boss cutoff		
Bore size (mm)	LI	LR	LS	LT	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ	X	LG
					GC	GD	RD	HD	GC	GD	RD	HD								
ø20	15	30	44	3.2	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	51.2
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 length/3.25) + 7	115	49.2
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 length/3.25) + 7	115	49.2
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 length/3.25) + 7	121	53.2

Dimensions



● Rod side flange (FA)



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

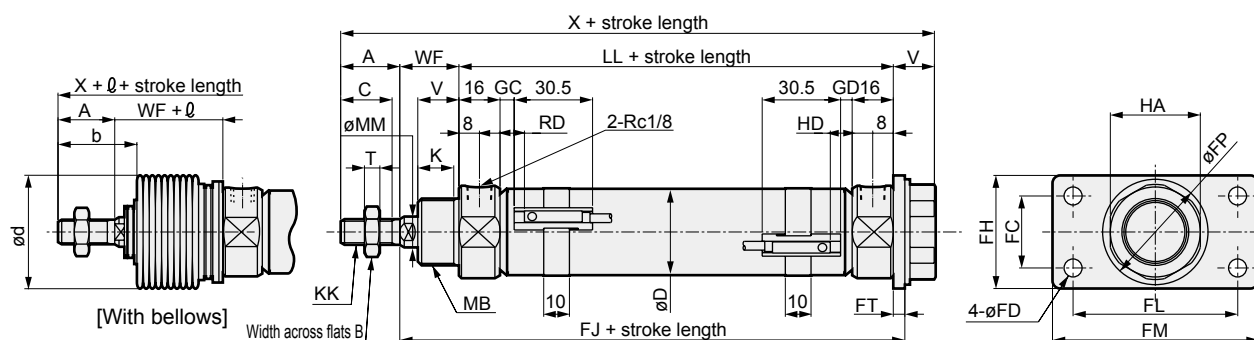
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*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 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	20	6	20.8	83.2
ø25	23	17	20	26.4	32	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	18.5	89.5
ø32	23	17	20	33.6	36	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	18.5	89.5
ø40	25	19	22	41.6	45	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	28	7	18.5	93.5

Code						With switch								With bellows			Boss cutoff	
Bore size (mm)	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	5.5	4.5	8	7	6	5	10	9	30	30	(Stroke length/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 length/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 length/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 length/3.25) + 7	121	77.5

● Head side flange (FB)



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

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

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

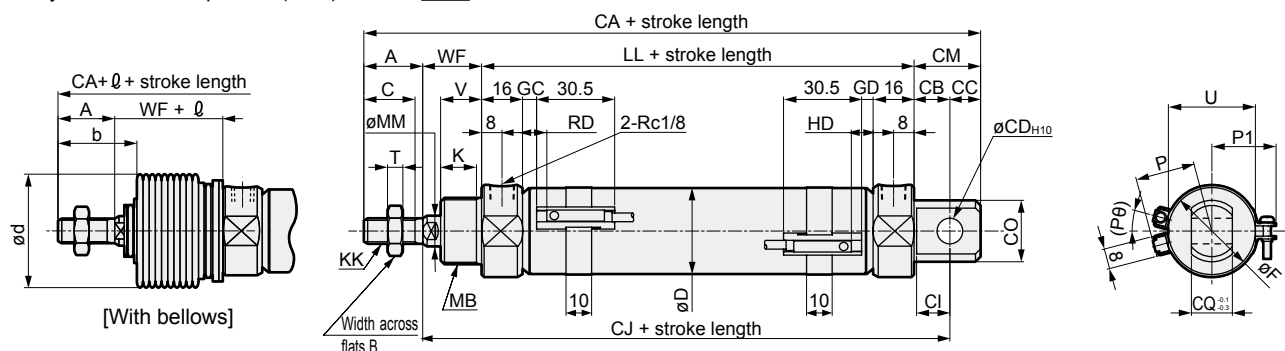
Code	Head side flange (FB) basic dimensions														Mounting dimensions		
Bore size (mm)	A	B	C	D	HA	K	KK	LL	MB	MM	T	V	WF	X	FC	FD	FH
ø20	20	13	18	21.4	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	20	6	34
ø25	23	17	20	26.4	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	44
ø32	23	17	20	33.6	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	44
ø40	25	19	22	41.6	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	28	7	44

Code						With switch								With bellows		
	FJ	FL	FM	FP	FT	T0, T5, T2, T3				T2W, T3W				b	d	ℓ
Bore size (mm)						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 length/3) + 6
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 length/3.25) + 7
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 length/3.25) + 7
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 length/3.25) + 7



Dimensions

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



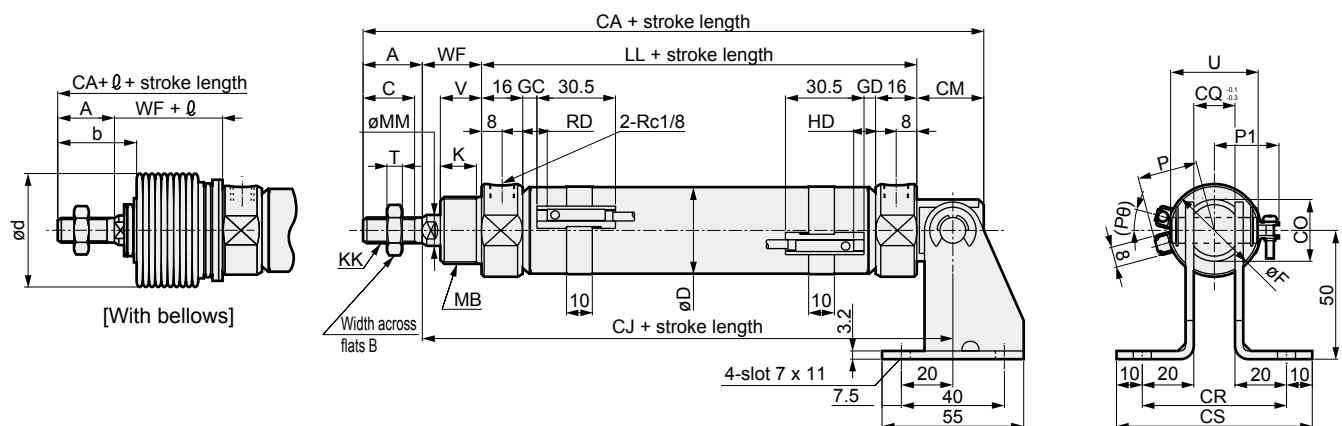
*1 : For the ℓ dimension, round up below the decimal point.

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

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

Code	Eye bracket integrated (CC) basic dimensions														Mounting dimensions				
Bore size (mm)	A	B	C	D	F	K	KK	LL	MB	MM	T	U	V	WF	CA	CB	CC	CD	CI
ø20	20	13	18	21.4	28	12	M 8 × 1.0	66	M18 × 1.5	10	5	24	14	24	131	12	9	8	11
ø25	23	17	20	26.4	32	14	M10 × 1.25	69	M26 × 1.5	12	6	30	16	23	136	12	9	8	11
ø32	23	17	20	33.6	36	14	M10 × 1.25	69	M26 × 1.5	12	6	34	16	23	141	14	12	10	13
ø40	25	19	22	41.6	45	14	M12 × 1.5	73	M26 × 1.5	14	7	43	16	23	151	16	14	12	15
Code					With switch										With bellows				
	CJ	CM	CO	CQ	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ	
					GC	GD	RD	HD	GC	GD	RD	HD							
ø20	102	21	22	16	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	
ø25	104	21	24	16	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	
ø32	106	26	24	16	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	
ø40	112	30	30	20	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	

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



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

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

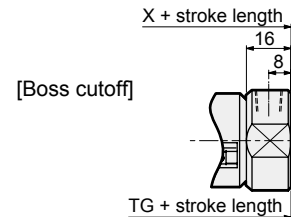
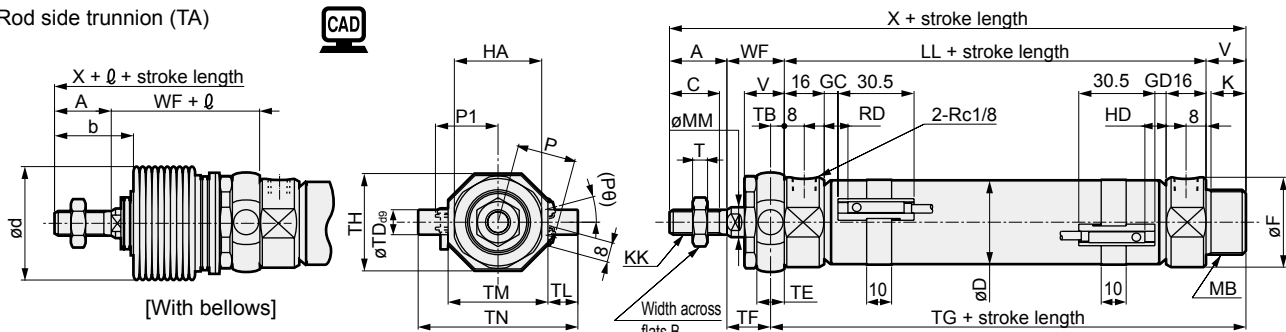
*3: For the dimensions of the accessories, refer to page 98.

Code	Eye bracket integrated (CC) with bracket (option code B2) basic dimensions														Mounting dimensions			
Bore size (mm)	A	B	C	D	F	K	KK	LL	MB	MM	T	U	V	WF	CA	CJ	CM	CO
ø20	20	13	18	21.4	28	12	M 8 × 1.0	66	M18 × 1.5	10	5	24	14	24	131	102	21	22
ø25	23	17	20	26.4	32	14	M10 × 1.25	69	M26 × 1.5	12	6	30	16	23	136	104	21	24
ø32	23	17	20	33.6	36	14	M10 × 1.25	69	M26 × 1.5	12	6	34	16	23	141	106	26	24
ø40	25	19	22	41.6	45	14	M12 × 1.5	73	M26 × 1.5	14	7	43	16	23	151	112	30	30

Code	With switch														With bellows		
Bore size (mm)	CQ	CR	CS	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ
ø20	16	56	76	GC	GD	RD	HD	GC	GD	RD	HD	17.3	19.5	22	30	30	(Stroke length/3) + 6
ø25	16	56	76	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
ø32	16	56	76	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
ø40	20	60	80	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

Dimensions

● Rod side trunnion (TA)



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

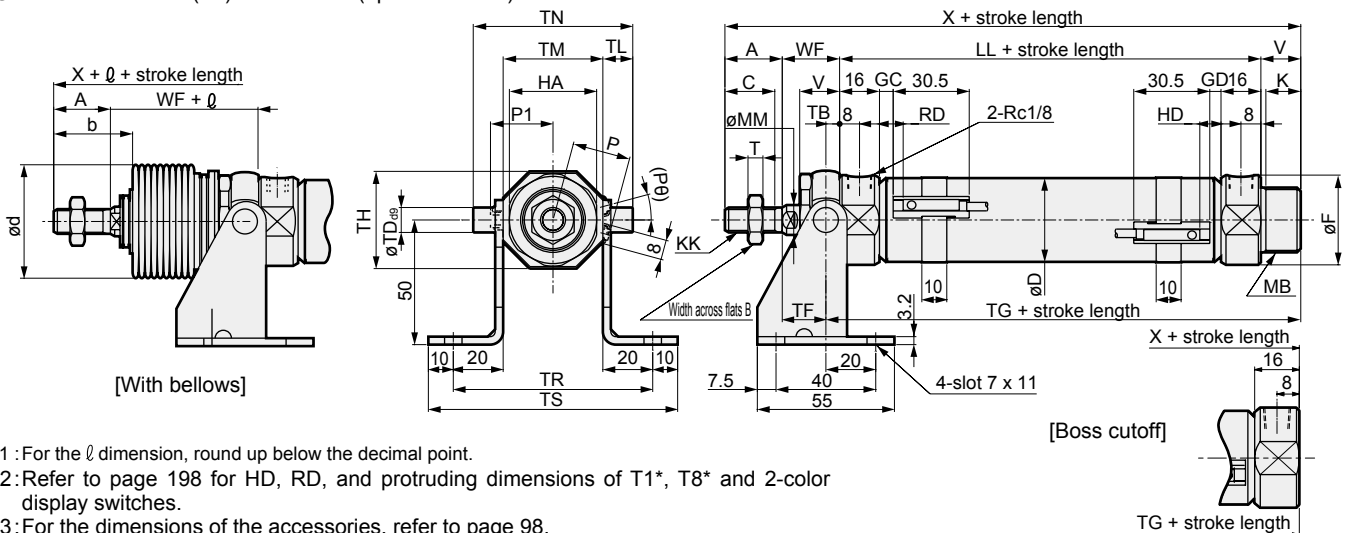
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

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

Code	Rod side trunnion (TA) basic dimensions															Mounting dimensions					
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TE	TF	TG	TH
ø20	20	13	18	21.4	28	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	9	19.5	84.5	29.5
ø25	23	17	20	26.4	32	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
ø32	23	17	20	33.6	36	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
ø40	25	19	22	41.6	45	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	11	17.5	94.5	44

Code				With switch											With bellows			Boss cutoff	
Bore size (mm)	TL	TM	TN	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	TG
				GC	GD	RD	HD	GC	GD	RD	HD								
ø20	8	30	46	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	70.5
ø25	12	40	64	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115	74.5
ø32	12	40	64	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115	74.5
ø40	9.5	53	72	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121	78.5

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



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

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

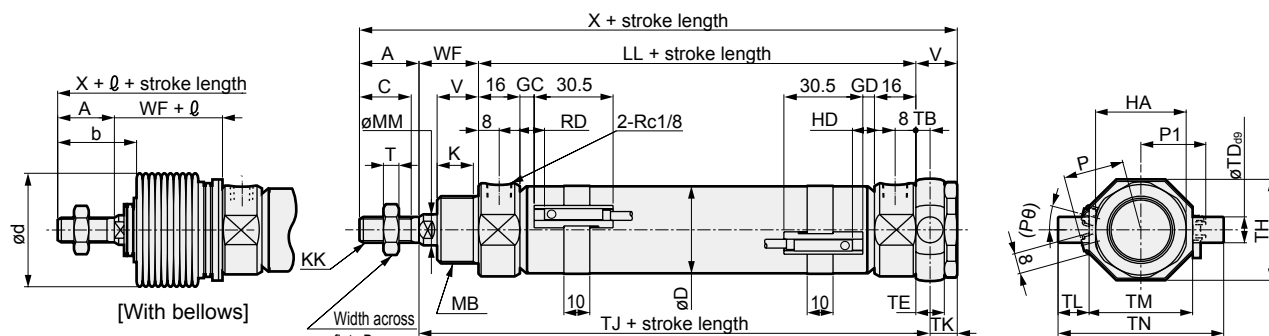
*3: For the dimensions of the accessories, refer to page 98.

Code	Rod side trunnion (TA) with bracket (option code B2) basic dimensions															Mounting dimensions				
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TF	TG	TH
ø20	20	13	18	21.4	28	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	19.5	84.5	29.5
ø25	23	17	20	26.4	32	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	17.5	90.5	39
ø32	23	17	20	33.6	36	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	17.5	90.5	39
ø40	25	19	22	41.6	45	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	17.5	94.5	44

Code	With switch										With bellows				Boss cutoff						
Bore size (mm)	TL	TM	TN	TR	TS	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	G
						GC	GD	RD	HD	GC	GD	RD	HD								
ø20	8	30	46	70	90	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	70.5
ø25	12	40	64	80	100	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115	74.5
ø32	12	40	64	80	100	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115	74.5
ø40	9.5	53	72	93	113	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121	78.5

Dimensions

● Head side trunnion (TB)



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

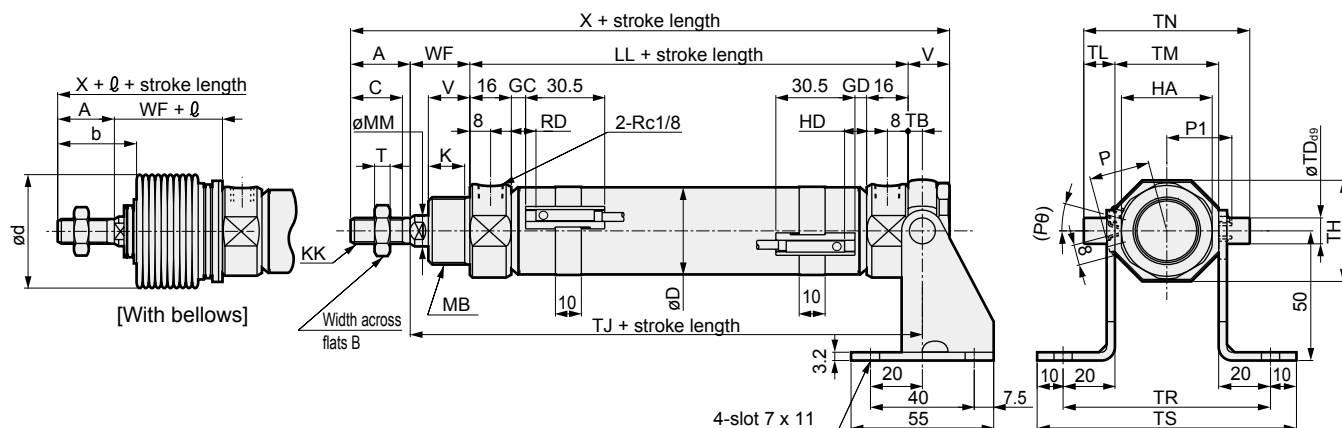
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*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 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	9	29.5	94.5
ø25	23	17	20	26.4	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	39	97.5
ø32	23	17	20	33.6	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	39	97.5
ø40	25	19	22	41.6	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	11	44	101.5

Code	With switch								With bellows									
	TK	TL	TM	TN	T0, T5, T2, T3				T2W, T3W				P	P1	(P8)°	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 length/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 length/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 length/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 length/3.25) + 7

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



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

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

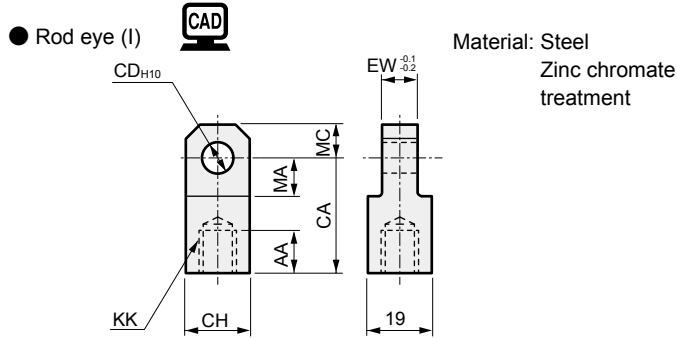
*3: For the dimensions of the accessories, refer to page 98.

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 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	29.5	94.5	8
ø25	23	17	20	26.4	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	39	97.5	12
ø32	23	17	20	33.6	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	39	97.5	12
ø40	25	19	22	41.6	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	44	101.5	9.5
Code					With switch										With bellows				
					T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ	
					GC	GD	RD	HD	GC	GD	RD	HD							
Bore size (mm)	TM	TN	TR	TS	GC	GD	RD	HD	GC	GD	RD	HD	P	P1	(P0)°	b	d	ℓ	
ø20	30	46	70	90	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/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 length/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 length/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 length/3.25) + 7	

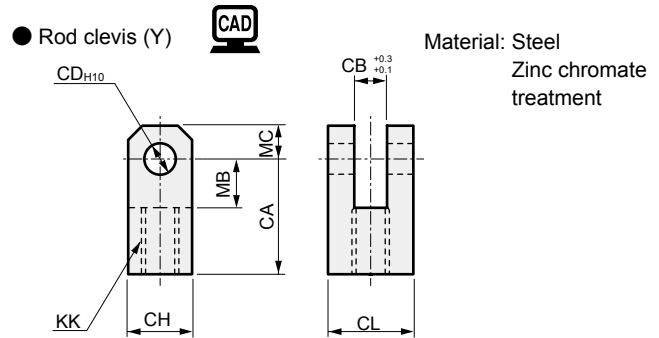
CMK2 Series

Accessories (rod eye/bracket/pin)

CMK2 Series common accessory dimensions

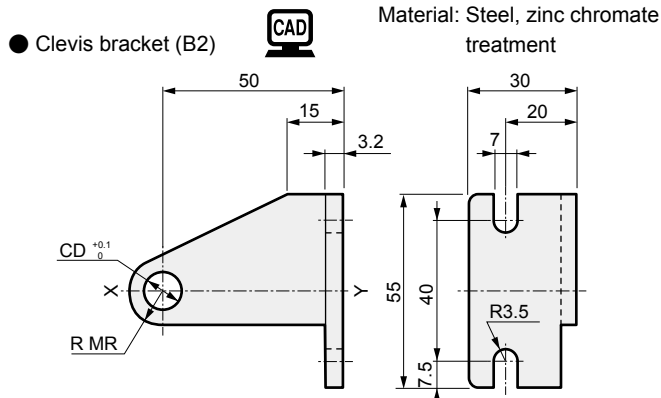


Model No.	Bore size (mm)	AA	CA	CD	CH	EW	KK	MA	MC	Weight (g)
M1-I-20	20	14	30	10	19	8	M8×1.0	13	10	60
M1-I-30	25/32	14	36	12	25	10	M10×1.25	16	12	106
M1-I-40	40	14	36	12	25	10	M12×1.5	16	12	100



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

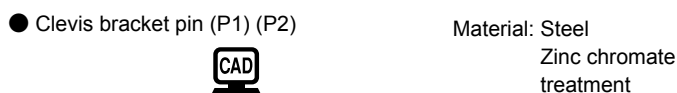
Note: A pin and split washer pin are included.



