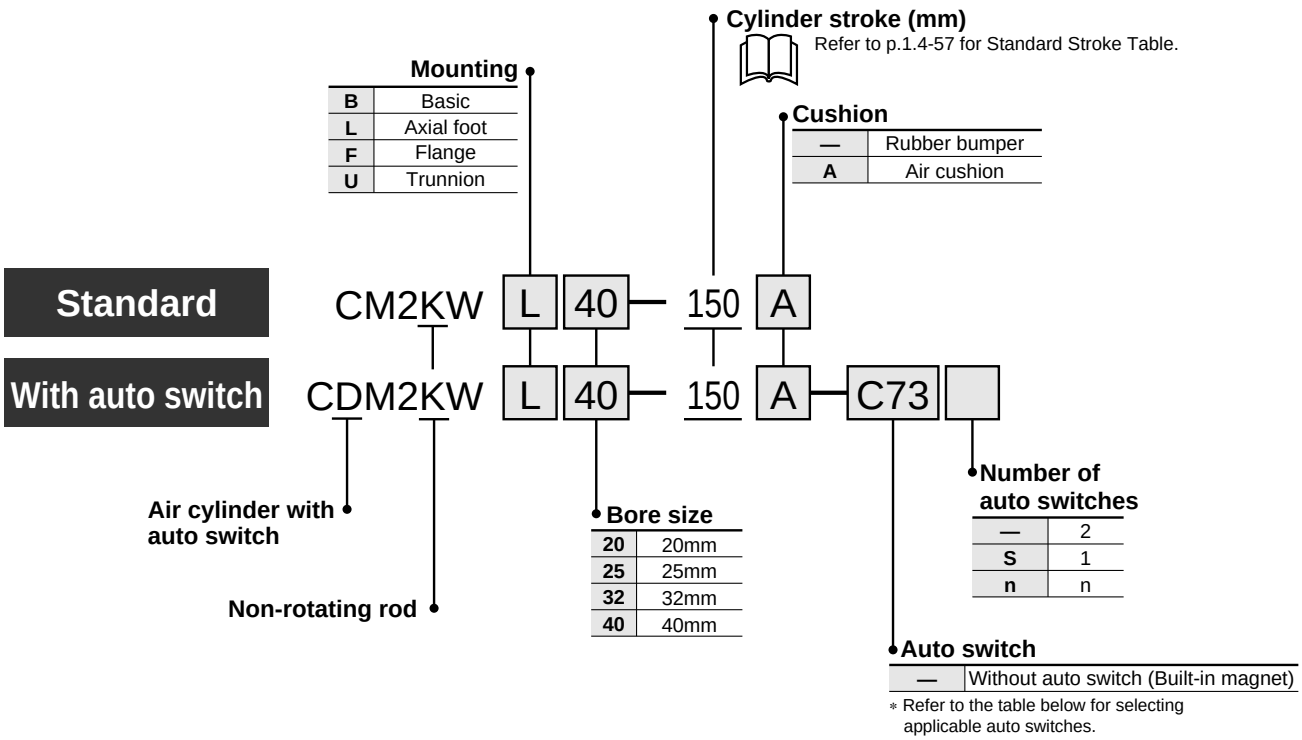
Non-rotating Rod: Double Acting Double Rod

Series CM2KW

ø20, ø25, ø32, ø40

How to Order



∗ Refer to the table below for selecting applicable auto switches.

