

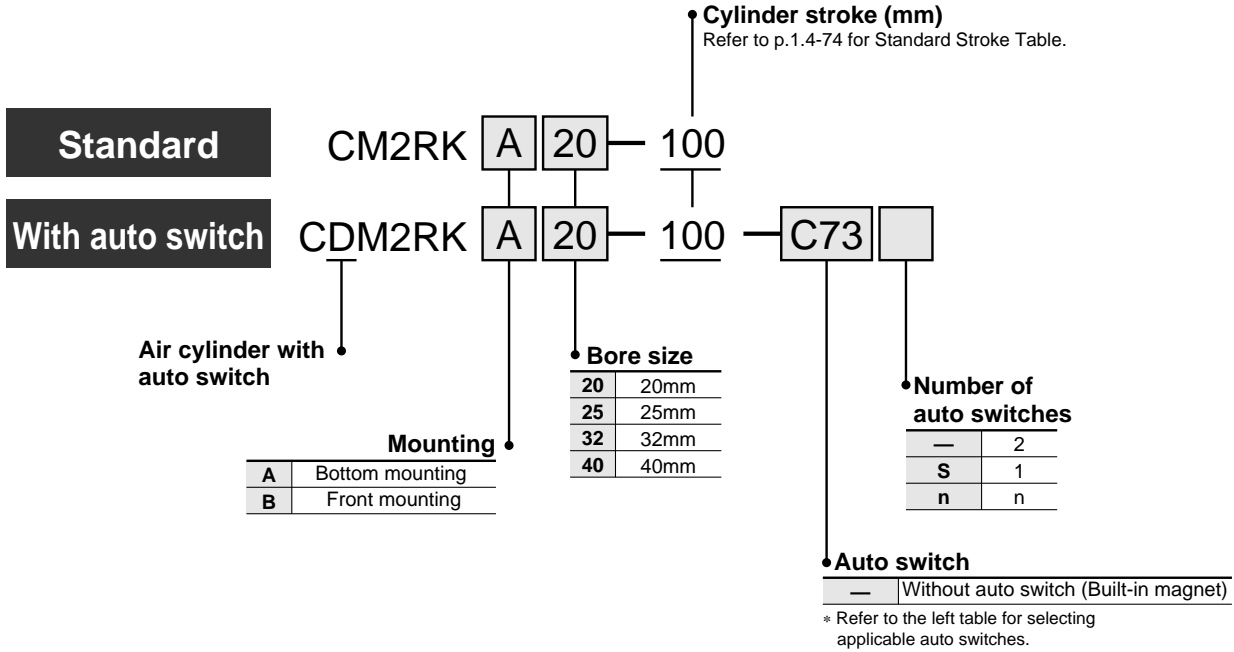
# Direct Mount Non-rotating Rod: Double Acting Single Rod

# Series *CM2RK*



ø20, ø25, ø32, ø40

## How to Order



### Applicable Auto Switches/Refer to p.5.3-2 for further information on auto switches.

Style	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model	Lead wire* (m)				Applicable load										
					DC	AC		0.5 (—)	3 (L)	5 (Z)	None (N)											
Reed switch	—	Grommet	Yes	3 wire (NPN)	—	5V	—	C76	●	●	—	—	IC	—								
									No	24V	12V	100V	C73	●	●	●	—	—	Relay PLC			
														Yes	12V	100V or less	C80	●	●	—	—	IC
																		No	12V	200V or less	B53	●
														Yes	12V	100V, 200V	B54					●
									No	12V	200V or less	B64	●					●	—	—	Relay PLC	
													Yes	12V	24V or less	C73C	●	●	●	●	—	
									No	5V, 12V	24V or less	C80C					●	●	●	●	IC	
													Yes	12V	100V, 200V	A33A	—	—	—	●	PLC	
									No	12V	100V, 200V	A34A					—	—	—	●	—	
Yes	12V	100V, 200V	A44A	—	—	—	●	Relay PLC														
				No	—	—	B59W	●	●	—	—	—										
Solid state switch	—	Grommet	Yes					3 wire (NPN)	5V, 12V	—	H7A1	●	●	○	—	IC	Relay PLC					
				No	12V	—	H7A2					●	●	○	—	—						
												Yes	12V	—	H7B	●		●	○	—	—	
				No	12V	—	H7C									●		●	●	●	—	
												Yes	5V, 12V	—	G39A	—		—	—	●	IC	
				No	12V	—	K39A									—		—	—	●	—	
												Yes	5V, 12V	—	H7NW	●		●	○	—	IC	
				No	12V	—	H7PW									●		●	○	—	—	
												Yes	12V	—	H7BW	●		●	○	—	—	
				No	12V	—	H7BA									—		●	○	—	—	
												Yes	5V, 12V	—	G5NT	—		●	○	—	IC	
				No	—	—	H7NF									●		●	○	—	—	
												Yes	—	—	H7LF	●		●	○	—	—	
				No	—	—	—									—		—	—	—	—	
Yes	—	—	—					—	—	—	—	—										



\* Lead wire length

0.5m : —  
3m : L  
5m : Z  
None: N

e.g.) C80CZ, C80CN

\* Solid state switches marked with "○" are manufactured upon receipt of order.