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

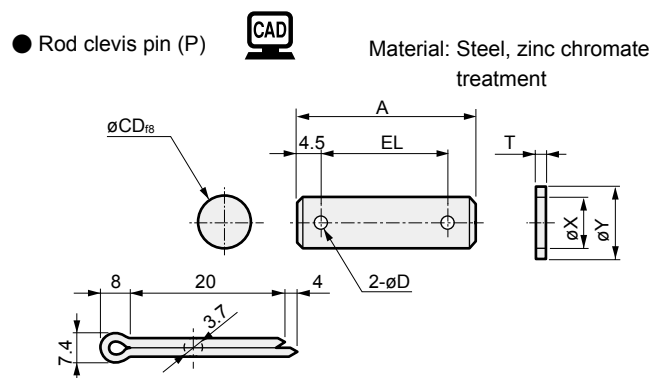
*1: One pair is composed of two pieces with XY symmetry.

*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.)



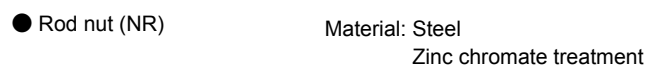
Model No.	Compatible model	Applicable bore size (mm)	A	B	CD	D	Applicable snap ring	Weight (g)
M1-P1-20	CMK2-CC	20/25	33	28	8	7	E 7	13
M1-P1-30		32	33	28	10	9	E 9	21
M1-P1-40		40	37	32	12	9	E 9	32
M1-P2-20	CMK2-CA	20	25	20	10	9	E 9	16
M1-P2-30		25/32/40	27	22	12	9	E 9	24

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	2	10.5	18	29
M1-P-30	25/32/40	46	4	12	37	2.5	13	21	50

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



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

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

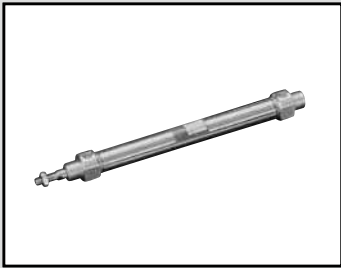
FJ

FK

Spd
Contr

Ending

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



Medium bore size cylinder
Single acting/push

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

JIS symbol ● Single acting cylinder/push

Specifications

Item		CMK2-S			
Bore size	mm	ø20	ø25	ø32	ø40
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	°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 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

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

Stroke length

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

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

Min. stroke length with switch

(Unit: mm)

Switch quantity	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 display

Item	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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		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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)			
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC		1 mA or less			10 μA or less			0 mA							
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80					1 m:33		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49						3 m:87		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80						5 m:142		

*1: Refer to Ending Page 1 for 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 length (S) = 0 mm								Switch weight (per 1 pc)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 length (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	0.04	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 $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg

Additional weight per S 0.11 kg

Weight of 2 switches 0.036 kg

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

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

Theoretical thrust table

(Unit: N)

Bore size (mm)	Working pressure MPa									
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
ø20	25	56	88	1.19×10^2	1.50×10^2	1.82×10^2	2.13×10^2	2.45×10^2	2.76×10^2	
ø25	58	1.07×10^2	1.56×10^2	2.05×10^2	2.55×10^2	3.04×10^2	3.53×10^2	4.02×10^2	4.51×10^2	
ø32	1.06×10^2	1.86×10^2	2.67×10^2	3.47×10^2	4.28×10^2	5.08×10^2	5.88×10^2	6.69×10^2	7.49×10^2	
ø40	1.51×10^2	2.77×10^2	4.03×10^2	5.28×10^2	6.54×10^2	7.80×10^2	9.10×10^2	1.03×10^3	1.16×10^3	

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

CMK2-S Series

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

How to order

Without switch (built-in magnet for switch)

CMK2-S-00-20-100-M-I

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 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-M-I

Model: Medium bore size cylinder, single acting/push

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

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

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 length (mm)		
Bore size	Stroke length *2	Custom stroke length
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 AC/DC	Display	Lead wire
T0H*	T0V*	Reed	● ●	1-color display	2-wire
T5H*	T5V*		● ●	Without indicator lamp	
T8H*	T8V*		● ●	1-color display	
T1H*	T1V*	Proximity	●	1-color display	2-wire
T2H*	T2V*		●		
T3H*	T3V*		●	1-color display	3-wire
T3PH*	T3PV*		●		
T2WH*	T2WV*		●	2-color display	2-wire
T2YH*	T2YV*		●		
T3WH*	T3WV*		●		3-wire
T3YH*	T3YV*		●		
T2JH*	T2JV*		●	1-color display off-delay	2-wire

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

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

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

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

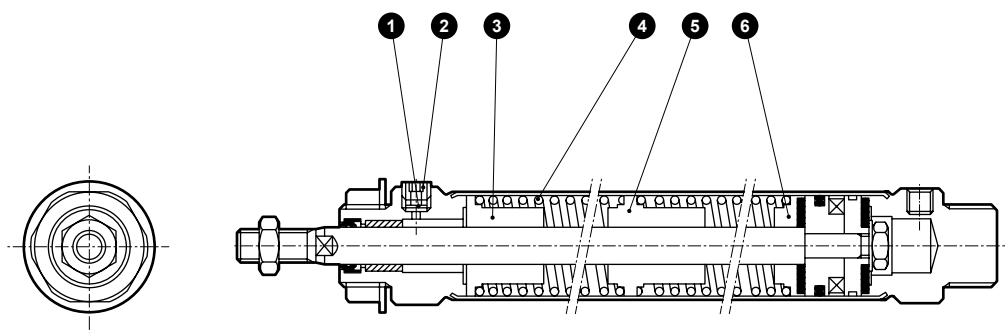
*3: Mounting nut, toothed washer only. Although 1 set is included with the basic of the product (00), use this when needed.

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-S Series

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

Internal structure and parts list



Cannot be disassembled

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

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

Spring load

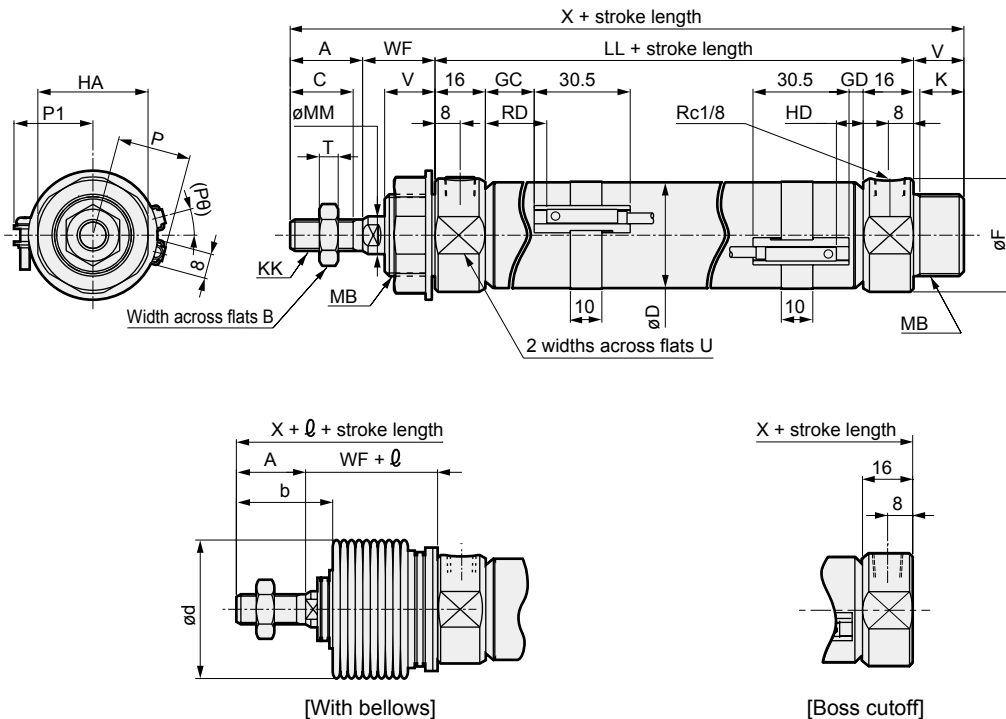
(Unit: N)

Bore size (mm)	Stroke length (mm)	25	50	75	100	150	200	250	300
ø20	At stroke length of 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8
	At full stroke length operation	31	38	31.5	38	38	38	38	38
ø25	At stroke length of 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	At full stroke length operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
ø32	At stroke length of 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
	At full stroke length operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
ø40	At stroke length of 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
	At full stroke length operation	78.4	100	82.3	100	100	100	100	100

Dimensions



● Basic (00)



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

*1: Dimensions of other mountings are the same as those of the standard. Refer to pages 92 to 97.
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
*3: For the ℓ dimension, round up below the decimal point.

Code	Basic (00) basic dimensions																MB	MM	T
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL										
									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 8 × 1.0	91	93	120	147	174	201	228	M18 × 1.5	10	5	
ø25	23	17	20	26.4	32	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26 × 1.5	12	6	
ø32	23	17	20	33.6	36	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26 × 1.5	12	6	
ø40	25	19	22	41.6	45	35	14	M12 × 1.5	98	103	133	163	193	223	253	M26 × 1.5	14	7	

Code											With switch								
	U	V	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			
Bore size (mm)														P		P1	(P0)°	b	d
	T0, T5, T2, T3					RD													
	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 75	Over 75 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	With bellows				Boss cutoff type						
Bore size (mm)	Q				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 length/3) + 6				135	137	164	191	218	245	242
ø25	(Stroke length/3.25) + 7				140	145	175	205	235	265	295
ø32	(Stroke length/3.25) + 7				140	145	175	205	235	265	295
ø40	(Stroke lenath/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

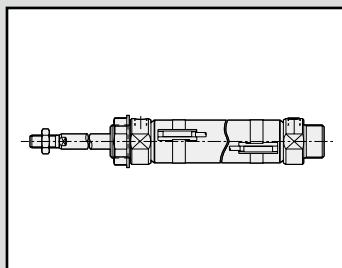
ShkAbs

FJ

FK

Spd
Contr

Ending



Medium bore size cylinder
Single acting/pull

CMK2-SR Series

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

JIS symbol

● Single acting cylinder/
pull type



Specifications

Item	CMK2-SR				
Bore size	mm	ø20	ø25	ø32	ø40
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	°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 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

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

Stroke length

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

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

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

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

Min. stroke length with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

- 1-color/2-color display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp		LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49					3 m:87		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80					5 m:142		

*1: Refer to Ending Page 1 for 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 length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 length (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 $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg
		Additional weight per S 0.09 kg
		Weight of 2 switches 0.036 kg
		Weight of switch rail + 2 bands ... 0.018 kg
		Product weight 0.45 kg+0.09 kg+0.10 kg+0.036 kg+0.018 kg=0.694 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Working pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	9	33	56	80	1.03×10^2	1.27×10^2	1.50×10^2	1.74×10^2	1.98×10^2
ø25	35	73	1.11×10^2	1.49×10^2	1.87×10^2	2.24×10^2	2.62×10^2	3.00×10^2	3.38×10^2
ø32	83	1.52×10^2	2.21×10^2	2.91×10^2	3.60×10^2	4.29×10^2	4.98×10^2	5.67×10^2	6.36×10^2
ø40	1.21×10^2	2.31×10^2	3.41×10^2	4.51×10^2	5.62×10^2	6.72×10^2	7.82×10^2	8.92×10^2	1.00×10^3

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

CMK2-SR Series

How to order

Without switch (built-in magnet for switch)

CMK2-SR - 00 - 20 - 25 - I

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

⚠ Precautions for model No. selection

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

*2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 106.

*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-SR-00-20-100-T0H-R-MI

Model: Medium bore size cylinder, single acting/pull

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

F Switch quantity
*8

G Option
*3
*4

H Accessory
*5

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 type
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 length (mm)		
Bore size	Stroke length *2	Custom stroke length
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 AC DC	Display	Lead wire	
T0H*	T0V*	Reed	● ●	1-color display	2-wire	
T5H*	T5V*		● ●	Without indicator lamp		
T8H*	T8V*		● ●	1-color display		
T1H*	T1V*	Prox.	●	1-color display	2-wire	
T2H*	T2V*		●		3-wire	
T3H*	T3V*		●	1-color display	3-wire	
T3PH*	T3PV*		●			
T2WH*	T2WV*		●	2-color display	2-wire	
T2YH*	T2YV*		●		3-wire	
T3WH*	T3WV*		●			
T3YH*	T3YV*		●	1-color display off-delay	2-wire	
T2JH*	T2JV*		●			

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

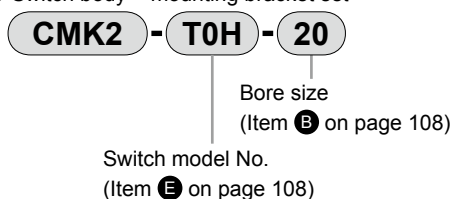
F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option			
		Max. ambient 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		

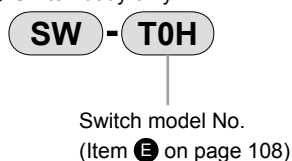
H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin included)
B2	Clevis bracket (pin and snap ring included)

How to order switch

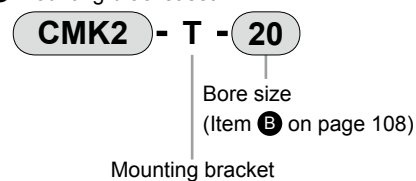
- Switch body + mounting bracket set



- 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.

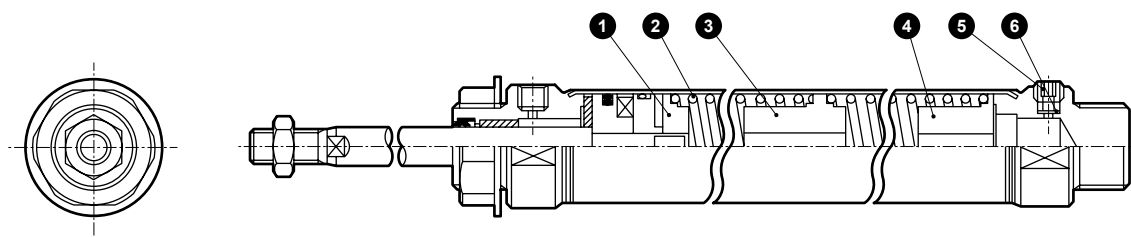
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/IN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

CMK2-SR Series

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

Internal structure and parts list

● CMK2-SR



Cannot be disassembled

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

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

Spring load

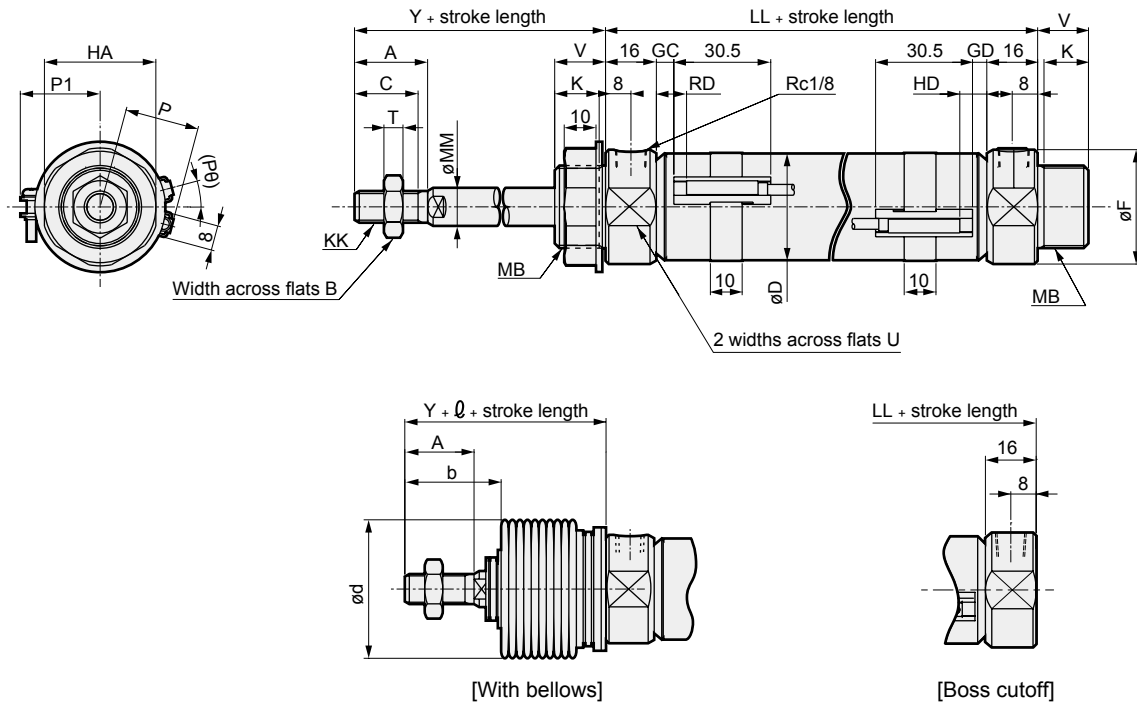
(Unit: N)

Bore size (mm)	Stroke length (mm)	25	50	75	100	150	200	250	300
ø20	At stroke length of 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8
	At full stroke length operation	31	38	31.5	38	38	38	38	38
ø25	At stroke length of 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	At full stroke length operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
ø32	At stroke length of 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
	At full stroke length operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
ø40	At stroke length of 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
	At full stroke length operation	78.4	100	82.3	100	100	100	100	100

Dimensions



● Basic (00)



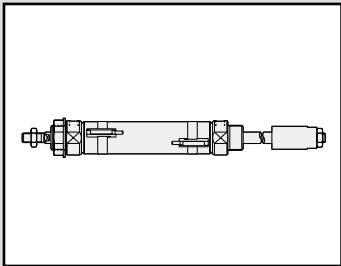
RD: Rod side max. sensitivity position
HD: Head side max. sensitivity position

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

Code		Basic (00) basic dimensions																	
Bore size (mm)		A	B	C	D	F	HA	K	KK	LL							MB	MM	T
		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 8 × 1.0	91	93	120	147	174	201	228	M18×1.5	10	5
	ø25	23	17	20	26.4	32	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26×1.5	12	6
	ø32	23	17	20	33.6	36	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26×1.5	12	6
	ø40	25	19	22	41.6	45	35	14	M12 × 1.5	98	103	133	163	193	223	253	M26×1.5	14	7
Code					With switch														
Bore size (mm)		U	V	Y	T0, T5, T2, T3			T2W, T3W			HD								
					T0, T5, T2, T3														
					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					
Bore size (mm)		HD								P	P1	(P0)°	b	d	ℓ				
		T2W, T3W																	
		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 length/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 length/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 length/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 length/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



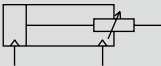
Medium bore size cylinder
double acting/stroke adjustable (push)

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	ø20	ø25	ø32	ø40
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	°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 ISO VG32 if necessary for lubrication)			
Adjustable stroke range	mm	Max. 50			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke length

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

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

Min. stroke length with switch

(Unit: mm)

Switch quantity	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
$\varnothing 20$	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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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		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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1mA or less			10 μA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49					3 m:87		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80					5 m:142		

*1: Refer to Ending Page 1 for 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 length	Product weight when stroke length (S) = 0 mm					Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
		Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Trunnion (TA/TB)			
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 0.02x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg

Weight of 2 switches 0.036 kg

Weight of switch rail + 2 bands 0.018 kg

Product weight 0.60 kg+0.1 kg+0.036 kg+0.018 kg=0.754 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	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	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
ø25	Push/Pull	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
ø32	Push/Pull	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
ø40	Push/Pull	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-P Series

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

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting B Bore size
*1

C Port thread

D Stroke length

E Adjustable stroke range

F Switch model No.

⚠ Precautions for model No. selection

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

*2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 112.