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 DC	Load voltage AC	Auto switch model	Lead wire* (m) 0.5 (—)	3 (L)	5 (Z)	None (N)	Applicable load	
Reed switch	—	Grommet	Yes	3 wire (NPN)	5V	—	C76	●	●	—	—	IC	—
				2 wire	12V	100V	C73	●	●	●	—	—	Relay PLC
			No		5V, 12V	100V or less	C80	●	●	—	—	IC	Relay PLC
			Yes		12V	—	B53	●	●	●	—	—	PLC
					12V	100V, 200V	B54	●	●	●	—	—	Relay PLC
			No		12V	200V or less	B64	●	●	—	—		Relay PLC
		Connector	Yes		12V	—	C73C	●	●	●	●		Relay PLC
			No		5V, 12V	24V or less	C80C	●	●	●	●	IC	Relay PLC
		Terminal conduit	Yes		12V	—	A33A	—	—	—	●	—	PLC
					12V	100V, 200V	A34A	—	—	—	●		Relay PLC
		DIN connector					A44A	—	—	—	●		Relay PLC
	Diagnostic indicator (2 color)	Grommet			—	—	B59W	●	●	—	—		
Solid state switch	—	Grommet	Yes	3 wire(NPN)	5V, 12V	—	H7A1	●	●	○	—	IC	Relay PLC
				3 wire(PNP)			H7A2	●	●	○	—		
				2 wire	12V		H7B	●	●	○	—	—	
		Connector					H7C	●	●	●	●		
		Terminal conduit		3 wire(NPN)	5V, 12V		G39A	—	—	—	●	IC	
				2 wire	12V		K39A	—	—	—	●	—	
	Diagnostic indicator (2 color)	Grommet		3 wire(NPN)	5V, 12V		H7NW	●	●	○	—	IC	Relay PLC
				3 wire(PNP)			H7PW	●	●	○	—		
				2 wire	12V		H7BW	●	●	○	—	—	
	Water resistant (2 color)						H7BA	—	●	○	—		
	With timer			3 wire(NPN)	5V, 12V		G5NT	—	●	○	—	IC	
	Diagnostic output (2 color)			4 wire (NPN)			H7NF	●	●	○	—		
	Latch with diagnostic output (2 color)				—		H7LF	●	●	○	—	—	

∗ 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.

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

Non-rotating accuracy
ø20, ø25—±0.7°
ø32, ø40—±0.5°

Can operate without lubrication.

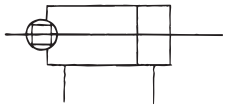
The same installation dimensions as the stand ard cylinder.

Auto switches can also be mounted.

It can be installed with auto switches to detect the stroke position of the cylinder.

JIS symbol

Double acting/Double rod



Mounting Brackets

Refer to p.1.4-19 and 1.4-20 for mounting brackets.

Specifications

Bore size (mm)	ø20	ø25	ø32	ø40
Rod non-rotating accuracy	±0.7°		±0.5°	
Style	Air cylinder			
Cushion	Rubber bumper			
Action	Double acting/Double rod			
Fluid	Air			
Proof pressure	1.5MPa			
Max. operating pressure	1.0MPa			
Min. operating pressure	0.08MPa			
Ambient and fluid temperature	Without auto switch: –10 to +70°C (No freezing) With auto switch: –10 to +60°C (No freezing)			
Lubrication	Non-lube			
Thread tolerance	JIS class 2			
Stroke tolerance	$^{+1.4}_{0}$			
Piston speed (mm/s)	50 to 500			
Allowable kinetic energy	0.27J	0.4J	0.65J	1.2J

Standard Stroke

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

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

Minimum Strokes for Auto Switch Mounting

(mm)

Auto switch model	Number of switches				
	2		n		1
	On different surfaces	On the same surface	On different surfaces	On the same surface	
D-C7 **D-C8**	15	50	$15+45(\frac{n-2}{2})$ (n=2, 4, 6···)	50+45(n–2)	10
D-H7□ **D-H7□W** **D-H7BAL** **D-H7NF**	15	60		60+45(n–2)	10
D-C73C **D-C80C** **D-H7C**	15	65	$15+50(\frac{n-2}{2})$ (n=2, 4, 6···)	65+50(n–2)	10
D-H7LF	20	65	$20+50(\frac{n-2}{2})$ (n=2, 4, 6···)		10
D-B5 **D-B6**	15	75	$15+50(\frac{n-2}{2})$ (n=2, 4, 6···)	75+55(n–2)	10
D-B59W	20	75	$20+50(\frac{n-2}{2})$ (n=2, 4, 6···)		15
D-A3□A **D-G39A** **D-K39A** **D-A44A**	35	100	35+30(n–2)	100+100(n–2)	10

Mounting and Accessories

Mounting \ Accessories	Standard		Option	
	Mounting nut	Rod end nut	Single knuckle joint	Double knuckle joint (1)
Basic	● (1 pc.)	● (2 pcs.)	●	●
Axial foot	● (2 pcs.)	● (2 pcs.)	●	●
Flange	● (1 pc.)	● (2 pcs.)	●	●
Trunnion	● (1 pc.)(1)	● (2 pcs.)	●	●
Note				With pins

Note 1) Trunnion nuts are attached.