\* Do not indicate symbol "N" for no lead wire on "D-A3□A", "A44A", "G39A" and "K39A" models.

# Direct Mount Non-rotating Rod: Double Acting Single Rod *Series CM2RK*

The CM2R Series direct mounting cylinder can be installed directly through the use of a square rod cover.

## High non-rotating accuracy

A type of cylinder in which the rod does not rotate because of its hexagonal shape.

$\phi 20, \phi 25 \text{---} \pm 0.7^\circ$

$\phi 32, \phi 40 \text{---} \pm 0.5^\circ$

## Space saving configuration

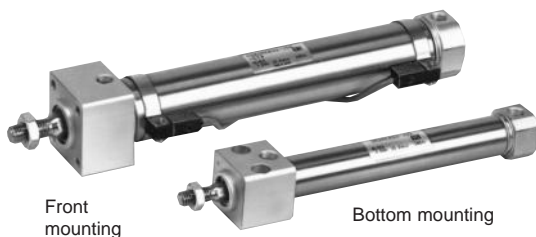
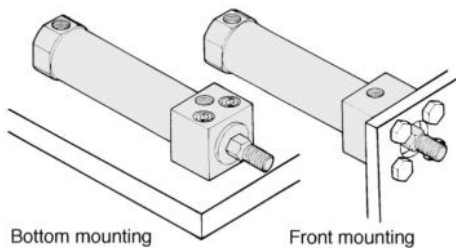
Because it is a directly mounted style without using brackets, its overall length is shorter, and its installation pitch can be made smaller. Thus, the space that is required for installation has been dramatically reduced.

## Improved installation accuracy and strength

A centering boss has been provided to improve the installation accuracy. Also, because it is the directly mounted style, the strength has been increased.

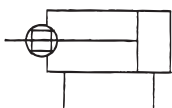
## Two styles of installation

Two styles of installations are available and can be selected according to the purpose: the front mounting style or the bottom mounting style.



## JIS symbol

Double acting



## Specifications

Bore size (mm)	20	25	32	40
Action	Double acting/Single rod			
Fluid	Air			
Proof pressure	1.5MPa			
Max. operating pressure	1.0MPa			
Min. operating pressure	0.05MPa			
Ambient and fluid temperature	Without auto switch: $-10$ to $+70^\circ\text{C}$ (No freezing) With auto switch: $-10$ to $+60^\circ\text{C}$ (No freezing)			
Lubrication	Non-lube			
Thread tolerance	JIS class 2			
Stroke tolerance	$+1.4$ $0$			
Piping (Screw-in)	$\phi 20$ to $\phi 32$ : Rc(PT) $\frac{1}{8}$ , $\phi 40$ : Rc(PT) $\frac{1}{4}$			
Non-rotating rod accuracy	$\phi 20, \phi 25$ : $\pm 0.7^\circ$ , $\phi 32, \phi 40$ : $\pm 0.5^\circ$			
Piston speed (mm/s)	50 to 500			
Mounting	Bottom mounting, Front mounting			
Allowable kinetic energy	0.27J	0.4J	0.65J	1.2J

CJ1

CJP

CJ2

CM2

C85

CG1

MB

C95

CA1

CS1

## Standard Stroke

Bore size (mm)	Standard stroke (mm) <sup>(1)</sup>
20	25, 50, 75, 100, 125, 150
25	25, 50, 75, 100, 125, 150, 200
32	25, 50, 75, 100, 125, 150, 200
40	25, 50, 75, 100, 125, 150, 200, 250, 300

Note 1) Other intermediate strokes can be manufactured upon receipt of order.  
Contact SMC for longer strokes.

## Minimum Strokes for Auto Switch Mounting

Refer top.1.4-4 for minimum stroke table.

## Auto Switch Mounting Position

The auto switch position (at stroke end) is the same as the standard style.  
Refer to p.1.4-21.

## Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040



Note) A set of following stainless steel mounting screws is attached.  
(A switch mounting band is not attached. Please order the band separately.)  
BBA4: D-C7/C8/H7  
· "D-H7BAL" switch is set on the cylinder with the screws above when shipped.  
When a switch only is shipped, "BBA4" screws are attached.

# Series CM2RK

## Copper Free

20-CM2RK    Mounting    Bore size    Stroke

↳ Copper free

This cylinder eliminates any influences of copper ions or fluororesins on color CRTs. Copper materials have been nickel plated or replaced with non-copper materials to prevent the generation of copper ions.



## Specifications

Action	Double acting/Single rod
Bore size	ø20, ø25, ø32, ø40
Max. operating pressure	1.0MPa
Min. operating pressure	0.05MPa
Cushion	Rubber bumper
Piston speed	50 to 500mm/s
Mounting	Bottom mounting, Front mounting

\* Auto switches can be mounted.

## Accessories

Accessories	Standard	Option	
	Rod end nut	Single knuckle joint	Double knuckle joint (with pins)*
Bottom mounting	●	●	●
Front mounting	●	●	●

\* Knuckle pins and snap rings (cotter pins for ø40) are attached.

## Weight

Bore size (mm)		20	25	32	40
Basic weight	Bottom mounting	0.14	0.23	0.32	0.63
	Front mounting	0.14	0.22	0.32	0.62
Additional weight by each 50 stroke		0.04	0.07	0.09	0.14

Calculation Example: CM2RA32-100 (ø32, 100 stroke, Bottom mounting)

- Basic weight : 0.32kg
- Additional weight: 0.09kg
- Cylinder stroke : 100mm  
0.32+0.09 X 100/50=0.50kg

## ⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions and common precautions and refer to p.1.4-5 for those on CM2 series.

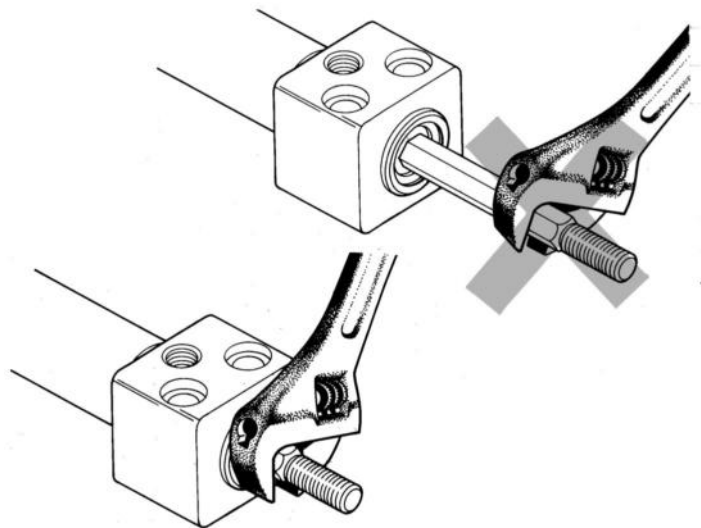
### Handling

## ⚠ Cautions

- ① **Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.**
  - If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy. Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational torque Nm	ø20	ø25	ø32	ø40
	0.2	0.25	0.25	0.44

- To screw a bracket or a nut onto the threaded portion at the tip of the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes. To tighten, take precautions to prevent the tightening torque from being applied to the non-rotating guide.



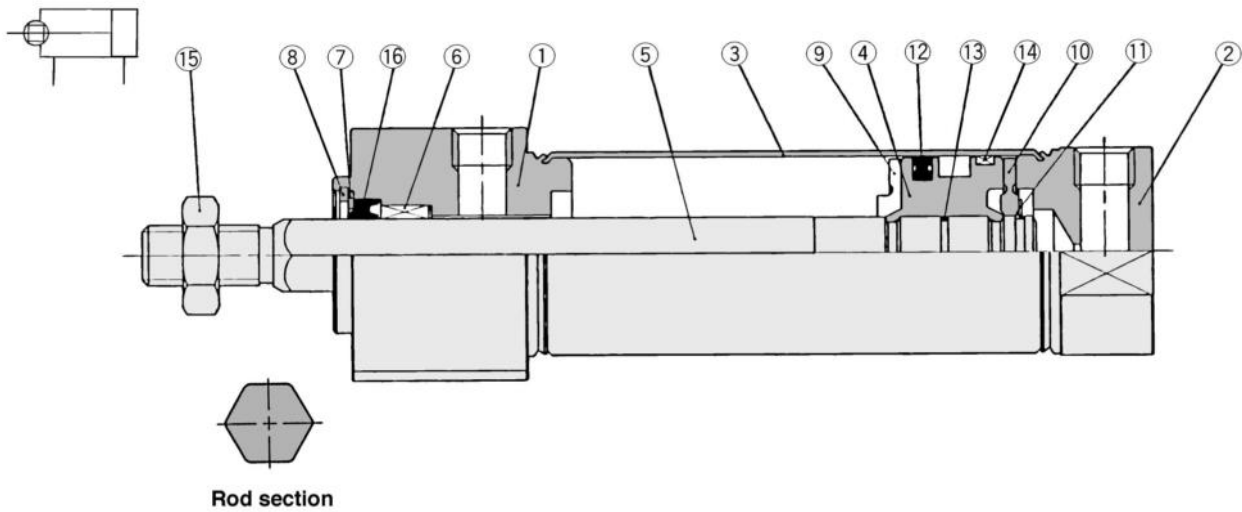
- ② **To replace a rod seal, contact SMC.**