*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-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 : ø20 mm
- C Port thread : Rc thread
- D Stroke length : 100 mm
- E Adjustable stroke length : 25 mm
- F Switch model No. : Reed T0H switch, lead wire 1m
- G Switch quantity : 2
- H Option : With push-in fitting (straight)
- I Accessory : Rod eye

G Switch quantity
*8

H Option
*3, *4

I Accessory
*5

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	*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 length (mm)		
Bore size	Stroke length *2	Custom stroke length
ø20	25 to 450	In 1 mm increments
ø25	25 to 450	
ø32	25 to 430	
ø40	25 to 400	

E Adjustable stroke range (mm)	
25	25
50	50

F Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage AC DC	Display	Lead wire	
T0H*	T0V*	Reed	● ●	1-color display	2-wire	
T5H*	T5V*		● ●	Without indicator lamp		
T8H*	T8V*		● ●	1-color display		
T1H*	T1V*	Prox.	●	1-color display	2-wire	
T2H*	T2V*		●			
T3H*	T3V*		●	1-color display	3-wire	
T3PH*	T3PV*		●			
T2WH*	T2WV*		●	2-color display	2-wire	
T2YH*	T2YV*		●			
T3WH*	T3WV*		●			
T3YH*	T3YV*		●	1-color display off-delay	3-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)	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40

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

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

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

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/IN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

CMK2-P Series

SCP*3

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

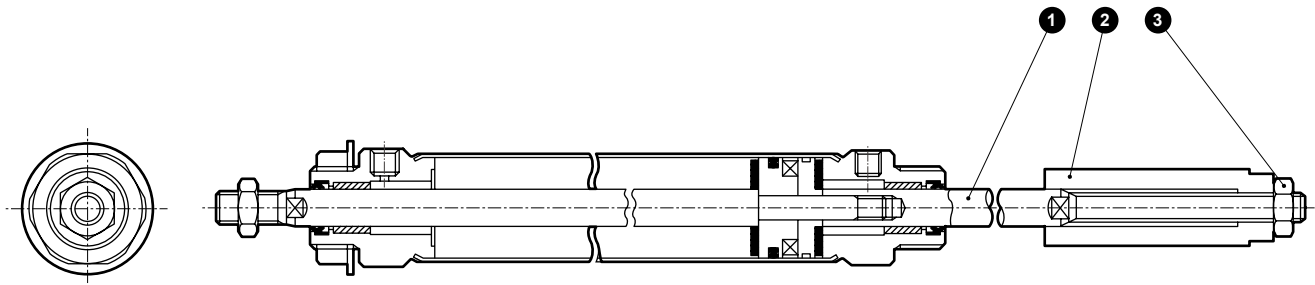
FJ

FK

Spd
Contr

Ending

Internal structure and parts list



Cannot be disassembled

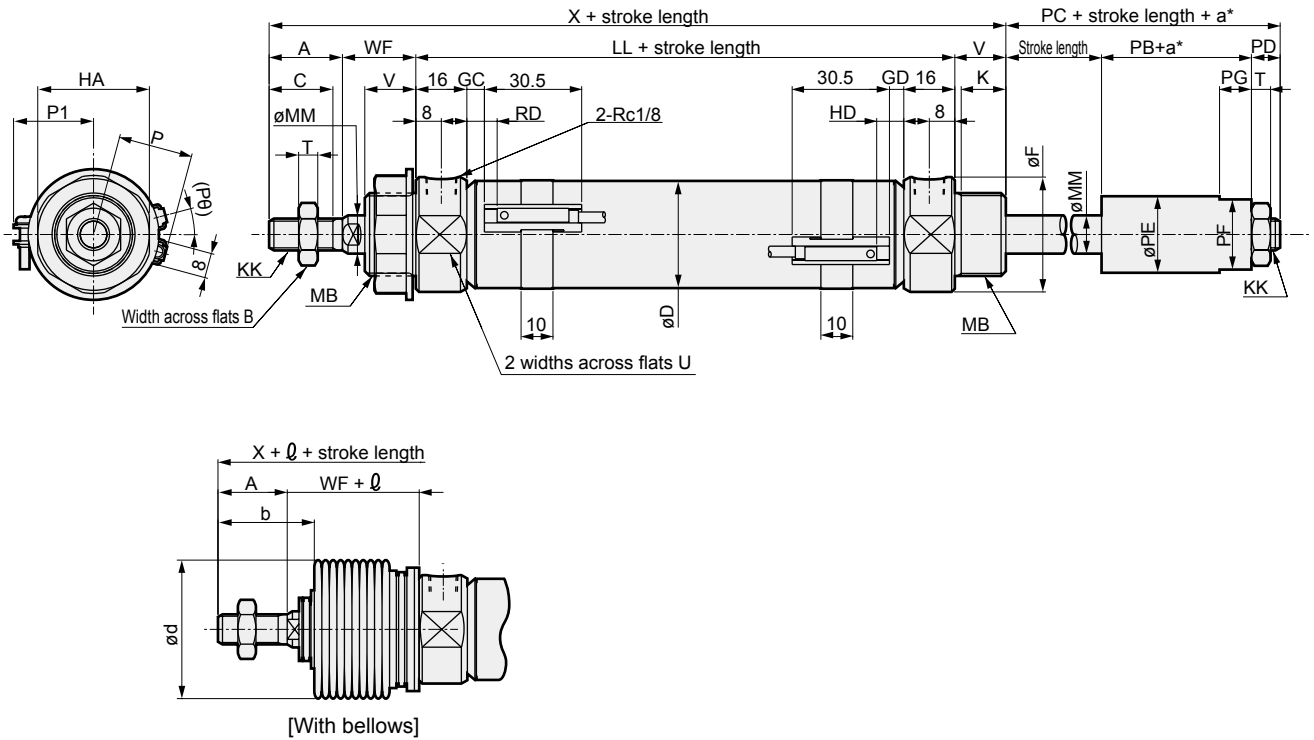
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks
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 display switches.
*2: For the ℓ dimension, round up below the decimal point.

* a: Adjustable stroke length.

Code	Basic (00) basic dimensions																
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	X	
ø20	20	13	18	21.4	28	26	12	M 8×1.0	66	M18×1.5	10	5	24	14	24	124	
ø25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	131	
ø32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	131	
ø40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	137	
Code							With switch										
Bore size (mm)	PB	PC	PD	PE	PF	PG	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°
							GC	GD	RD	HD	GC	GD	RD	HD			
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 length/3) + 6														
ø25	32	46	(Stroke length/3.25) + 7														
ø32	32	46	(Stroke length/3.25) + 7														
ø40	34	46	(Stroke length/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

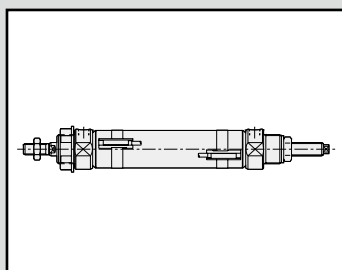
ShkAbs

FJ

FK

Spd
Contr

Ending



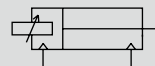
Medium bore size cylinder
Double acting/stroke adjustable (pull)

CMK2-R Series

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

JIS symbol

● Double acting/stroke adjustable



Specifications

Item	CMK2-R			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/stroke adjustable (pull)			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.1 (≈ 15 psi, 1 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14°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)			
Adjustable stroke range mm	Max. 50			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

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

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

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

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

Min. stroke length with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V			
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay IC circuit (no indicator), serial connection		For programmable controller, relay			
Output method	-				NPN output	PNP output	NPN output	NPN output	-						
Pwr. supp. V.	-				10 to 28 VDC				-						
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	
Load current	5 to 100 mA	5 to 20 mA (*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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp		LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49							
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80							

*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 length	Product weight when stroke length (S) = 0 mm					Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
		Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Trunnion (TA/TB)			
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 $\frac{\text{Product stroke length (50)}}{10}$ =0.10 kg
	Weight of 2 switches0.036 kg
	Weight of switch rail + 2 bands0.018 kg
	Product weight0.54 kg+0.1 kg+0.036 kg+0.018 kg=0.694 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	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
ø25	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
ø32	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
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-R Series

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Adjustable stroke range

F Switch model No.

G Switch quantity *9

H Option
*3, *4, *5

I Accessory
*6

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 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 length : 100 mm
- E** Adjustable stroke length : 25 mm
- F** Switch model No. : Reed T0H switch, lead wire 1 m
- G** Switch quantity : 2
- H** Option : Piston rod material (stainless steel)
- I** Accessory : Rod eye

Code	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 length (mm)		
Bore size	Stroke length *2	Custom stroke length
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	Radial lead wire	Contact	Voltage	Display	Lead wire	
		AC	DC			
T0H*	T0V*	●	●	1-color display	2-wire	
T5H*	T5V*	●	●	Without indicator lamp		
T8H*	T8V*	●	●	1-color display		
T1H*	T1V*	●	●	1-color display	2-wire	
T2H*	T2V*	●	●	1-color display	3-wire	
T3H*	T3V*	●	●	1-color display	2-wire	
T3PH*	T3PV*	●	●	1-color display	3-wire	
T2WH*	T2WV*	●	●	2-color display	2-wire	
T2YH*	T2YV*	●	●		3-wire	
T3WH*	T3WV*	●	●			
T3YH*	T3YV*	●	●	1-color display off-delay	2-wire	
T2JH*	T2JV*	●	●			

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

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

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

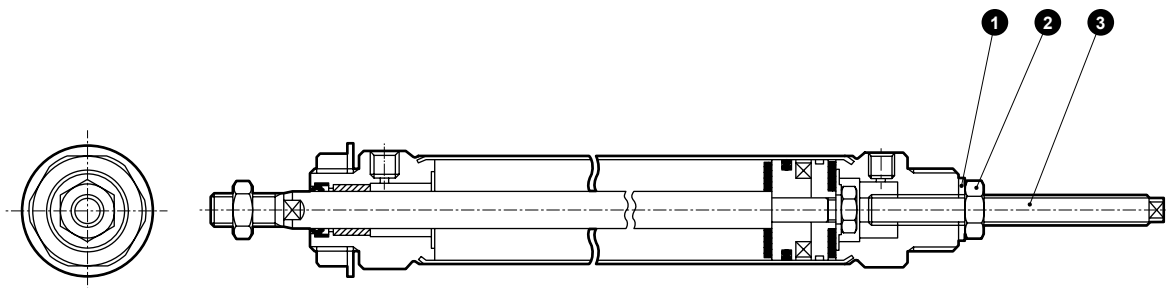
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

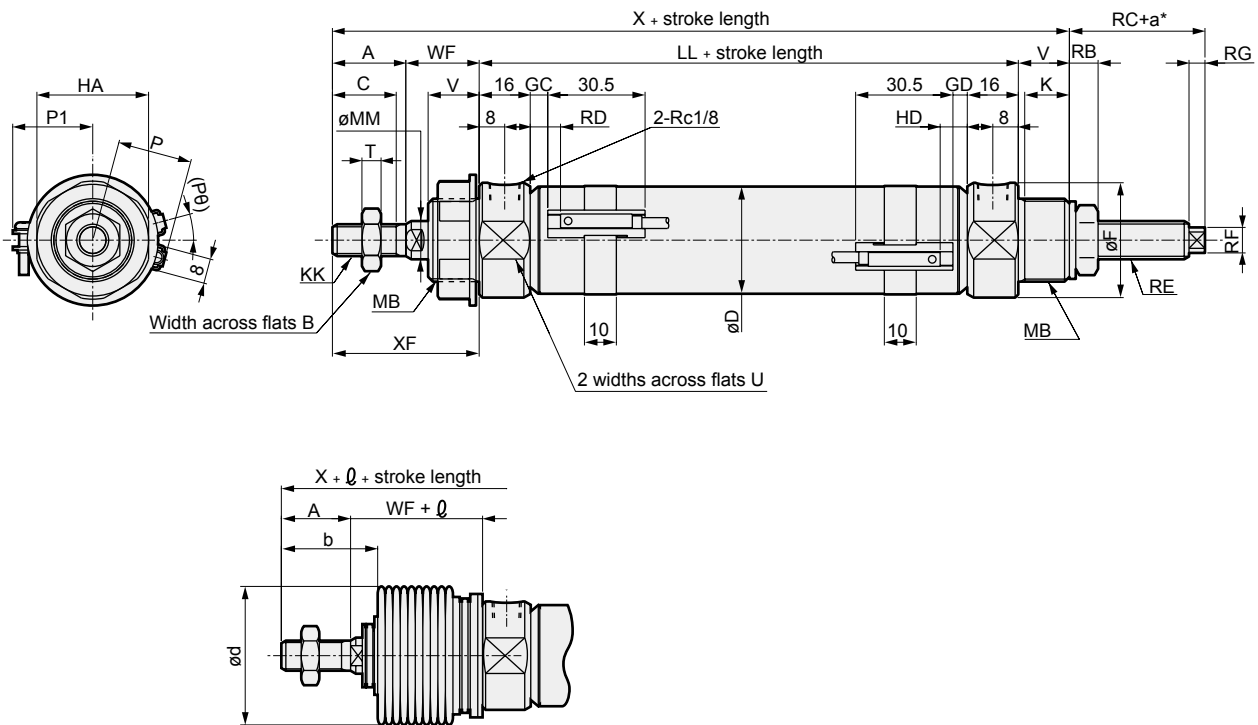
● Note: This product is caulked and cannot be disassembled.

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 Q dimension, round up below the decimal point. * a: Adjustable stroke length

Code	Basic (00) basic dimensions																
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	X	XF
ø20	20	13	18	21.4	28	26	12	M8×1.0	66	M18×1.5	10	5	24	14	24	124	44
ø25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	131	46
ø32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	131	46
ø40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	137	48

Code	With switch																	With bellows
Bore size (mm)	RB	RC	RE	RF	RG	T0, T5, T2, T3				T2W, T3W				P	P1	(P0) [°]	b	d
ø20	6.3	11	M 8×1.0	□5.5	3	GC	GD	RD	HD	GC	GD	RD	HD	17.3	19.5	22	30	30
ø25	9	17.5	M12×1.5	□8	5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46
ø32	9	17.5	M12×1.5	□8	5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46
ø40	9	16	M12×1.5	□8	5	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46

Code	Q	
Bore size (mm)		
ø20	(Stroke length/3) + 6	
ø25	(Stroke length/3.25) + 7	
ø32	(Stroke length/3.25) + 7	
ø40	(Stroke length/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



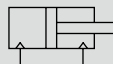
Medium bore size cylinder
Double acting/heat resistant

CMK2-T Series

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

JIS symbol

● Double acting cylinder single rod



Specifications

Item	CMK2-T			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
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 length

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

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

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Additional weight per S = 10mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)	
$\phi 20$	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	0.01
$\phi 25$	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36	0.01
$\phi 32$	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39	0.02
$\phi 40$	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 $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg
		Product weight0.44 kg+0.1 kg=0.54 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	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
ø25	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
ø32	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
ø40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

How to order

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Option
*2, *3

F Accessory
*4

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : Refer to page 124 for the max. and min. stroke lengths with bellows.
- *3 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- *4 : "I" and "Y" cannot be selected together.
- *5 : Refer to Ending Page 85 for custom specifications of rod end form.
- *6 : Refer to page 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 length : 100 mm
- E Option : Boss cutoff
- F Accessory : Rod eye

Code		Description	
A Mounting			
00	Basic		
LB	Axial foot (Both sides)		
LS	Axial foot (One side)		
FA	Rod side flange		
FB	Head side flange		
CA	Eye bracket		
CC	Eye bracket integrated		
CC1	Eye bracket, bush pressfit		
CB	Clevis bracket (pin and split washer pin included)		
TA	Rod side trunnion		
TB	Head side trunnion		
B Bore size (mm)			
20	ø20	*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 length (mm)			
Bore size		Stroke length	Custom stroke length
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)		

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

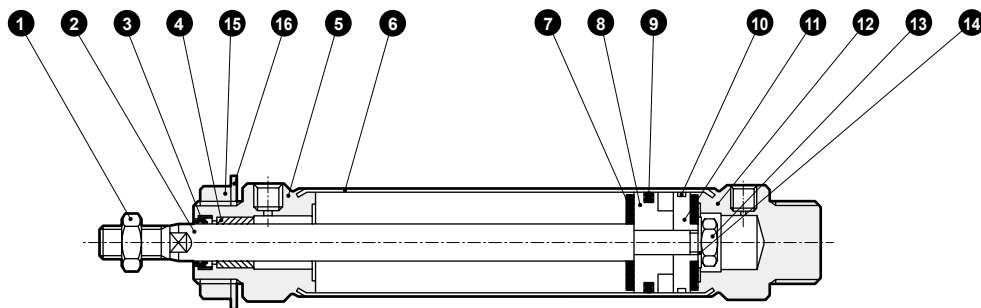
ShkAbs

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

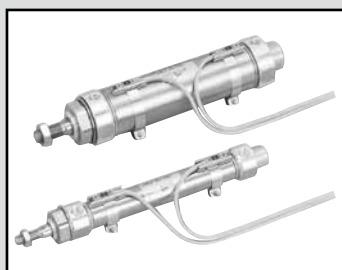
ShkAbs

FJ

FK

Spd
Contr

Ending

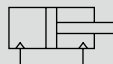


Medium bore size cylinder
Double acting/rubber-air cushioned

CMK2-*C Series

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

JIS symbol ● Double acting cylinder single rod



Specifications

Item	CMK2			
Bore size	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.2 (≈ 29 psi, 2 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2.0}_{-0}$ (Up to 200), $^{+2.4}_{-0}$ (More than 200)			
Working piston speed mm/s	50 to 500 (Operate within the absorbed energy.)			
Cushion	Rubber-air cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.089	0.137	0.179	0.278

Stroke length

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

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

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

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

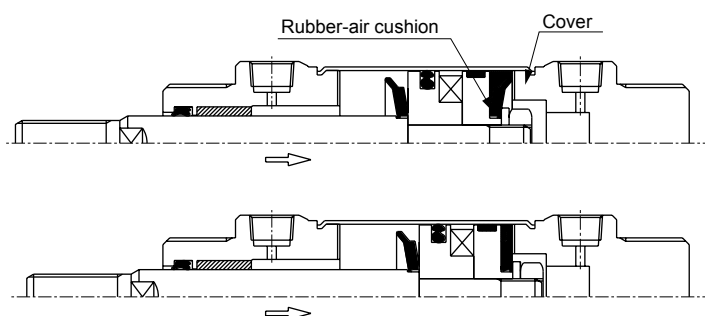
Min. stroke length with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

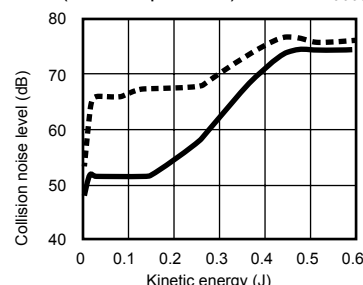
Rubber-air cushion mechanism



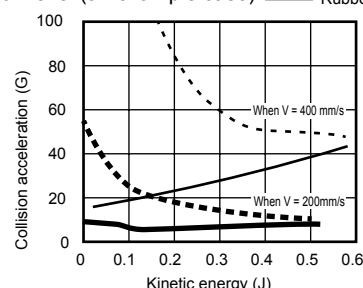
When pulled

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

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



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



Switch specifications

- 1-color/2-color display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80					1 m:33 3 m:87 5 m:142	
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49							
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80							

*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 length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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-FA-32C-50-T0H-D Product weight when S = 0 mm 0.45 kg
 Additional weight when S = 50mm Additional weight when S = 10 mm $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg
 Weight of 2 switches 0.036 kg
 Weight of switch rail + 2 bands 0.018 kg
 Product weight 0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa								
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	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	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
ø25	Push	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	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
ø32	Push	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	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
ø40	Push	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	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-*C Series

How to order

● Without switch (built-in magnet for switch)

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

● With switch (built-in magnet for switch)

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

Model No.

A Mounting
*1

Rubber-air
cushioned

B Bore size

C Port thread

D Stroke length

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

F Switch
quantity
*8

G Option
*3, *4

H Accessory
*5

Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 128.
- *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.]