Note 2) Pins and snap rings (cotter pins for ø40) are attached for double knuckle joint.

Weight

(kg)

Bore size (mm)		20	25	32	40
Basic weight	Basic style	0.16	0.25	0.32	0.66
	Axial foot style	0.31	0.41	0.48	0.93
	Flange style	0.22	0.34	0.41	0.78
	Trunnion style	0.20	0.32	0.38	0.76
Additional weight by each 50 stroke		0.06	0.1	0.14	0.20
Accessory	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (with pins)	0.07	0.07	0.07	0.20

Calculation example: CM2KWL32-100
- Basic weight: 0.48 (Foot, ø32)
- Additional weight: 0.14/50 stroke
- Cylinder stroke: 100 stroke

0.48+0.14 X 100/50=0.76kg

Mounting Bracket Part No.

Bore size mm	20	25	32	40
Axial foot *	CM-L020B	CM-L032B		CM-L040B
Flange	CM-F020B	CM-F032B		CM-F040B
Trunnion (with nuts)	CM-T020B	CM-T032B		CM-T040B

* Two foot brackets and a mounting nut are attached.

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-G3/K3	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.)
BBA3: D-B5/B6/G5
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

⚠ 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

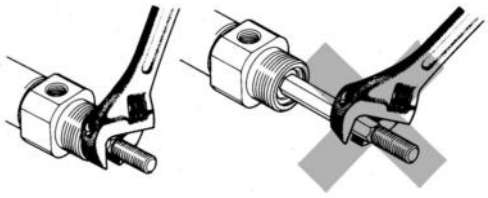
⚠ Cautions

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.

With Air Cushion

CM2KW Mounting | Bore size | Stroke | **A** | Gaiter

A: With air cushion

A cushion mechanism is provided on the cover at both ends to absorb the impact that is created during high speed operations. Thus, it does not transmit vibrations to the surroundings and prolongs the life of the cylinder.

Refer to p.1.4-7 for specifications and allowable kinetic energy.

Copper Free

20-CM2KW Mounting | Bore size | Stroke

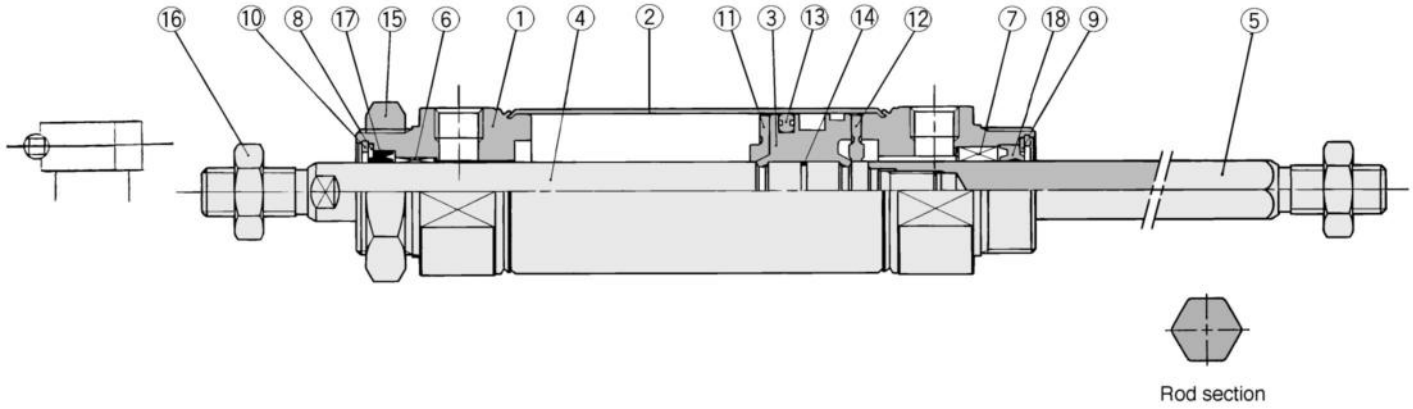
20: Copper free

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.