A rod seal could lead to an air leak, depending on the position in which it is fitted.

Therefore, make sure to contact SMC if a rod seal must be replaced.

# Direct Mount Non-rotating Rod: Double Acting Single Rod *Series CM2RK*

## Construction



### Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White anodized
②	Head cover	Aluminum alloy	White anodized
③	Cylinder tube	Stainless steel	
④	Piston	Aluminum alloy	Chromated
⑤	Piston rod	Carbon steel	
⑥	Non-rotating guide	Oil impregnated sintered alloy	
⑦	Seal retainer	Rolled steel	Nickel plated
⑧	Snap ring	Carbon steel	Nickel plated
⑨	Bumper A	Urethane	
⑩	Bumper B	Urethane	
⑪	Snap ring	Stainless steel	
⑫	Piston seal	NBR	
⑬	Piston gasket	NBR	
⑭	Wearing	Resin	
⑮	Rod end nut	Carbon steel	Nickel plated

### Replacement Parts

No.	Description	Material	Bore size(mm)/Part No.			
			20	25	32	40
⑯	Rod seal	NBR	PDR-8W	PDR-10W	PDR-12W	PDR-14W

CJ1

CJP

CJ2

**CM2**

C85

CG1

MB

C95

CA1

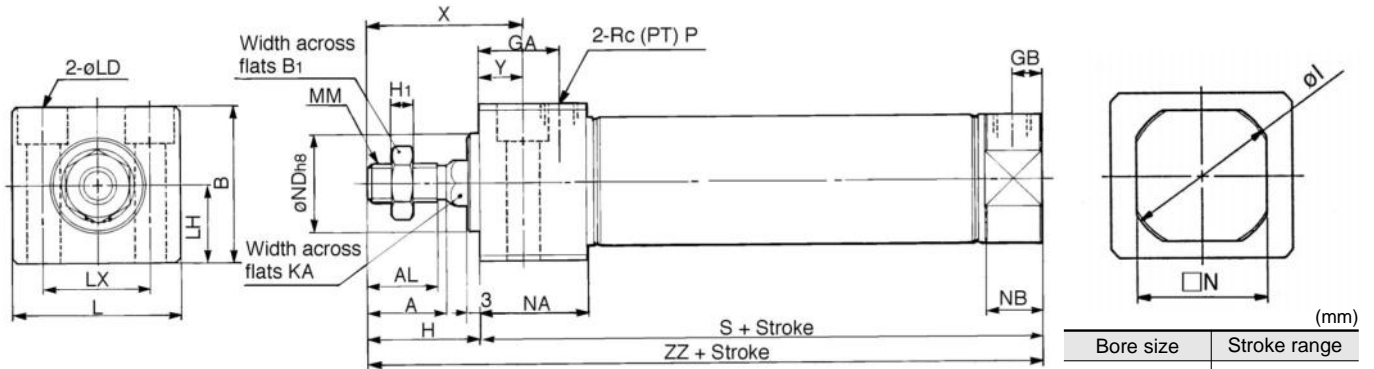
CS1

# Series CM2RK

Bottom Mounting



CM2RKA Bore size Stroke



Bore size	Stroke range
20	Up to 150
25	Up to 200
32	Up to 200
40	Up to 300

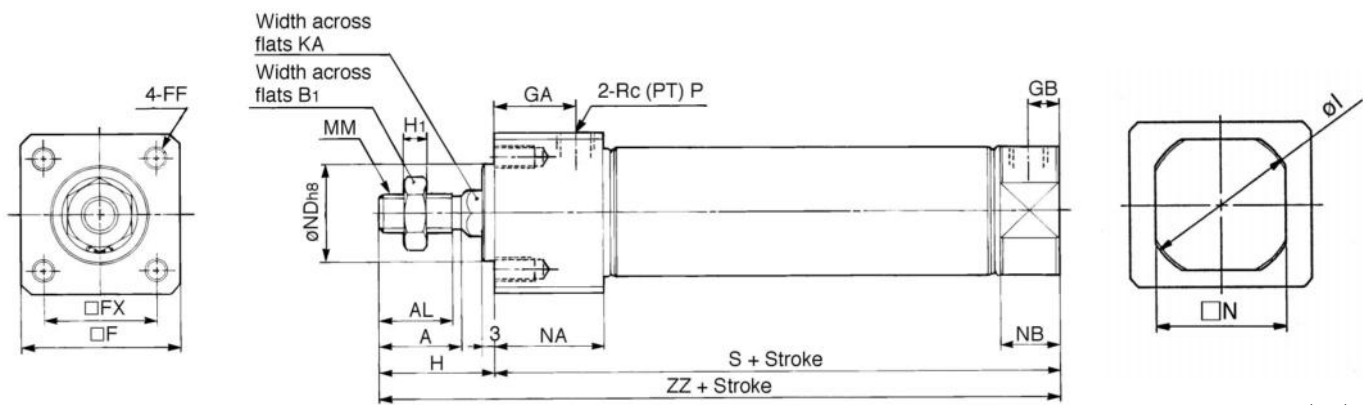
Bore	A	AL	B	B1	GA	GB	H	H1	I	KA	L	LD	LH	LX	MM	N	NA	NB	ND	P	S	X	Y	ZZ
20	18	15.5	30.3	13	22	8	27	5	28	8.2	33.5	ø5.5, ø9.5 Depth of counter bore 6.5	15	21	M8 X 1.25	24	29	15	20 <sup>0</sup> <sub>-0.033</sub>	1/8	76	39	12	103