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

Model: Medium bore size cylinder/rubber-air cushioned

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

Code	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	$\phi 20$
25	$\phi 25$
32	$\phi 32$
40	$\phi 40$

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

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

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

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

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

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

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 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/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

CMK2-*C 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

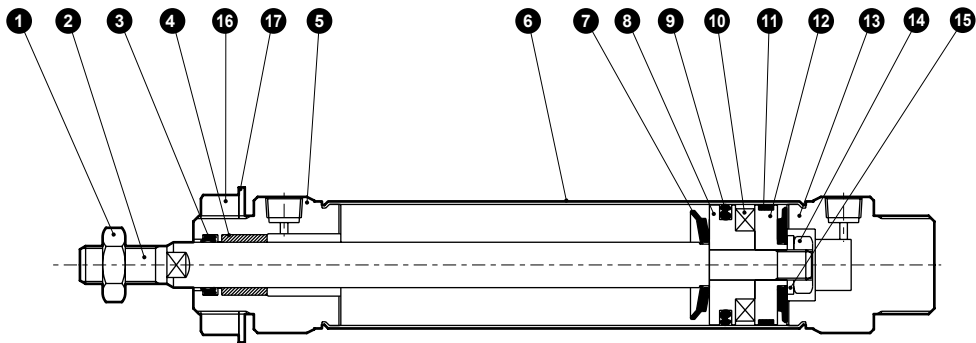
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

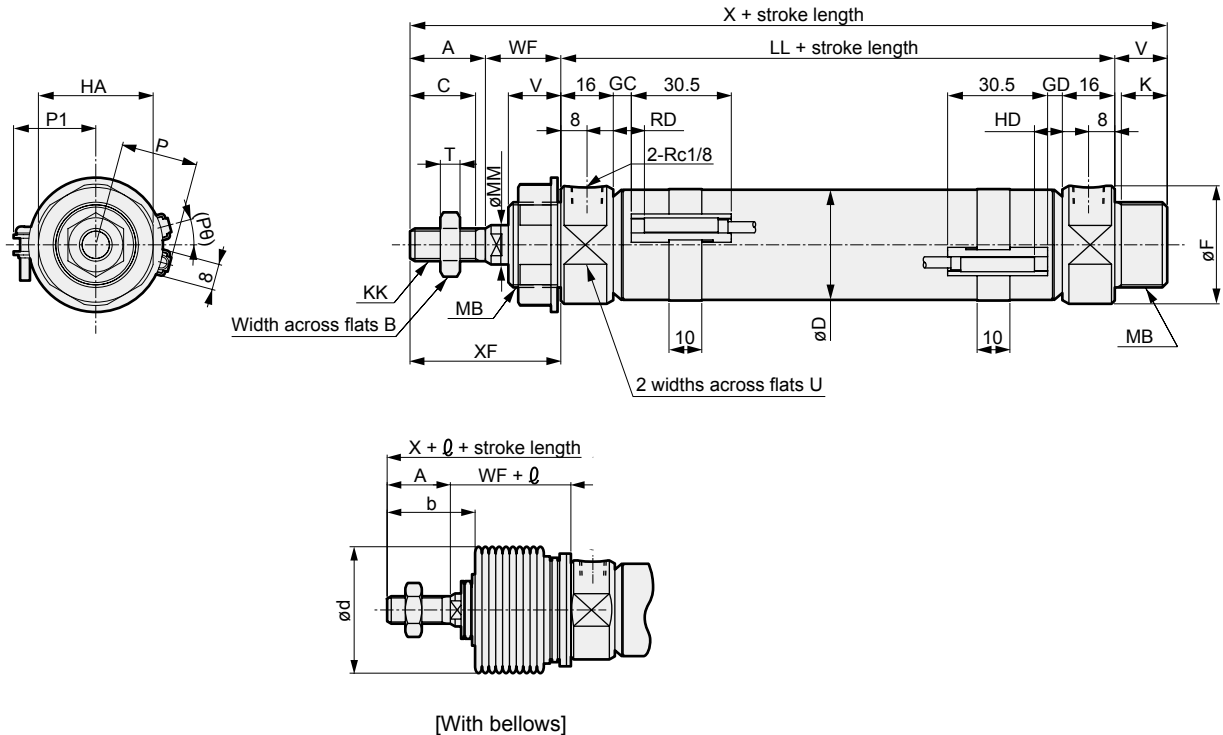
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	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

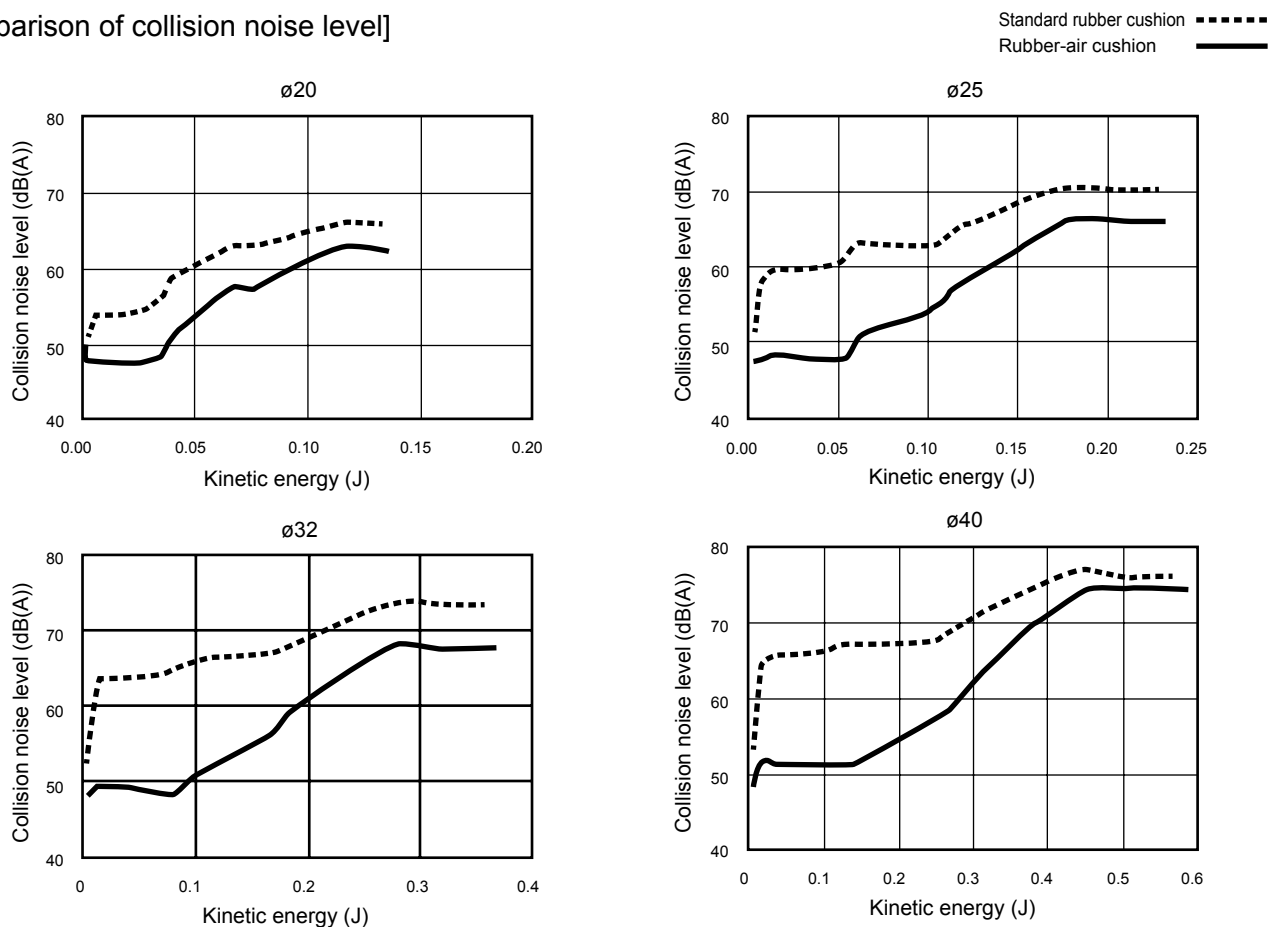
1: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
*2: For the ℓ dimension, round up below the decimal point.

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	M8×1.0	66	M18×1.5	10	5	24	14	24	124
ø25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	131
ø32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	131
ø40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	137
Code	With switch											With bellows				
Bore size (mm)	XF	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 length/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 length/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 length/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 length/3.25) + 7	

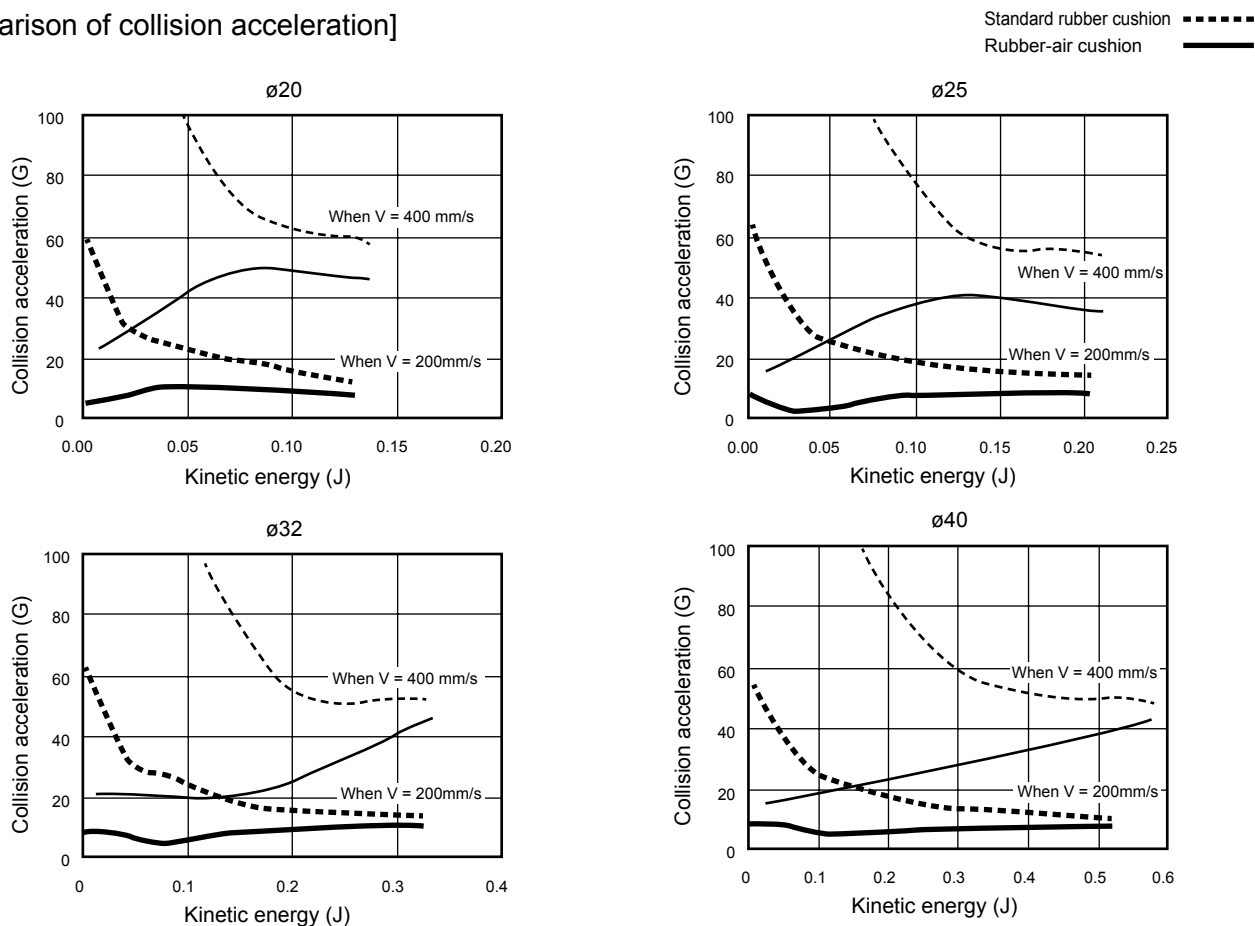
* Refer to pages 92 to 97 for mountings other than the basic one (00).

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

[Comparison of collision noise level]

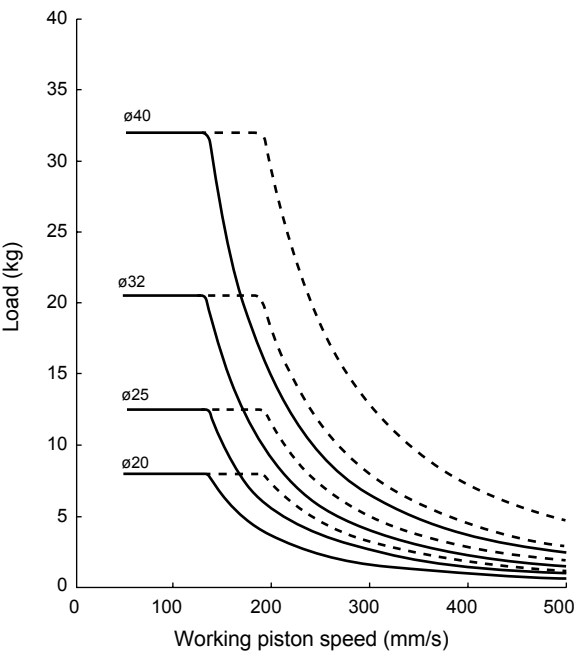


[Comparison of collision acceleration]



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

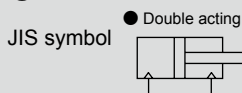
Ending



Medium bore size cylinder
double acting/air cushioned

CMK2-C Series

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



Specifications

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

Stroke length

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

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

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

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

Min. stroke length with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less			10 μA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33			
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49					3 m:87			
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80					5 m:142			

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

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

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

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

Weight of 2 switches..... 0.036 kg

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

Product weight..... 0.45 kg+0.1 kg+0.036 kg+0.018 Kg=0.604 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	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
ø25	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
ø32	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
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-C Series

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

⚠ Precautions for model No. selection

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

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

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

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

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

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

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

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

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

[Example of model No.]

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

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

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

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

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

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

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

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

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

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

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

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

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

How to order switch

- Switch body + mounting bracket set

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

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

- Switch body only

SW - **T0H**

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

- Mounting bracket set

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

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/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

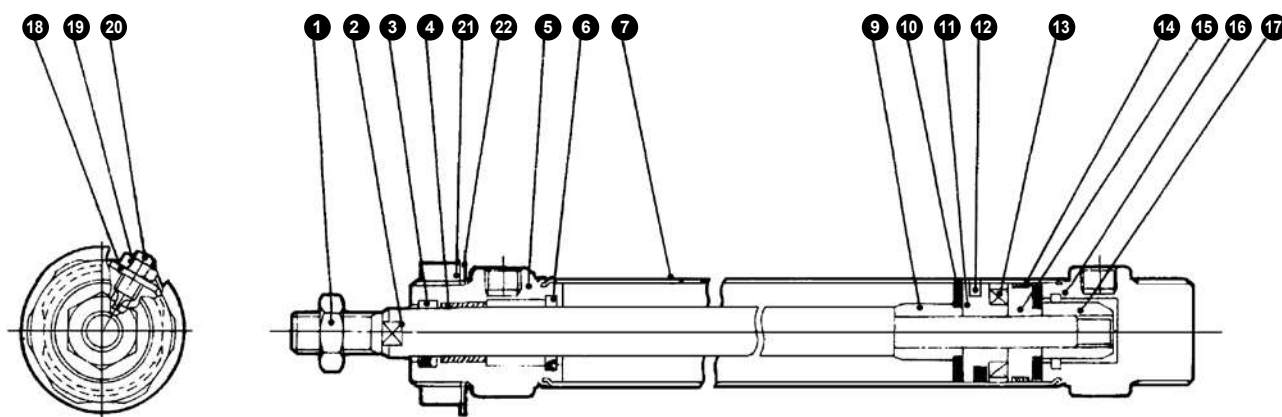
FJ

FK

Spd
Contr

Ending

Internal structure and parts list



Cannot be disassembled

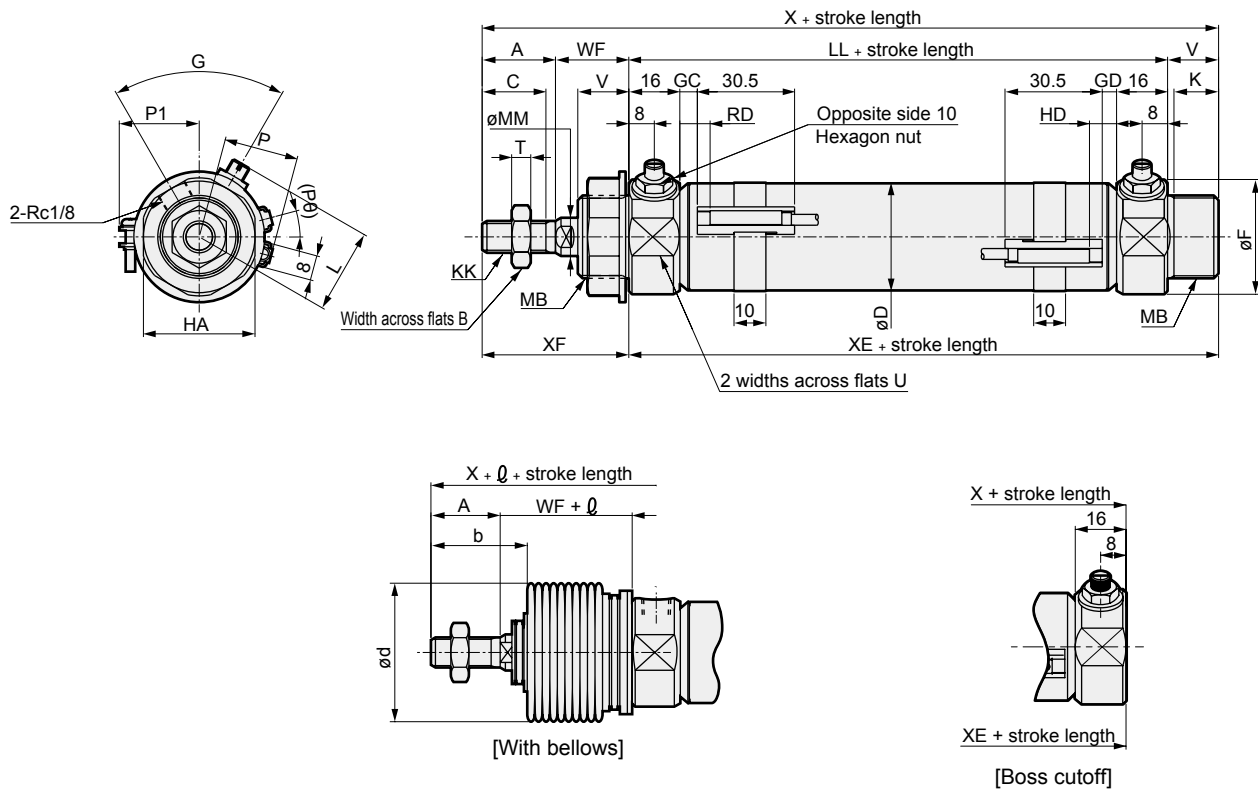
● Note: This product is caulked and cannot be disassembled.

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 display 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 8 × 1.0	23 to 25	66	M18 × 1.5	10	5	24	14	24	124	80	44
ø25	23	17	20	26.4	32	60	35	14	M10 × 1.25	25 to 27	69	M26 × 1.5	12	6	30	16	23	131	85	46
ø32	23	17	20	33.6	36	60	35	14	M10 × 1.25	25 to 26.5	69	M26 × 1.5	12	6	34	16	23	131	85	46
ø40	25	19	22	41.6	45	60	35	14	M12 × 1.5	31.5 to 33	73	M26 × 1.5	14	7	43	16	23	137	89	48

Code	With switch											With bellows			Boss cutoff	
	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	XE
	GC	GD	RD	HD	GC	GD	RD	HD								
ø20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/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 length/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 length/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 length/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/
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

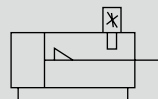
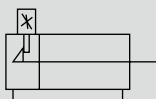


Medium bore size cylinder/
double acting/position locking

CMK2-Q Series

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

JIS symbol



Specifications

Item	CMK2-Q			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/position locking			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.15 (≈ 22 psi, 1.5 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14°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)			
Position locking mechanism	Head side or rod side			
Holding force N	Max. thrust x 0.7			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

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

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

Min. stroke length with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

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

Switch specifications

- 1-color/2-color display

Item	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Without indicator lamp	LED (Lit when ON)					
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less			10 μA or less			0 mA							
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33			
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49					3 m:87			
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80					5 m:142			

*1: Refer to Ending Page 1 for 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 length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg
		Weight of 2 switches0.036 kg
		Weight of switch rail + 2 bands0.018 kg
		Product weight0.47 kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.624 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	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	1.26 × 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	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
ø25	Push	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	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
ø32	Push	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	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
ø40	Push	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	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-Q Series

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

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Position locking mechanism

F Switch model No.

G Switch quantity
*7

H Option
*3
*8

I Accessory
*4

⚠ Precautions for model No. selection

- *1 : Rod side position locking of TA and head side position locking of TB are not available.
*2 : Refer to page 142 for min. stroke length with switch.
*3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is ø6.
*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 : ø20 mm
C Port thread : Rc thread
D Stroke length : 25 mm
E Position locking mechanism : With rod side position locking
F Switch model No. : Reed T0H switch, lead wire 1 m
G Switch quantity : 1 on rod side
H Option : Non-locking manual override
I Accessory : Rod clevis

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

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

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

* 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/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

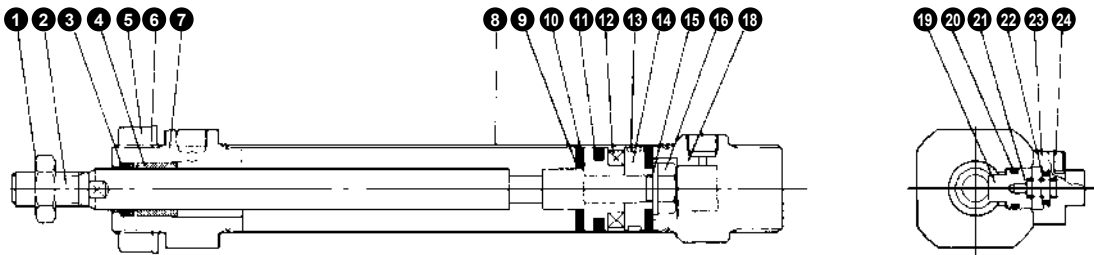
Ending

CMK2-Q Series

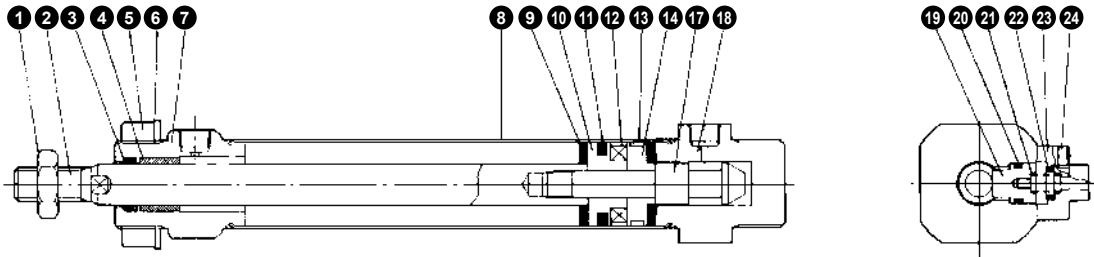
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

Internal structure and parts list

● CMK2-Q (rod side position locking)



● CMK2-Q (head side position locking)



Cannot be disassembled

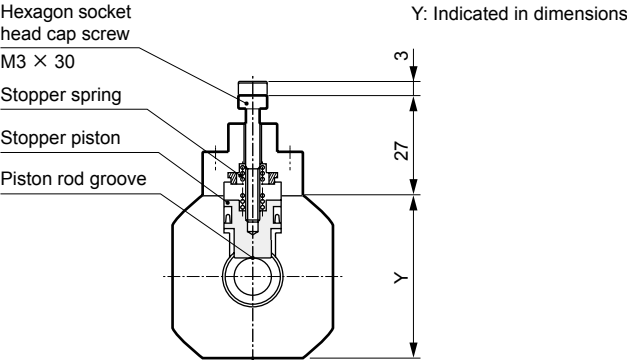
Note: This product is caulked and cannot be disassembled.

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.

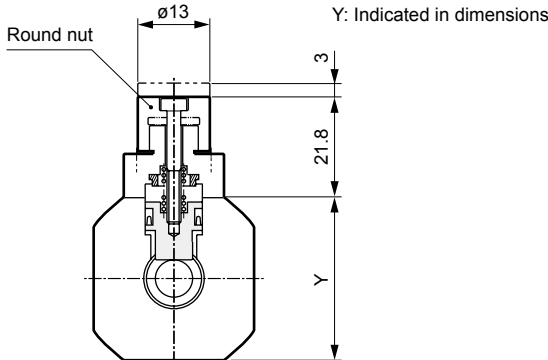
[Explanation of manual override]

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



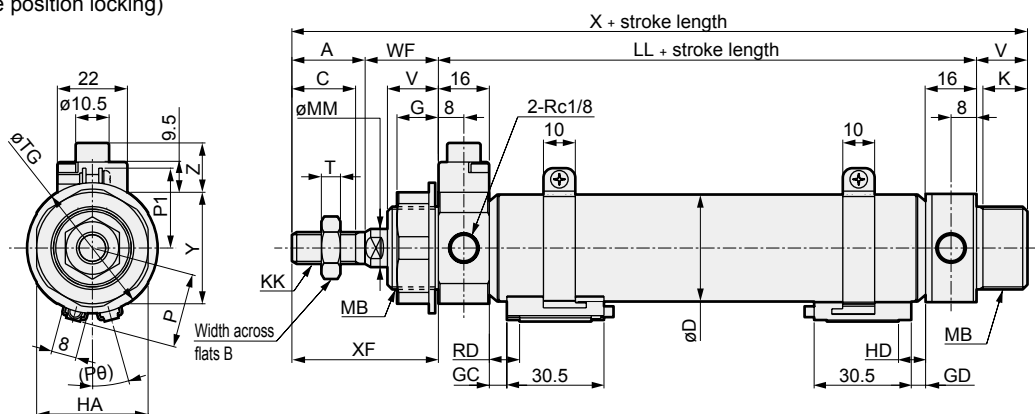
By screwing the hexagon socket head cap screw (M3 x 30) into the stopper piston and pulling the bolt 3 mm with force of 20 N or more, the stopper piston moves and the lock is released. (when horizontally installed with no load and with the opposite side port pressurized). When the screw is released,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

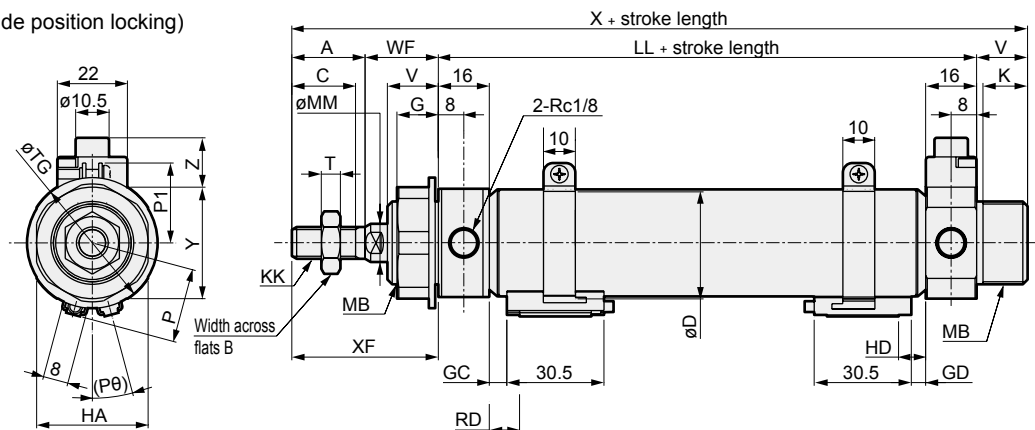


By rotating the round nut leftward (counterclockwise), the stopper piston moves and the lock is released. Rotating the round nut to the right (clockwise) to set it in the locked position causes the stopper piston to return. When it fits into the piston rod groove, the piston is locked.

- 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.

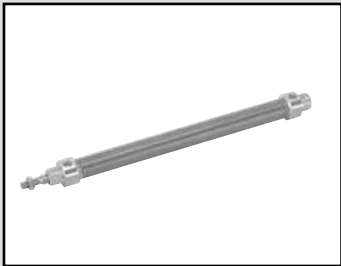
2: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

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 8 × 1.0	66	M18 × 1.5	10
ø25	23	17	20	26.4	(13)	35	14	M10 × 1.25	69	M26 × 1.5	12
ø32	23	17	20	33.6	(13)	35	14	M10 × 1.25	69	M26 × 1.5	12
ø40	25	19	22	41.6	(13)	35	14	M12 × 1.5	73	M26 × 1.5	14
Code									With switch		
	T	TG	V	WF	X	XF	Y	Z	T0, T5, T2, T3		
									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											
	HD	T2W, T3W				P	P1	(Pθ)°			
		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/
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: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$

JIS symbol

Specifications

Item	CMK2-F			
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 °C	5 (41°F) to 60 (140°F)			
Port size	Rc 1/8			
Stroke tolerance mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	1 to 200			
Cushion	Rubber cushion			
Lubrication	Lubrication not possible			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

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

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

Min. stroke length with switch

(Unit: mm)

Switch quantity	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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80					1 m:33	
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49						3 m:87	
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80						5 m:142	

*1: Refer to Ending Page 1 for 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 length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg
 Weight of 2 switches..... 0.036 kg
 Weight of switch rail + 2 bands.... 0.018 kg
 Product weight..... 0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	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
ø25	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
ø32	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
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-F Series

How to order

- Without switch (built-in magnet for switch)

CMK2-F - LB - 20 - 100 - V I

- With switch (built-in magnet for switch)

CMK2-F - LB - 20 - 100 - T0H - R - V I

Model No. A Mounting *1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity *6

G Option

H Accessory *3

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : Refer to page 148 for min. stroke length with switch.
- *3 : "I" and "Y" cannot be selected together.
- *4 : Refer to Ending Page 85 for custom specifications of rod end form.
- *5 : Refer to page 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 : ø20 mm
- C Port thread : Rc thread
- D Stroke length : 25 mm
- E Switch model No. : Reed switch T0H, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : Boss cutoff
- H Accessory : Rod eye

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

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

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

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

G Option	
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

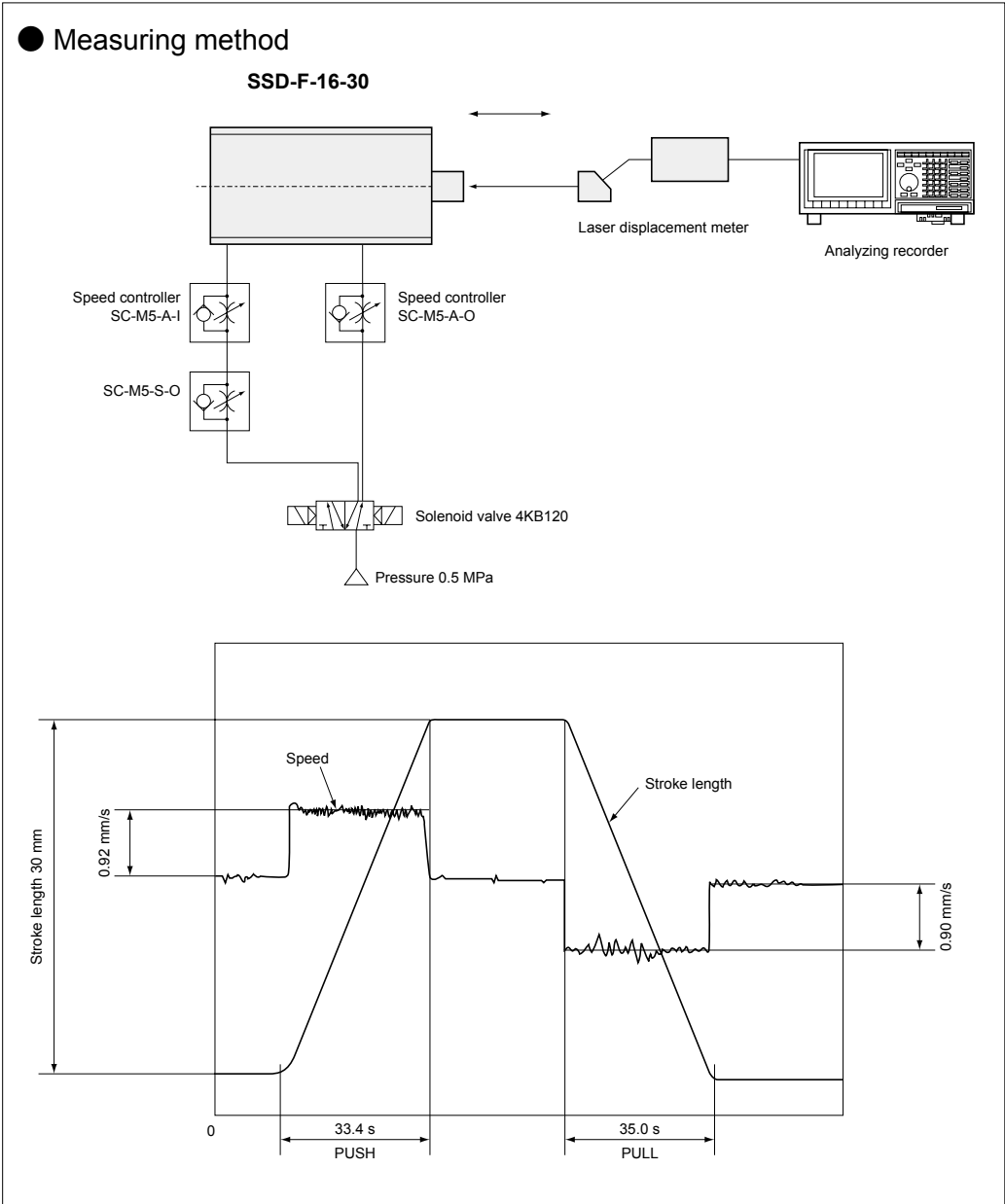
FJ

FK

Spd
Contr

Ending

SCP*3	Measurement data
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	



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

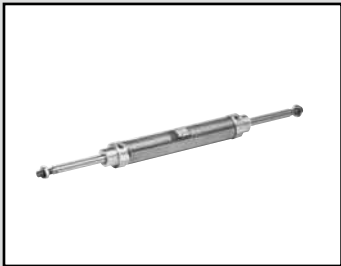
FJ

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

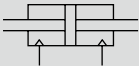


Medium bore size cylinder
double acting/double rod

CMK2-D Series

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

JIS symbol ● Double acting cylinder double rod



Specifications

Item	CMK2-D				
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
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	°C	-10 (14°F) to 60 (140°F) (no freezing)			
Port size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed	mm/s	50 to 500			
Cushion		Rubber cushion			
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)				
		Without bellows	With bellows	Without bellows Bellows “L”	Bellows “J”			
ø20	25/50/75/100/ 150/200/250/ 300	480	300	5	25			
ø25								
ø32		450						
ø40								

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

Min. stroke length with switch

(Unit: mm)

Switch quantity Bore size (mm)	1					2					3				
	Proximity			Reed		Proximity			Reed		Proximity			Reed	
	T2, T3	T2W, T3W	T4, T*Y*	T0, T5	T8	T2, T3	T2W, T3W	T4, T*Y*	T0, T5	T8	T2, T3	T2W, T3W	T4, T*Y*	T0, T5	T8
ø20	10					25	30	35	25	35	50	55	55	50	55
ø25	10					25	30	35	25	35	50	55	55	50	55
ø32	10					25	30	35	25	35	50	55	55	50	55
ø40	10					25	30	35	25	35	50	55	55	50	55

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire				Proximity 2-wire				Proximity 3-wire				Reed 2-wire					
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)					
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA									
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33					
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49					3 m:87					
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80					5 m:142					

*1: Refer to Ending Page 1 for 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 length (S) = 0 mm					Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Trunnion (TA/TB)			
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	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
ø25	Push/Pull	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
ø32	Push/Pull	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
ø40	Push/Pull	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-D Series

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*7

G Option
*3, *4

H Accessory

⚠ Precautions for model No. selection

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

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

*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 : 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-JI

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

- A Mounting : Basic
- B Bore size : ø20 mm
- C Port thread : Rc thread
- D Stroke length : 100 mm
- E Switch model No. : Reed T0H switch, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : Bellows, max. ambient temperature 100°C, instantaneous max. temperature 200°C
- H Accessory : Rod eye

Code	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	ø20	*8
25	ø25	*8
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 length (mm)		
Bore size	Stroke length *2	Custom stroke length
ø20	5 to 500	In 1 mm increments
ø25	5 to 500	
ø32	5 to 480	
ø40	5 to 450	

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

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

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

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

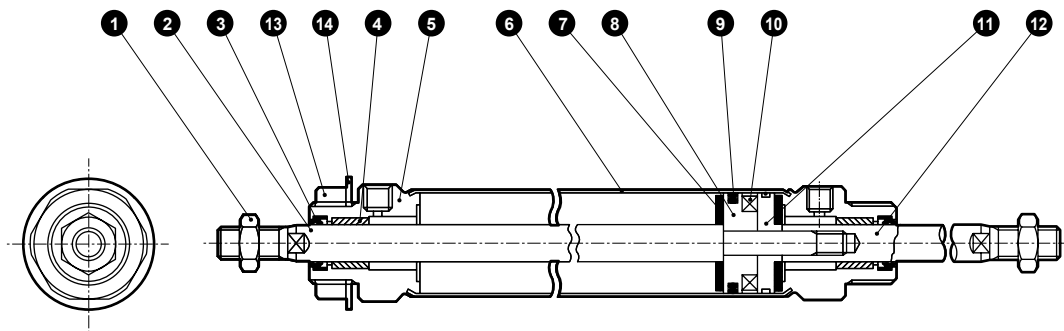
How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Basic (00)	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/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

Internal structure and parts list



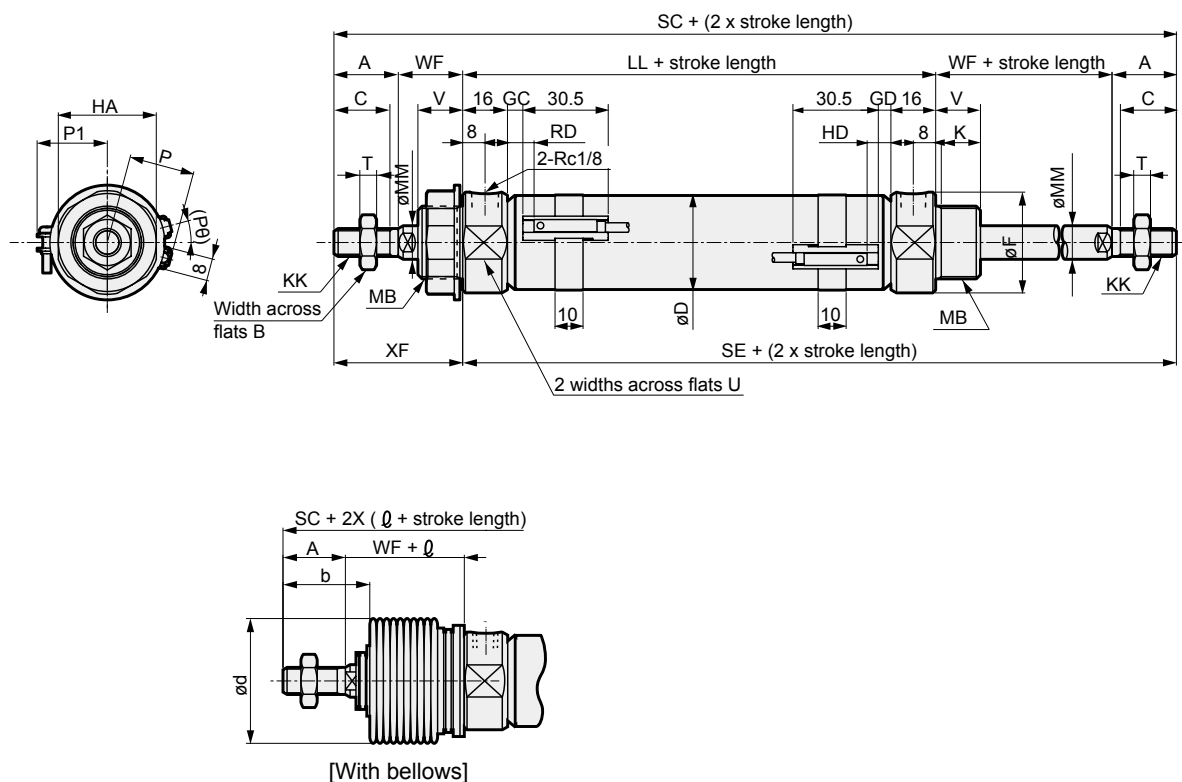
Cannot be disassembled

● 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.

- Basic (00)



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

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

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

*3 : The positions for the left and right widths across flats are unspecified.

Code	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	XF	SC	SE	With switch	
																			T0, T5, T2, T3	
																			GC	GD
ø20	20	13	18	21.4	28	26	12	M 8×1.0	66	M18×1.5	10	5	24	14	24	44	154	110	4	3
ø25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	46	161	115	5.5	4.5
ø32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	46	161	115	5.5	4.5
ø40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	48	169	121	7.5	6.5
Code										With bellows										
			T2W, T3W				P	P1	(Pθ)°	b	d	ℓ								
	RD	HD	GC	GD	RD	HD														
ø20	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6								
ø25	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7								
ø32	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7								
ø40	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7								

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



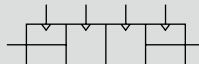
Medium bore size cylinder
double acting/back to back

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 $^{\circ}\text{F}$) 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)			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

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

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

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

Min. stroke length with switch

(Unit: mm)

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

Item	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 μA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80					1 m:33	
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49						3 m:87	
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80						5 m:142	

*1: Refer to Ending Page 1 for 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 length (S) = 0 mm			Additional weight			Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Basic (00)	Axial foot (LB)	Flange (FA)			
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

(Example) Product weight of CMK2-B-FA-32-50-T0H-D-50-T0H-R		[S ₁ weight]							
		Product weight when S = 0 mm..... 0.45kg							
		Additional weight when S = 50 mm..... Additional weight when S = 10 mm 0.02 x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg							
		Weight of 2 switches..... 0.036 kg							
		Weight of switch rail + 2 bands..... 0.018 kg							
		Weight of S ₁ 0.45 kg + 0.1kg + 0.036 kg + 0.018 kg = 0.604 kg							
		[S ₂ weight]							
		Product weight when S = 0 mm..... 0.45kg							
		Additional weight when S = 50 mm..... Additional weight when S = 10 mm 0.02 x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg							
		Weight of 2 switches..... 0.036 kg							
		Weight of switch rail + 2 bands..... 0.018 kg							
		Weight of S ₂ 0.45 kg + 0.10kg + 0.036 kg + 0.018 kg = 0.604 kg							
		Product weight (S ₁ weight + S ₂ weight + additional weight).....							
		 0.604 kg + 0.604 kg + 0.20 kg = 1.408 kg							

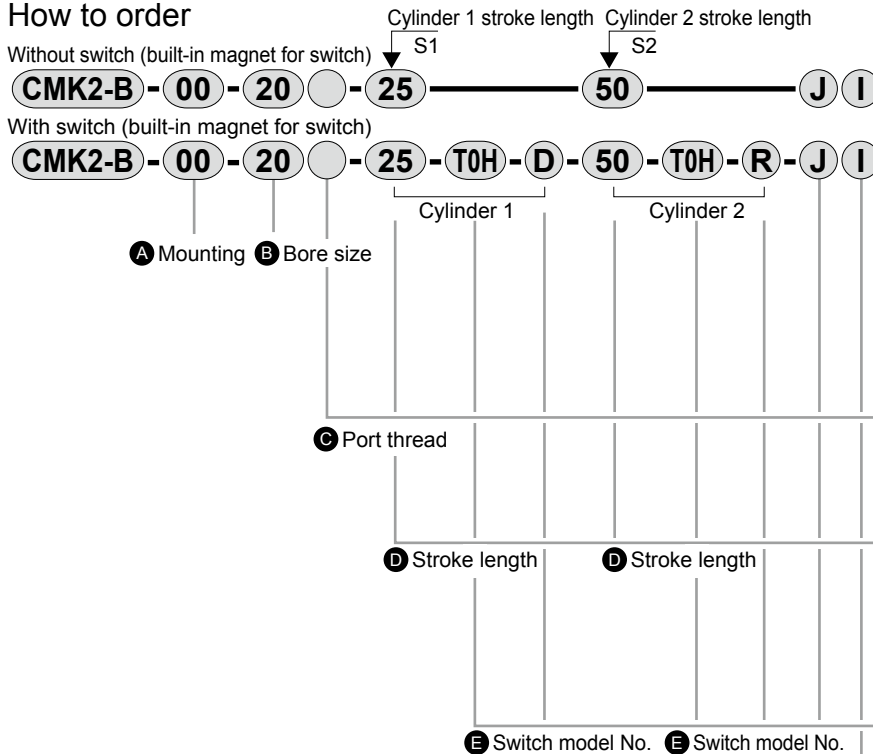
Theoretical thrust table

(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	1.26×10^2	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
ø25	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
ø32	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
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-B Series