25	22	19.5	36.3	17	22	8	31	6	33.5	10.2	39	ø6.6, ø11 Depth of counter bore 7.5	18	25	M10 X 1.25	30	29	15	26 <sup>0</sup> <sub>-0.033</sub>	1/8	76	43	12	107
32	22	19.5	42.3	17	22	8	31	6	37.5	12.2	47	ø9, ø14 Depth of counter bore 10	21	30	M10 X 1.25	34.5	29	15	26 <sup>0</sup> <sub>-0.033</sub>	1/8	78	43	12	109
40	24	21	52.3	22	27	11	34	8	46.5	14.2	58.5	ø11, ø17.5 Depth of counter bore 12.5	26	38	M14 X 1.5	42.5	37.5	21.5	32 <sup>0</sup> <sub>-0.039</sub>	1/4	104	49	15	138

Bottom mounting Basic  
 CM2RKA20.....SCM220B, #14  
 CM2RKA25.....SCM225B, #14  
 CM2RKA32.....SCM232B, #14  
 CM2RKA40.....SCM240B, #14

Front Mounting



CM2RKB Bore size Stroke



Bore size	Stroke range
20	Up to 150
25	Up to 200
32	Up to 200
40	Up to 300

Bore	A	AL	B1	F	FF	FX	GA	GB	H	H1	I	KA	MM	N	NA	NB	ND	P	S	ZZ
20	18	15.5	13	30.4	M5 X 0.8 Depth 9	22	22	8	27	5	28	8.2	M8 X 1.25	24	29	15	20 <sup>0</sup> <sub>-0.033</sub>	1/8	76	103
25	22	19.5	17	36.4	M6 X 1 Depth 11	26	22	8	31	6	33.5	10.2	M10 X 1.25	30	29	15	26 <sup>0</sup> <sub>-0.033</sub>	1/8	76	107
32	22	19.5	17	42.4	M6 X 1 Depth 11	30	22	8	31	6	37.5	12.2	M10 X 1.25	34.5	29	15	26 <sup>0</sup> <sub>-0.033</sub>	1/8	78	109
40	24	21	22	52.4	M8 X 1.25 Depth 14	36	27	11	34	8	46.5	14.2	M14 X 1.5	42.5	37.5	21.5	32 <sup>0</sup> <sub>-0.039</sub>	1/4	104	138

Front mounting Basic  
 CM2RKB20.....SCM220B, #15  
 CM2RKB25.....SCM225B, #15  
 CM2RKB32.....SCM232B, #15  
 CM2RKB40.....SCM240B, #15