How to order



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

B Bore size (mm)		
20	ø20	*8
25	ø25	*8
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 length (mm)		
Bore size	Stroke length *1	Custom stroke length
ø20	5 to 750	In 1 mm increments
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

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

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

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

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

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

⚠ Precautions for model No. selection

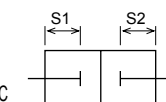
- *1: For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 160.
- *2: The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is ø6.
- *3: The instantaneous max. temperature is the temperature when sparks 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 : ø20 mm
- C Port thread : Rc thread
- D Stroke length (S1) : 25 mm
- E Switch model No. (S1): Reed T0H switch
Lead wire 1 m 1st stage stroke length 25 mm (S1)
+ 2nd stage stroke length 50 mm (S2)
Total stroke length 75 mm S1 + S2
- F Switch quantity (S1) : 2
- D Stroke length (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 temperature 100°C, instantaneous max. temperature 200°C
- H Accessory : Rod eye



How to order switch

● Switch body + mounting bracket set

CMK2 - T0H - 20

Switch model No. (Item E on page 162)

Bore size (Item B on page 162)

● Switch body only

SW - T0H

Switch model No. (Item E on page 162)

● Mounting bracket set

CMK2 - T - 20

Mounting bracket

Bore size (Item B on page 162)

How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Basic (00)	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/IN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

SCP*3 Internal structure and parts list

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

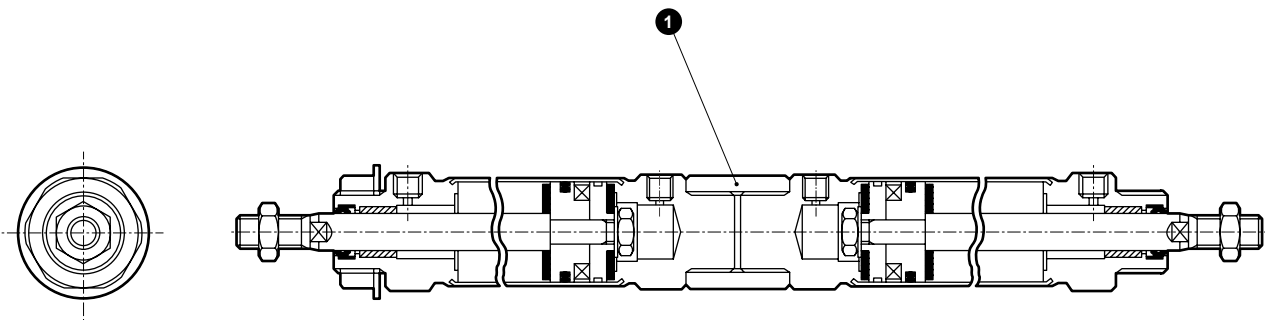
ShkAbs

FJ

FK

Spd
Contr

Ending



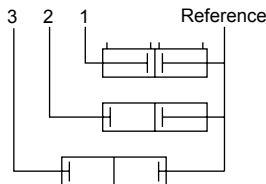
● Note: This product is caulked and cannot be disassembled.

Cannot be disassembled

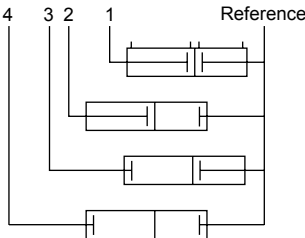
No.	Part name	Material	Remarks
1	Adaptor	Aluminum alloy	

Applications

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



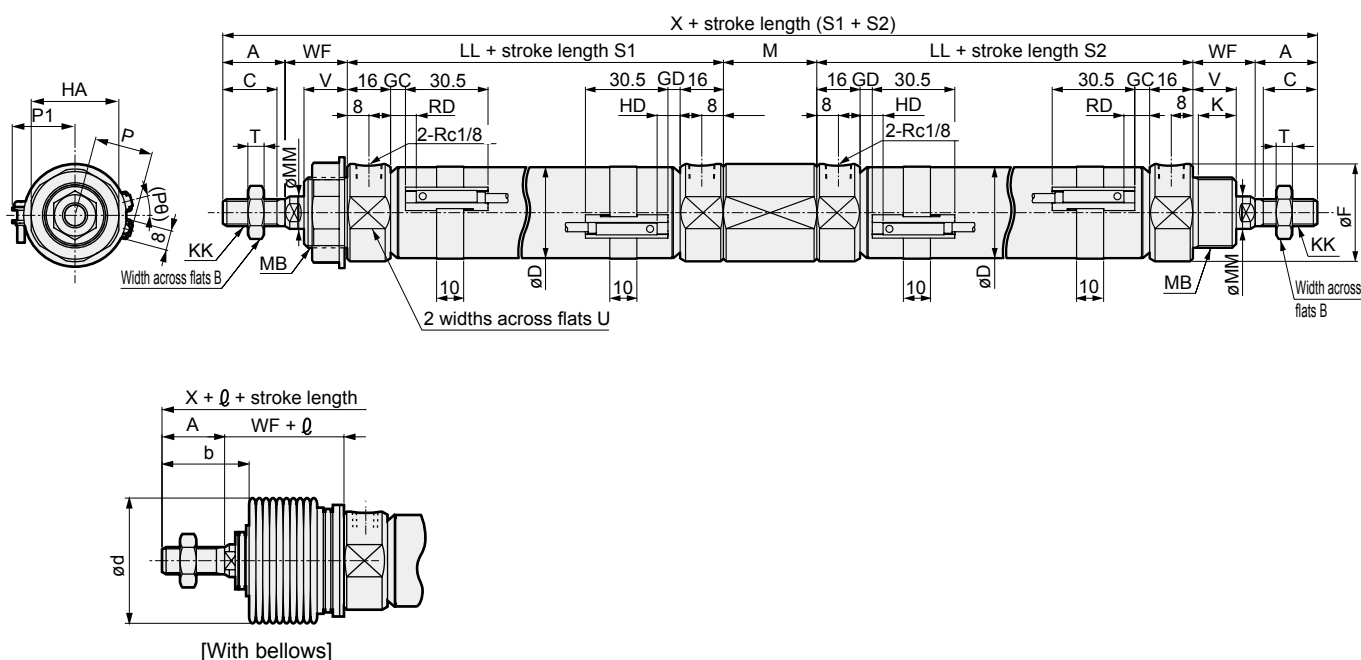
Four positions are available when different stroke lengths are combined.



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 display switches.
*2: For the Q dimension, round up below the decimal point.

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 8×1.0	66	29 to 30.5	M18×1.5	10	5	24	14	24	249 to 250.5
ø25	23	17	20	26.4	32	35	14	M10×1.25	69	33 to 34.5	M26×1.5	12	6	30	16	23	263 to 264.5
ø32	23	17	20	33.6	36	35	14	M10×1.25	69	33 to 34.5	M26×1.5	12	6	34	16	23	263 to 264.5
ø40	25	19	22	41.6	45	35	14	M12×1.5	73	33 to 34.5	M26×1.5	14	7	43	16	23	275 to 276.5
Code	With switch											With bellows					
	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	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 length/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 length/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 length/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 length/3.25) + 7			

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

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

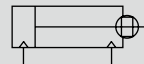


Medium bore size cylinder
double acting/rotation-stop

CMK2-M Series

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

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



Specifications

Item	CMK2-M			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/rotation-stop			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.1 (≈ 15 psi, 1 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)			
Port size	Rc 1/8			
Stroke tolerance	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Non-rotating accuracy (Note) $^{\circ}$	± 1.5			± 1.0
Allowable absorbed energy J	0.166	0.308	0.424	0.639

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

Stroke length

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

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

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

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

Min. stroke length with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less			10 μA or less			0 mA							
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80					1 m:33 3 m:87 5 m:142		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49								
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80								

*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 length (S) = 00mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 = 50mmAdditional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg Weight of 2 switches0.036 kg Weight of switch rail + 2 bands0.018 kg Product weight0.45kg + 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	1.26×10^2	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
ø25	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
ø32	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
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-M Series

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

⚠ Precautions for model No. selection

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

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

*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-M-00-20-100-T0H-R-VI

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

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

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

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

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

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

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

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

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

G Option			
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
F	With push-in fitting (straight)		
FE	With push-in fitting (elbow)		
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/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

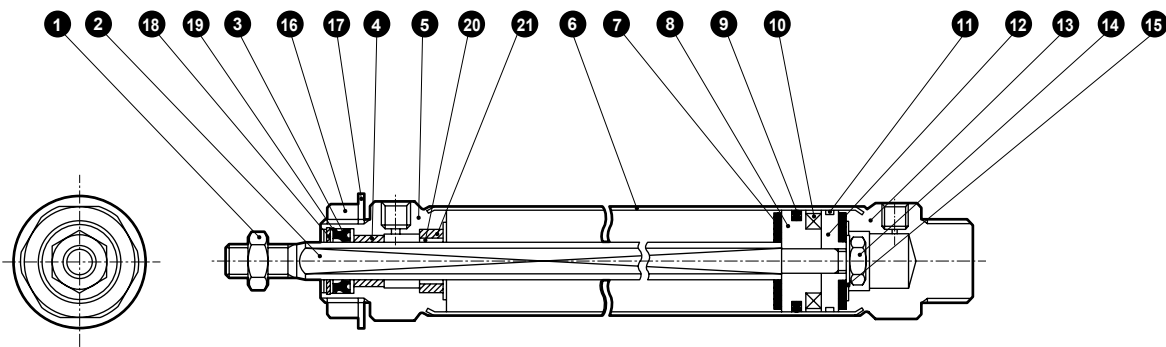
FJ

FK

Spd
Contr

Ending

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

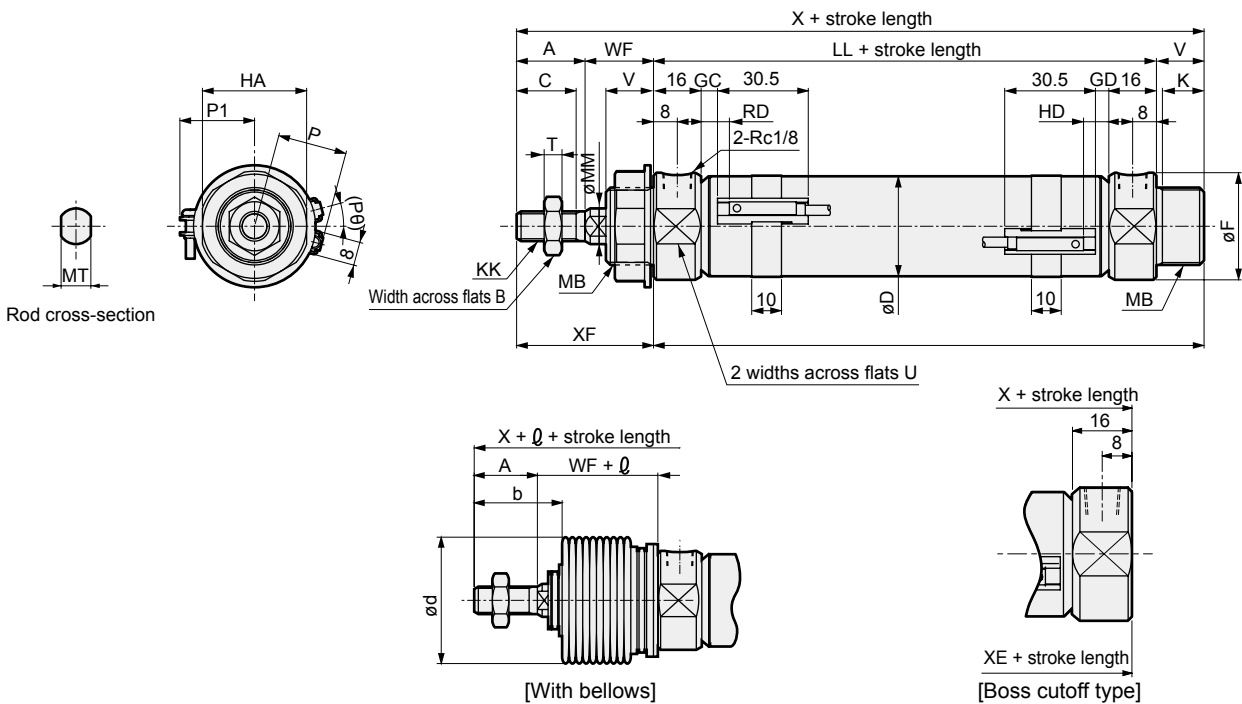
● Note: Mounting bracket will be shipped with the product.

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 display switches.

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

Code	A	B	C	D	F	HA	K	KK	LL	MB	MM	MT	T	U	V	WF	X	XE	XF	
Bore size (mm)	ø20	20	13	18	21.4	28	26	12	M 8×1.0	66	M18×1.5	10	8	5	24	14	24	124	80	44
ø25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	10	6	30	16	23	131	85	46	
ø32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	10	6	34	16	23	131	85	46	
ø40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	12	7	43	16	23	137	89	48	

Code	With switch									With bellows				Boss cutoff type		
	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ	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 length/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 length/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 length/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 length/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/
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/built-in speed controller

CMK2-Z Series

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

Specifications

Item	CMK2-Z				
Bore size	mm	ø20	ø25	ø32	ø40
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	°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 300			
Cushion	Rubber cushion				
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke length

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

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

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

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

Min. stroke length with switch

(Unit: mm)

Switch quantity	1					2					3				
	Proximity			Reed		Proximity			Reed		Proximity			Reed	
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
ø20	10					25	30	35	25	35	50	55	55	50	55
ø25	10					25	30	35	25	35	50	55	55	50	55
ø32	10					25	30	35	25	35	50	55	55	50	55
ø40	10					25	30	35	25	35	50	55	55	50	55

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49					3 m:87		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80					5 m:142		

*1: Refer to Ending Page 1 for 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 length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg
 Weight of 2 switches0.036 kg
 Weight of switch rail + 2 bands ...0.018 kg
 Product weight.....0.47 kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.624 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	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
ø25	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
ø32	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
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-Z Series

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

⚠ Precautions for model No. selection

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

*2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 172.

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

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

A Mounting : Basic

B Bore size : ø20 mm

C Port thread : Rc thread

D Stroke length : 100 mm

E Switch model No. : Reed T0H switch, lead wire 1 m

F Switch quantity : 1 on rod side

G Option : Boss cutoff

H Accessory : Rod clevis

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

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

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

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

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

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

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

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

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

How to order switch

- Switch body + mounting bracket set

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

Bore size (Item **B** on 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)	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Eye bracket (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Clevis bracket (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

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

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

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

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

SCP*3 Internal structure and parts list

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

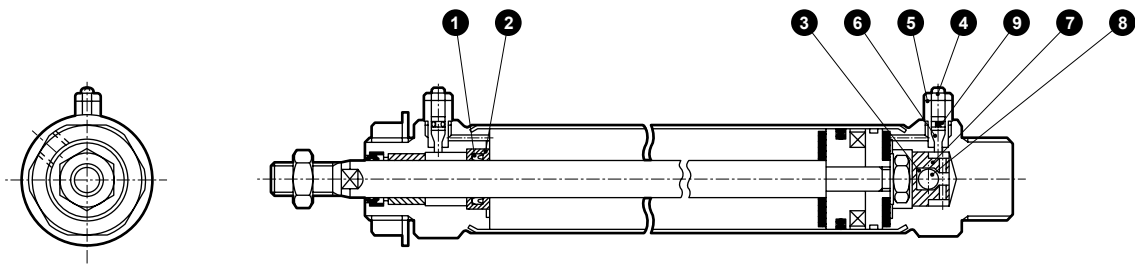
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

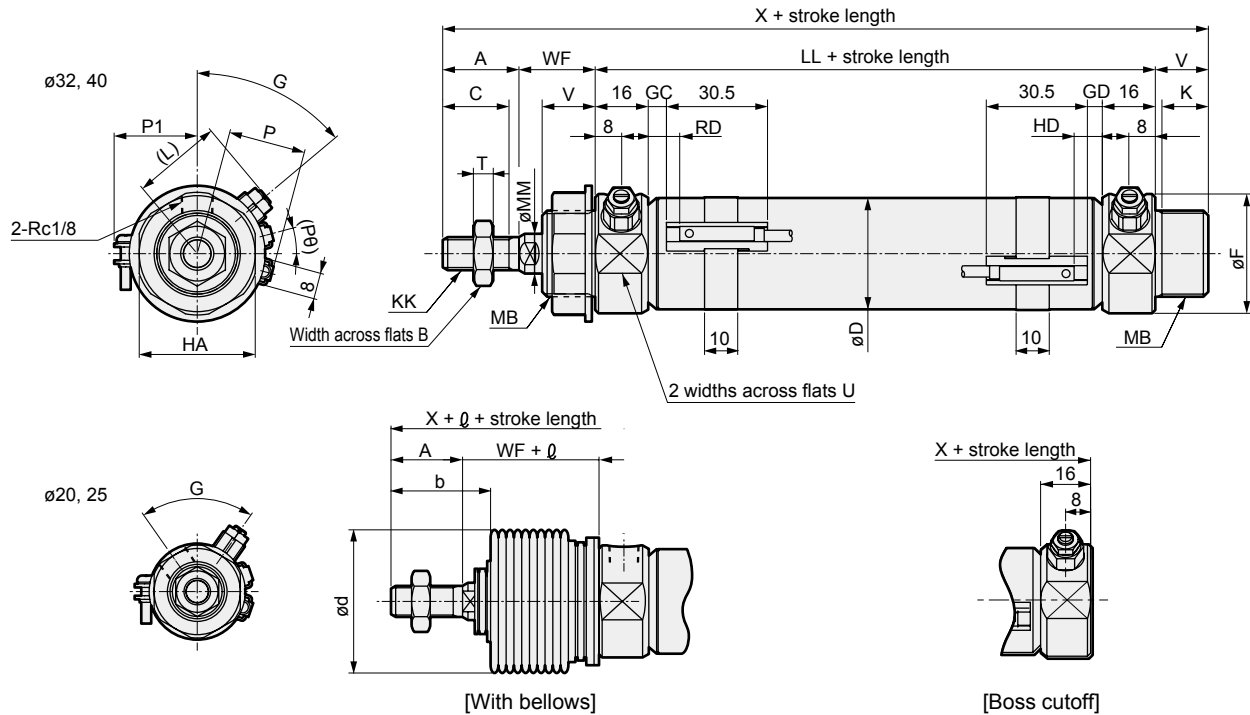
● Note: This product is caulked and cannot be disassembled.

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

Dimensions



● Basic (00)



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

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

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 8×1.0	23	66	M18×1.5	10	5	24	14	24	124
ø25	23	17	20	26.4	32	60°	35	14	M10×1.25	26	69	M26×1.5	12	6	30	16	23	131
ø32	23	17	20	33.6	36	50°	35	14	M10×1.25	27	69	M26×1.5	12	6	34	16	23	131
ø40	25	19	22	41.6	45	50°	35	14	M12×1.5	31	73	M26×1.5	14	7	43	16	23	137

Code	With switch											With bellows			Boss cutoff
	T0, T5, T2, T3				T2W, T3W				P	P1	(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 length/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 length/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 length/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 length/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/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

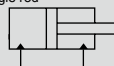


Medium bore size cylinder
double acting/low hydraulic

CMK2-H Series

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

JIS symbol ● Double acting cylinder single rod



Specifications

Item	CMK2-H			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/low hydraulic			
Working fluid	Hydraulic fluid			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.15 (≈ 22 psi, 1.5 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	5 (41°F) to 50 (122°F)			
Port size	Rc 1/8			
Stroke tolerance mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	5 to 300			
Cushion	Rubber cushion			
Lubrication	Not required			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

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

Stroke length

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

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

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

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

Min. stroke length with switch

(Unit: mm)

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

*1: Up to 3 switches can be mounted.

Switch specifications

- 1-color/2-color display

Item	Proximity 2-wire		Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	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 lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less			10 μA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142			
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49								
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80								

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

Product weight when S = 0 mm.....0.45 kg Additional weight when S = 50mmAdditional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ =0.10 kg (Example) Product weight of CMK2-H-FA-32-50-T0H-D Weight of 2 switches0.036 kg Weight of switch rail + 2 bands0.018 kg Product weight 0.45 kg+0.1 kg+0.036 kg+0.018 kg=0.604 kg											
--	--	--	--	--	--	--	--	--	--	--	--

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	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	1.26×10 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	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
ø25	Push	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	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
ø32	Push	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	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
ø40	Push	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	1.65×10 ²	2.21×10 ²	3.31×10 ²	4.41×10 ²	5.51×10 ²	6.62×10 ²	7.72×10 ²	8.82×10 ²	9.92×10 ²	1.10×10 ³

CMK2-H Series

How to order

Without 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 length

E Switch model No.

F Switch quantity
*7

G Option
*3

H Accessory
*4

⚠ Precautions for model No. selection

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

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

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

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

Code	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	*8
25	ø25	*8
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 length (mm)		
Bore size	Stroke length *2	Custom stroke length
ø20	5 to 750	In 1 mm increments
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

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

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

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

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

H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin 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/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending



Medium bore size cylinder, double acting/coolant proof

CMK2-G2/G3 Series

● Bore size: ø20/ø25/ø32/ø40

JIS symbol



Specifications

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

Stroke length

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

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

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

Switch specifications

Type/model No.	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 lamp	Red/green LED (Lit when ON)	
Leakage current	1mA or less	10 µA or less
Shock resistance	980 m / S ²	
Weight	g 1 m:33 3 m:87 5 m:142	

*1: 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 length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
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 $\frac{\text{Product stroke length (50)}}{10} = 0.10$ kg

Weight of 2 switches 0.062 kg

Weight of switch rail + 2 bands 0.018 kg

Product weight 0.45 kg+0.1 kg+0.062 kg+0.018 kg=0.63 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	1.26×10^2	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	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
ø25	Push	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	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
ø32	Push	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	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
ø40	Push	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	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-G2/G3 Series

How to order

Without switch (built-in magnet for switch)

CMK2-G2-00-20-100-Y

With switch (built-in magnet for switch)

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

A Degree of protection level

B Mounting
*1

C Bore size

D Port thread

E Stroke length

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

G Switch quantity
*5

H Accessory
*3

⚠ Precautions for model No. selection

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

*2 : Refer to page 182 for the min. stroke length 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 length : 100 mm

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

G Switch quantity : 1 on rod side

H Accessory : Rod clevis

Code	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 length (mm)		
Bore size	Stroke length *2	Custom stroke length
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 display	2-wire
T3YLH*	T3YLV*				3-wire

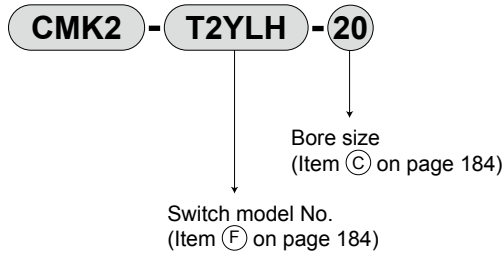
* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

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

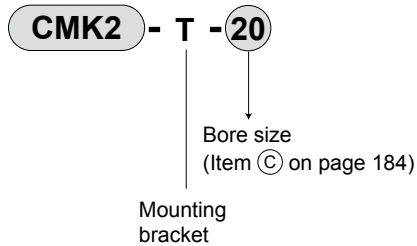
H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin included)
B2	Clevis bracket (pin and snap ring included)

How to order switch

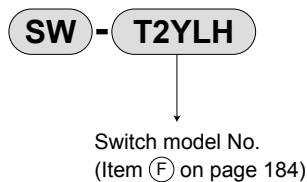
- Switch body + mounting bracket set



- Mounting bracket set



- Switch body only



How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Basic (00)	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

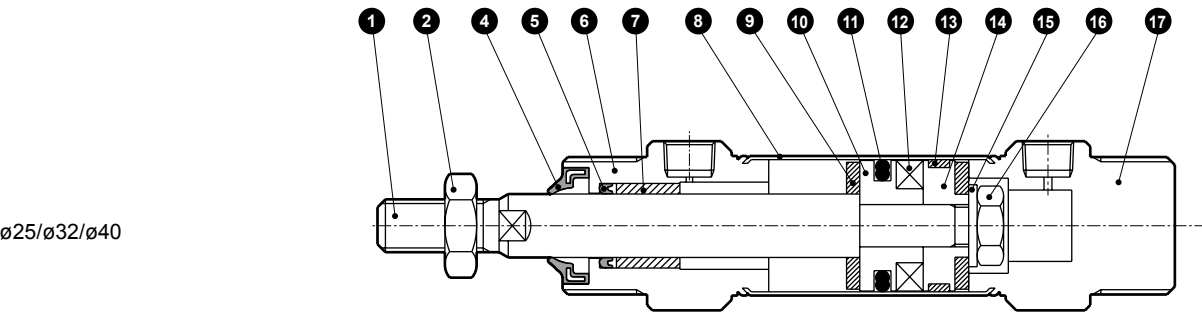
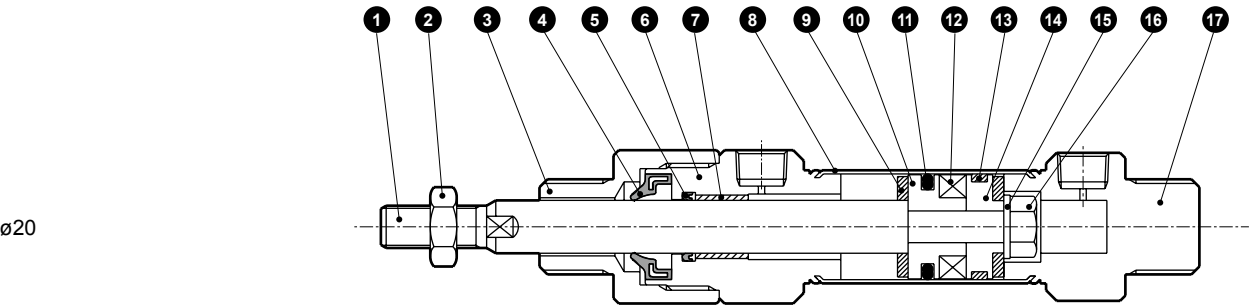
Ending

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

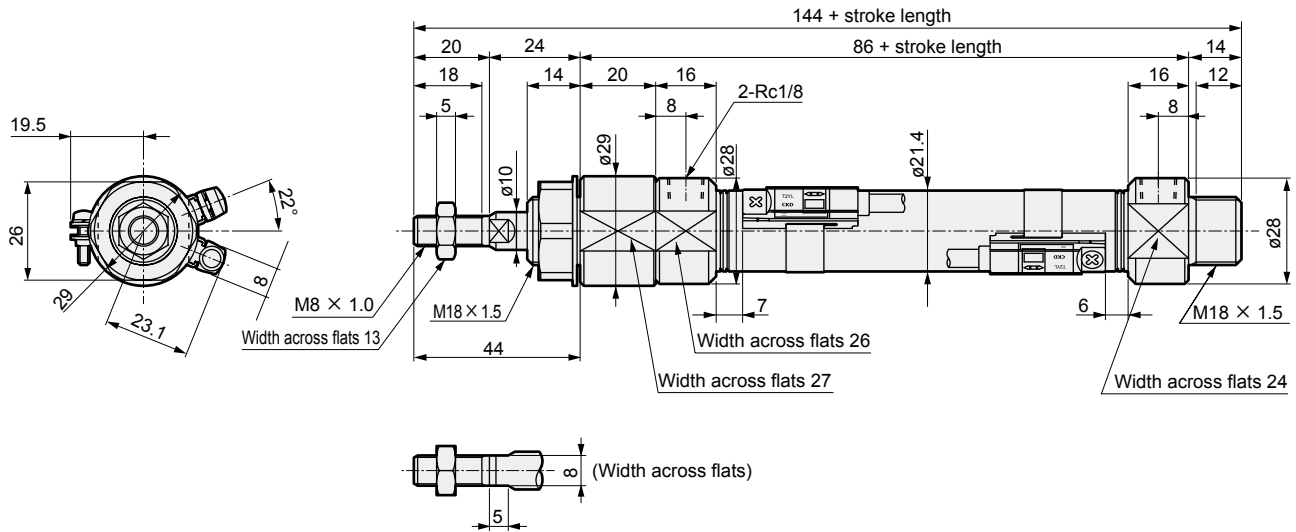
Note: This product is caulked and cannot be disassembled.

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				G3 Fluoro rubber	
		G3 Fluoro rubber		12	Magnet	Plastic	
5	Rod packing	G2 Nitrile rubber		13	Wear ring	Polyacetal	
		G3 Fluoro rubber		14	Piston B	Aluminum alloy	Chromate treatment
6	Rod cover	Aluminum alloy	Chromate treatment	15	Spacer	Steel	Zinc chromate treatment
7	Bush	ø20: DU dry bearing		16	Hexagon nut	Steel	Zinc chromate treatment
		ø25, ø32, ø40: Copper-based		17	Head cover	Aluminum alloy	Chromate treatment
8	Cylinder tube	Stainless steel					

Dimensions

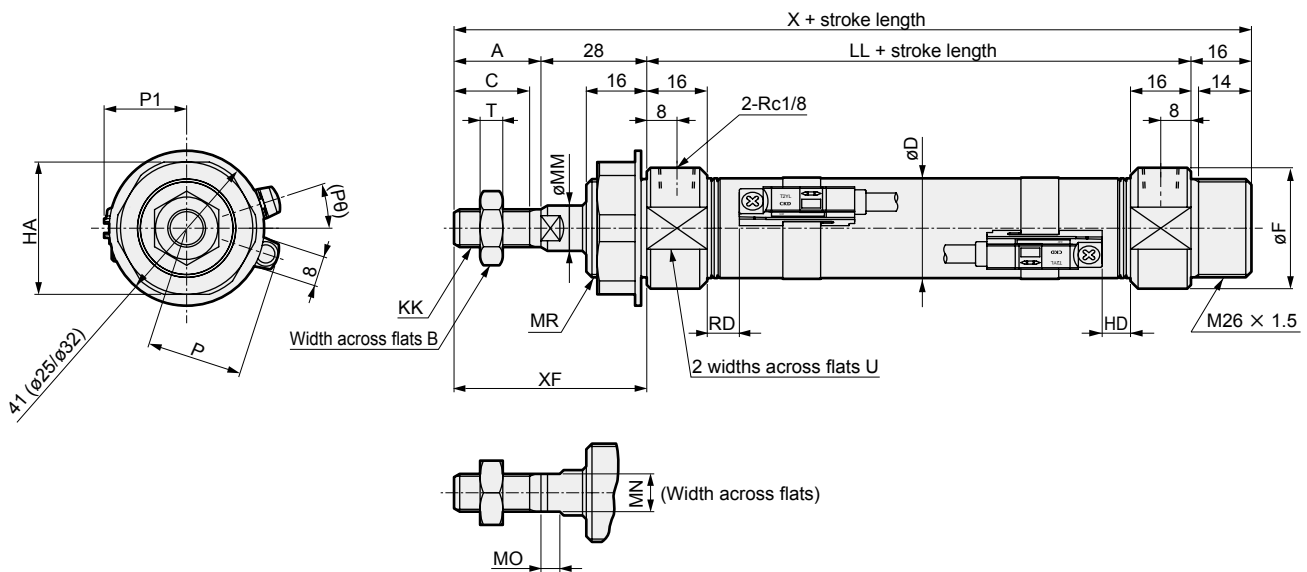


● Basic (00) ø20



* Position unspecified for adapter width across flats.

● Basic (00) ø25/ø32/ø40



*1: Toothed washer is not supplied with ø40.

Code	Basic (00) basic dimensions															
Bore size (mm)	A	B	C	D	F	HA	KK	LL	MM	MN	MO	MR	T	U	X	XF
ø25	23	17	20	26.4	32	35	M10×1.25	69	12	10	5	M26×1.5	6	30	136	51
ø32	23	17	20	33.6	36	35	M10×1.25	69	12	10	5	M26×1.5	6	34	136	51
ø40	25	19	22	41.6	45	38	M12×1.5	73	14	12	6	M30×1.5	7	43	142	53

Code	With switch				
Bore size (mm)	RD	HD	P	(P0)*	P1
ø25	8.5	7.5	25.6	18	22.0
ø32	8.5	7.5	30.1	15	25.5
ø40	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/
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

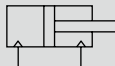


Small bore size cylinder double acting/exterior 100% stainless steel/water resistant

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 length

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

*2: One side foot (LS) has maximum stroke length 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
Display lamp	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 length (S) = 0 mm					Switch weight (per 1 pc)	Switch rail + Band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA, FB)	Eye bracket (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 $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg
 Weight of 2 switches 0.062 kg
 Weight of switch rail + 2 bands ... 0.018 kg
 Product weight 0.56 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	1.26×10^2	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	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
ø25	Push	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	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
ø32	Push	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	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
ø40	Push	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	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-JG2/JG3 Series

How to order

Without switch

CMK2 - **JG2** - **00** - **20** - **50** ————— ○

With switch

CMK2 - **JG2** - **00** - **20** - **50** - **T2YL** - **R** - **FP1** **Y**

A Variation

B Mounting
*1

C Bore size

D Stroke length

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 length of 50 mm.
- *2: Refer to page 1 for min. stroke length 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

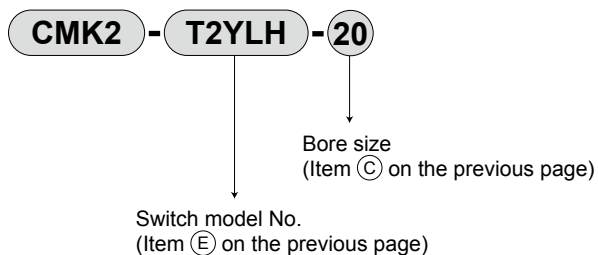
Model: Small bore size cylinder

- A** Variation : Exterior 100% stainless steel + water resistant scraper + packing NBR
- B** Mounting format : Eye bracket integrated
- C** Bore size : ø32
- D** Stroke length : 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

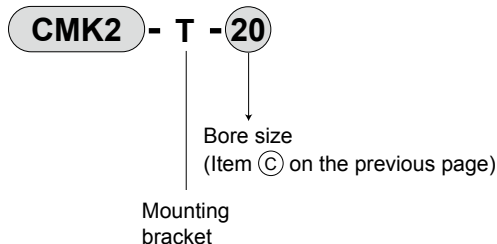
Code		Description					
A Variation							
JG2	Exterior 100% stainless steel + water resistant scraper + packing NBR						
JG3	Exterior 100% stainless steel + water resistant scraper + packing FKM						
B Mounting							
00	Basic						
LB	Axial foot (Both sides)						
LS	Axial foot (One side)						
FA	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 length (mm)							
Bore size		Stroke length *2		Custom stroke length			
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 display	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 specification					
V		Boss cutoff					
H Accessory							
I		Rod eye					
Y		Rod clevis (pin and snap ring included)					

How to order switch

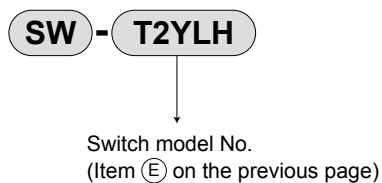
● Switch body + mounting bracket set



● 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.

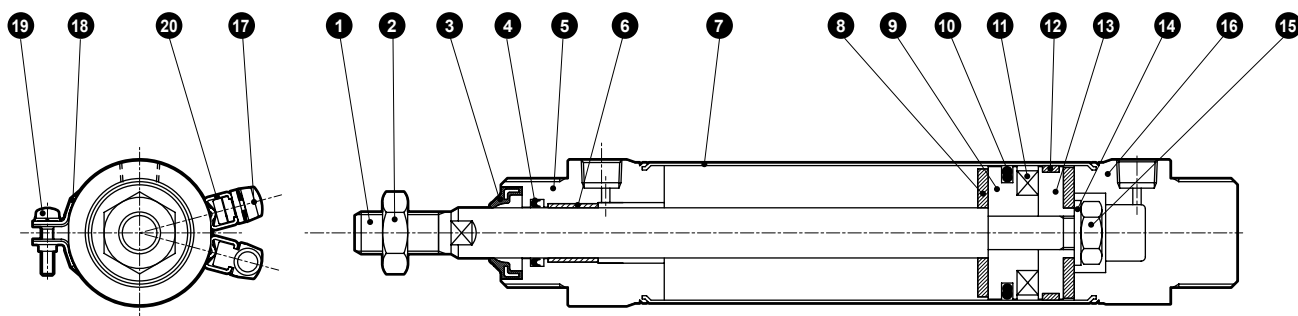
2: For axial foot (LB), two sets of the above "CMK2-JG2--LS" are required.

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
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.

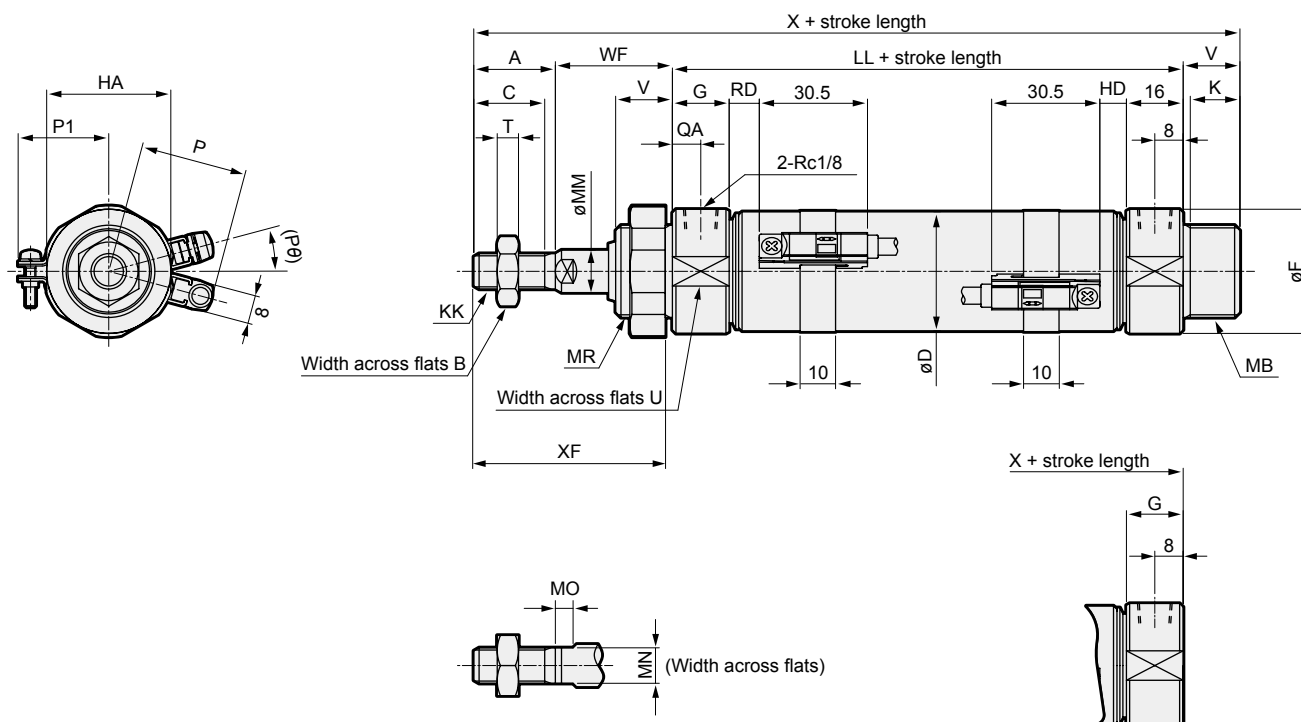
No.	Part name		Material	Remarks	No.	Part name		Material	Remarks
1	Piston rod		Stainless steel		10	Piston Packing	JG2	Nitrile rubber	
2	Rod nut		Stainless steel				JG3	Fluoro rubber	
3	Scraper	JG2	Nitrile rubber		11	Magnet		-	
		JG3	Fluoro rubber		12	Wear ring		Resin	
4	Rod Packing	JG2	Nitrile rubber		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.

- Basic (00)



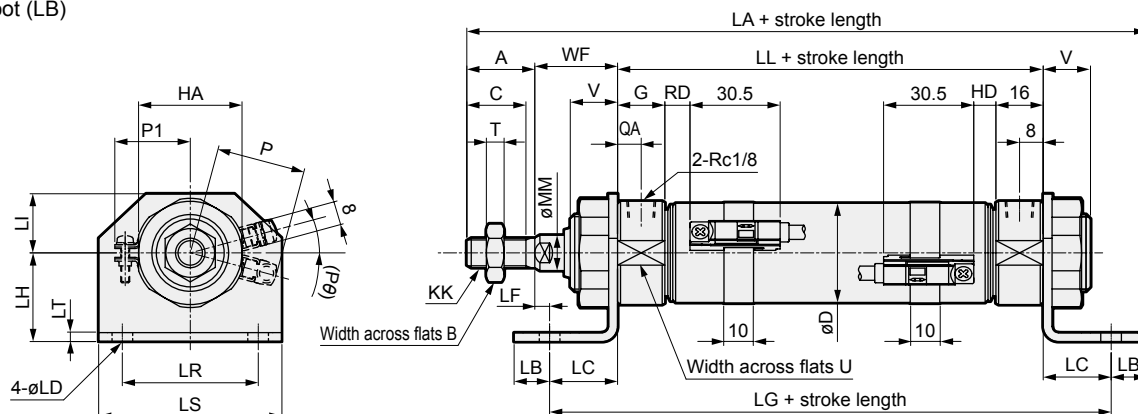
RD: Rod side max. sensitivity position
HD: Head side max. sensitivity position

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	M8×1.0	66	M26×1.5	M26×1.5	10	8	5	5
ø25	23	17	20	26.4	32	16	8	35	14	M10×1.25	69	M26×1.5	M26×1.5	12	10	5	6
ø32	23	17	20	33.6	36	16	8	35	14	M10×1.25	69	M26×1.5	M26×1.5	12	10	5	6
ø40	25	19	22	41.6	45	16	8	38	14	M12×1.5	73	M30×1.5	M26×1.5	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						

CMK2-JG2/JG3 Series

Dimensions

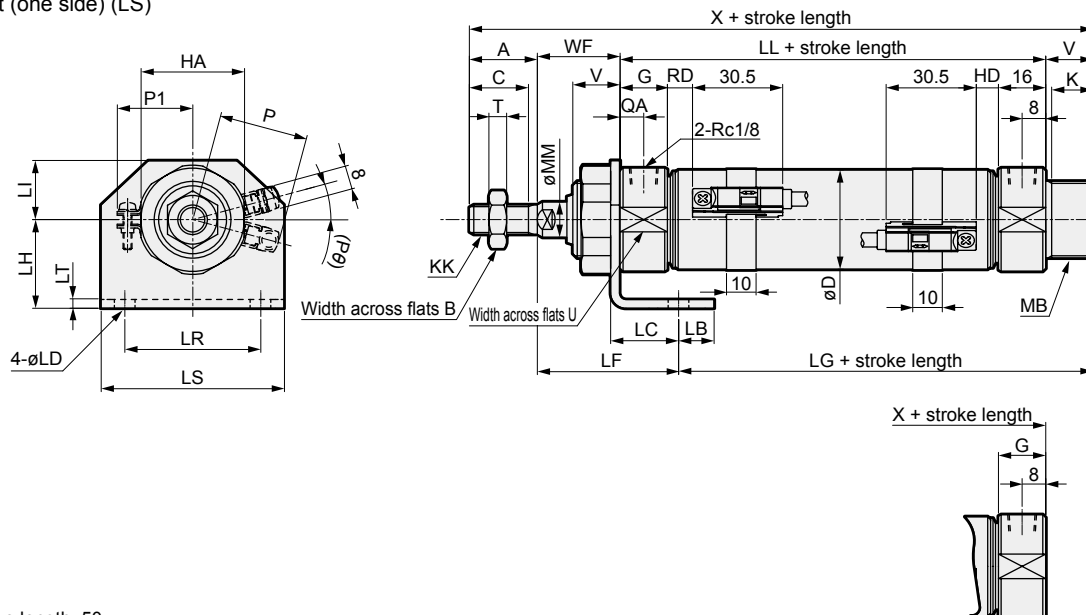
● Axial foot (LB)



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	
ø20	20	13	18	21.4	16	8	35	M8×1.0	66	10	5	28	16	28	149	12	23	7	5	
ø25	23	17	20	26.4	16	8	35	M10×1.25	69	12	6	30	16	28	155	12	23	7	5	
ø32	23	17	20	33.6	16	8	35	M10×1.25	69	12	6	34	16	28	155	12	23	7	5	
ø40	25	19	22	41.6	16	8	38	M12×1.5	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)°
ø20	112	30	20	46	62	3	7	6	23.1	19.5	22
ø25	115	30	20	46	62	3	8.5	7.5	25.6	22	18
ø32	115	30	20	46	62	3	8.5	7.5	30.1	25.5	15
ø40	119	30	20	46	62	3	10.5	9.5	34.1	29.5	12

● Axial foot (one side) (LS)



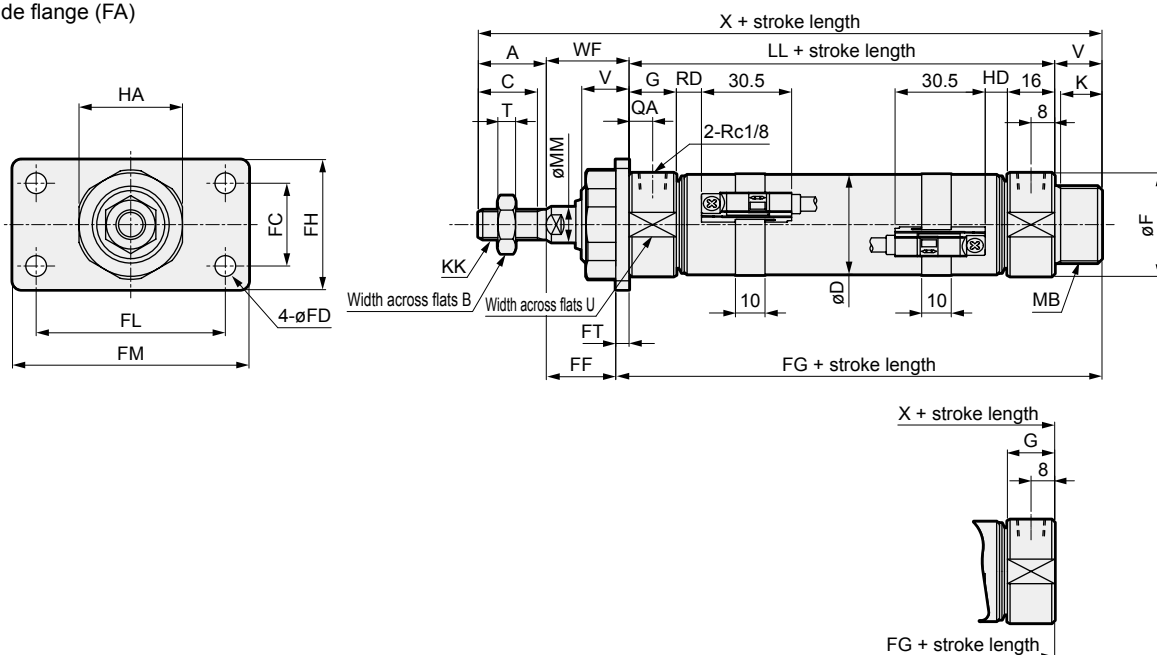
*1: Max. stroke length: 50.

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
ø20	20	13	18	21.4	16	8	35	14	M8×1.0	66	M26×1.5	10	5	28	16	28	130
ø25	23	17	20	26.4	16	8	35	14	M10×1.25	69	M26×1.5	12	6	30	16	28	136
ø32	23	17	20	33.6	16	8	35	14	M10×1.25	69	M26×1.5	12	6	34	16	28	136
ø40	25	19	22	41.6	16	8	38	14	M12×1.5	73	M26×1.5	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
ø20	12	23	7	48	62	30	20	46	62	3	7	6	23.1	19.5	22	114	46
ø25	12	23	7	48	65	30	20	46	62	3	8.5	7.5	25.6	22	18	120	49
ø32	12	23	7	48	65	30	20	46	62	3	8.5	7.5	30.1	25.5	15	120	49
ø40	12	23	7	48	69	30	20	46	62	3	10.5	9.5	34.1	29.5	12	126	53

Dimensions

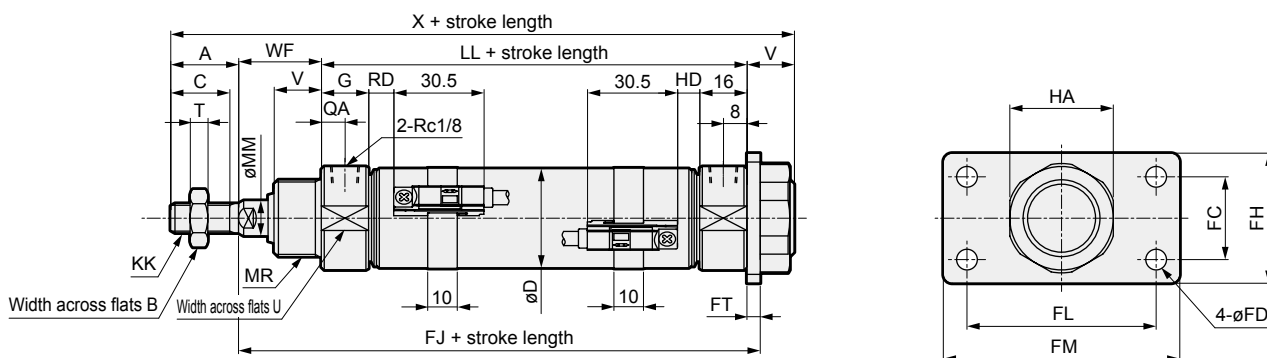
● Rod side flange (FA)



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
ø20	20	13	18	21.4	30	16	8	35	14	M8×1.0	66	M26×1.5	10	5	28	16	28	130
ø25	23	17	20	26.4	32	16	8	35	14	M10×1.25	69	M26×1.5	12	6	30	16	28	136
ø32	23	17	20	33.6	36	16	8	35	14	M10×1.25	69	M26×1.5	12	6	34	16	28	136
ø40	25	19	22	41.6	45	16	8	38	14	M12×1.5	73	M26×1.5	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	(Pθ)°	X	FG
ø20	28	7	23	87	44	64	80	5	7	6	23.1	19.5	22	114	71
ø25	28	7	23	90	44	64	80	5	8.5	7.5	25.6	22	18	120	74
ø32	28	7	23	90	44	64	80	5	8.5	7.5	30.1	25.5	15	120	74
ø40	28	7	23	94	44	64	80	5	10.5	9.5	34.1	29.5	12	126	78

● Head side flange (FB)



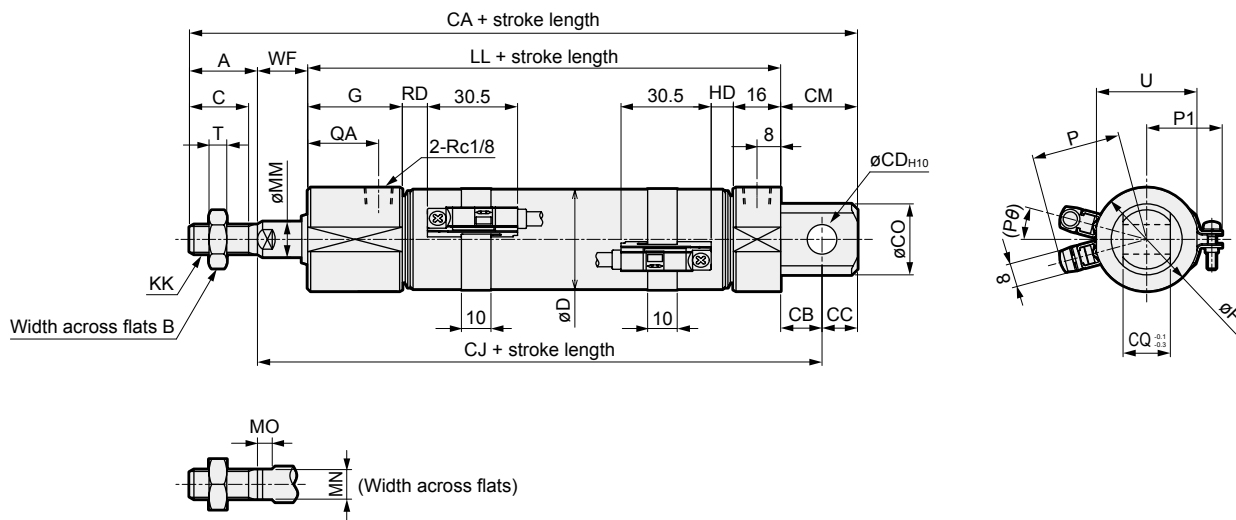
Code	Head side flange (FB) basic dimensions																	
Bore size (mm)	A	B	C	D	G	QA	HA	K	KK	LL	MR	MM	T	U	V	WF	X	
ø20	20	13	18	21.4	16	8	35	14	M8×1.0	66	M26×1.5	10	5	28	16	28	130	
ø25	23	17	20	26.4	16	8	35	14	M10×1.25	69	M26×1.5	12	6	30	16	28	136	
ø32	23	17	20	33.6	16	8	35	14	M10×1.25	69	M26×1.5	12	6	34	16	28	136	
ø40	25	19	22	41.6	16	8	38	14	M12×1.5	73	M30×1.5	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	(Pθ)°	
ø20	28	7	44	99	64	80	5	7	6	23.1	19.5	22	
ø25	28	7	44	102	64	80	5	8.5	7.5	25.6	22	18	
ø32	28	7	44	102	64	80	5	8.5	7.5	30.1	25.5	15	
ø40	28	7	44	106	64	80	5	10.5	9.5	34.1	29.5	12	

CMK2-JG2/JG3 Series

Dimensions

● Eye bracket integrated (CC)



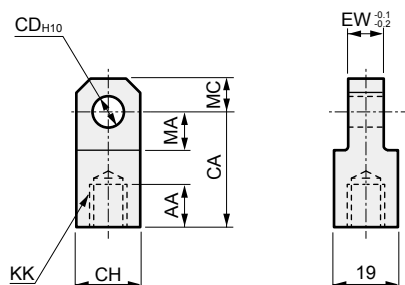
Code	Eye bracket integrated (CC) basic dimensions													Mounting dimensions					
Bore size (mm)	A	B	C	D	F	G	QA	KK	LL	MM	T	U	WF	CA	CB	CC	CD	CJ	CM
ø20	20	13	18	21.4	30	32	24	M8×1.0	82	10	5	28	12	135	12	9	8	106	21
ø25	23	17	20	26.4	32	32	24	M10×1.25	85	12	6	30	12	141	12	9	8	109	21
ø32	23	17	20	33.6	36	32	24	M10×1.25	85	12	6	34	12	146	14	12	10	111	26
ø40	25	19	22	41.6	45	32	24	M12×1.5	89	14	7	43	12	156	16	14	12	117	30

Code	With switch						
Bore size (mm)	CO	CQ	RD	HD	P	P1	(Pθ)°
ø20	22	16	7	6	23.1	19.5	22
ø25	24	16	8.5	7.5	25.6	22	18
ø32	24	16	8.5	7.5	30.1	25.5	15
ø40	30	20	10.5	9.5	34.1	29.5	12

Accessory dimensions

● Rod eye (I)

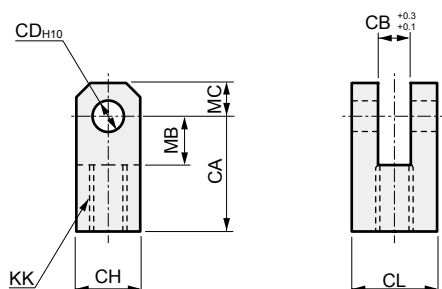
Material: Stainless steel



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	M8×1.0	13	10	60
M1-I-30S	25 / 32	14	36	12	25	10	M10×1.25	16	12	106
M1-I-40S	40	14	36	12	25	10	M12×1.5	16	12	100

● Rod clevis (Y)

Material: Stainless steel

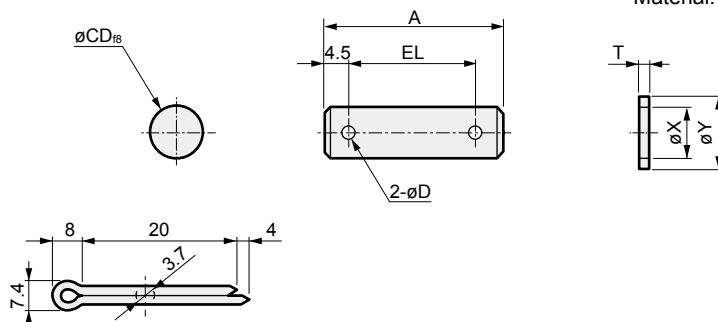


Model No.	Applicable bore size (mm)	CA	CB	CD	CH	CL	KK	MB	MC	Weight (g)
M1-Y-20S	20	30	8	10	19	19	M8×1.0	13	10	99
M1-Y-30S	25 / 32	36	10	12	25	25	M10×1.25	16	12	197
M1-Y-40S	40	36	10	12	25	25	M12×1.5	16	12	193

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

● CMK2-**-**-T₁²YH/V

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

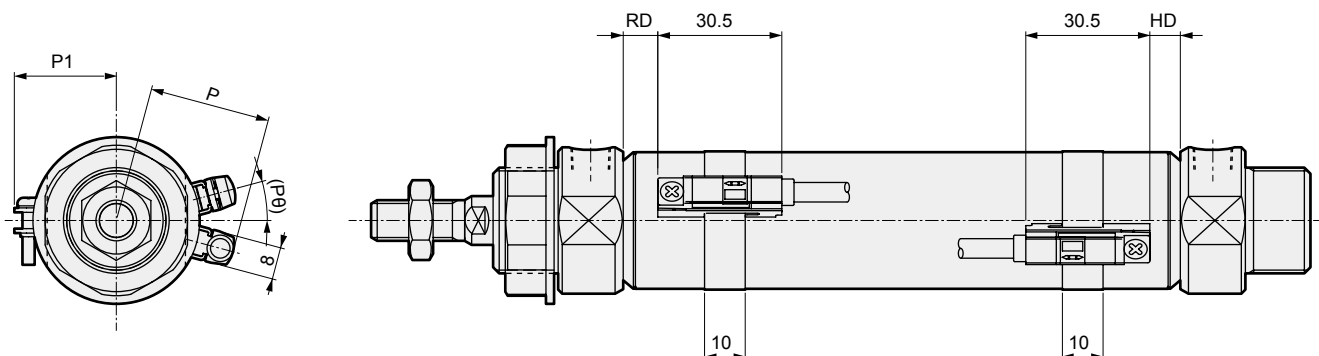
ShkAbs

FJ

FK

Spd
Contr

Ending



2-color display switch mounting dimensions

Code	1-color display (T1, T8) 2-color display (T ₁ ² Y)							
	RD *1		HD *2		P		P1	(Pθ)°
	T1, T ₁ ² Y	T8	T1, T ₁ ² Y	T8	T1	T ₁ ² Y, T8		
Bore size (mm)								
ø20	7.0	2.0	6.0	1	28.5	23.1	19.5	22
ø25	8.5	3.5	7.5	2.5	31.0	25.6	22.0	18
ø32	8.5	3.5	7.5	2.5	35.5	30.1	25.5	15
ø40	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

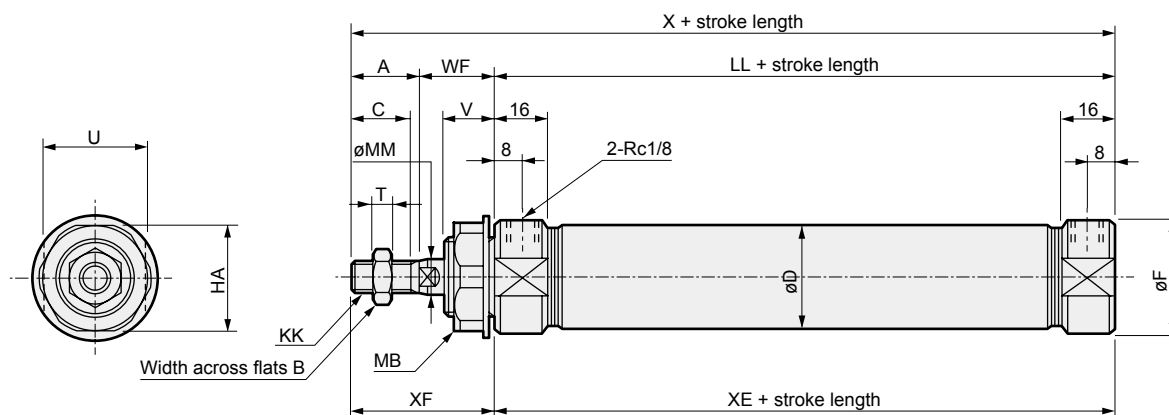
Code	RD													
	T1, T ₁ ² Y							T8						
	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300
Bore size (mm)														
ø20	32.0	34.0	61.0	88.0	115.0	142.0	169.0	27.0	29.0	56.0	83.0	110.0	137.0	164.0
ø25	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
ø32	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
ø40	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 ₁ ² 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
Bore size (mm)														
ø20	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
ø25	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
ø32	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
ø40	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

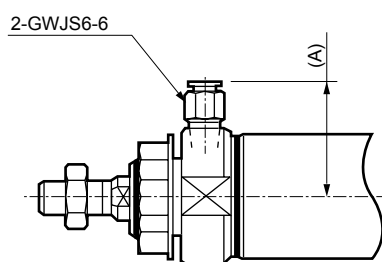
● Boss cutoff (V)



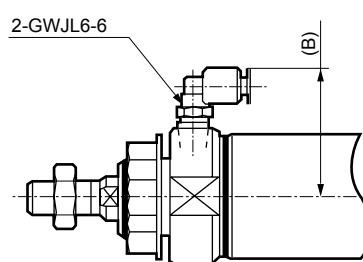
Note: Dimensions of other mountings are the same as those of the standard. Refer to pages 91 to 97. (Mountable, mounting: 00, LS, FA, TA)

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 8 × 1.0	66	M18 × 1.5	10	5	24	14	24	110	66	44
ø25	23	17	20	26.4	32	35	M10 × 1.25	69	M26 × 1.5	12	6	30	16	23	115	69	46
ø32	23	17	20	33.6	36	35	M10 × 1.25	69	M26 × 1.5	12	6	34	16	23	115	69	46
ø40	25	19	22	41.6	45	35	M12 × 1.5	73	M26 × 1.5	14	7	43	16	23	121	73	48

● With push-in fitting (-F)



● With push-in fitting (-FE)



Code	A	B
Bore size (mm)		
ø20	30.5	34.5
ø25	32.5	36.5
ø32	34.5	38.5
ø40	39	43