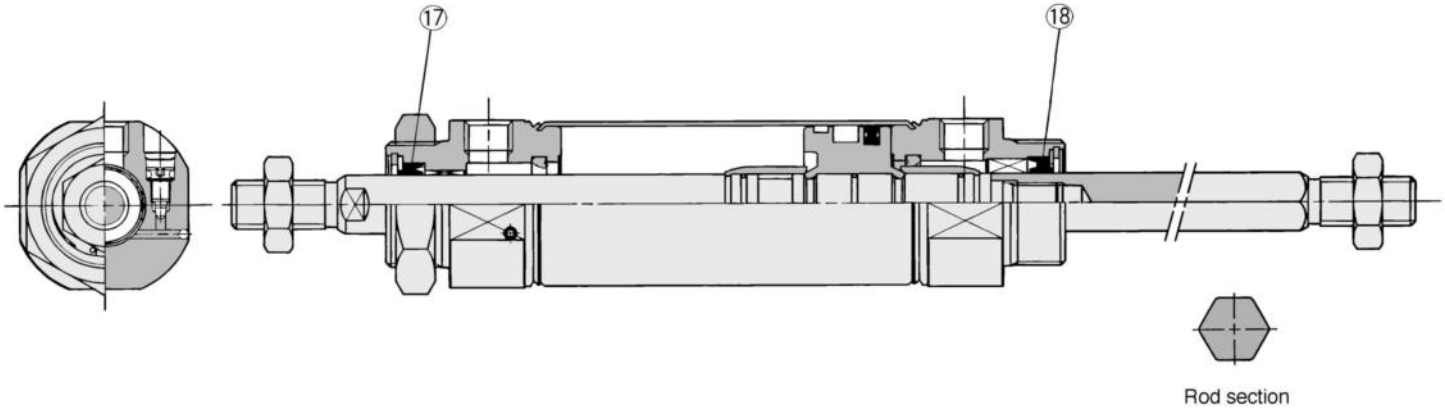
Refer to p.1.4-8 for specifications.

Construction

Rubber bumper



With air cushion



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White anodized
②	Cylinder tube	Stainless steel	
③	Piston	Aluminum alloy	Chromated
④	Piston rod A	Carbon steel	Hard chrome plated
⑤	Piston rod B	Stainless steel	
⑥	Bushing	Oil impregnated sintered alloy	
⑦	Non-rotating guide	Oil impregnated sintered alloy	
⑧	Seal retainer A	Rolled steel	Nickel plated
⑨	Seal retainer B	Rolled steel	Nickel plated
⑩	Snap ring	Carbon steel	Nickel plated
⑪	Bumper A	Urethane	
⑫	Bumper B	Urethane	
⑬	Piston seal	NBR	
⑭	Piston gasket	NBR	
⑮	Mounting nut	Carbon steel	Nickel plated
⑯	Rod end nut	Carbon steel	Nickel plated

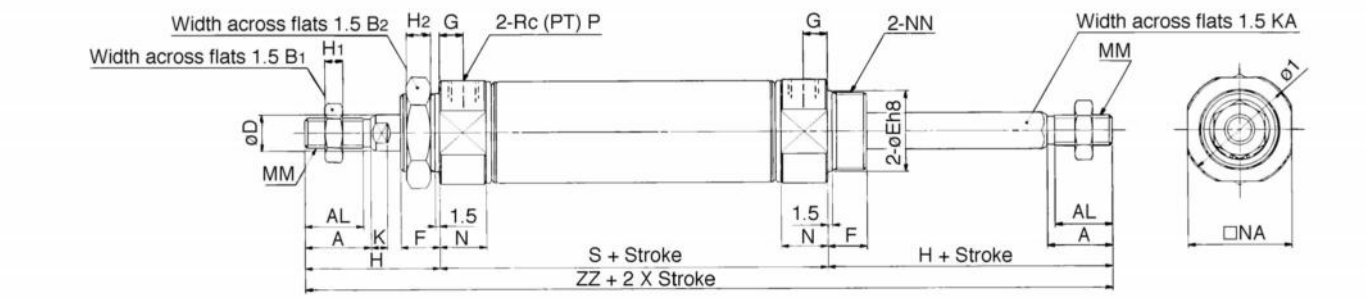
Replacement Parts

●With rubber bumper/With air cushion/Built-in One-touch fitting

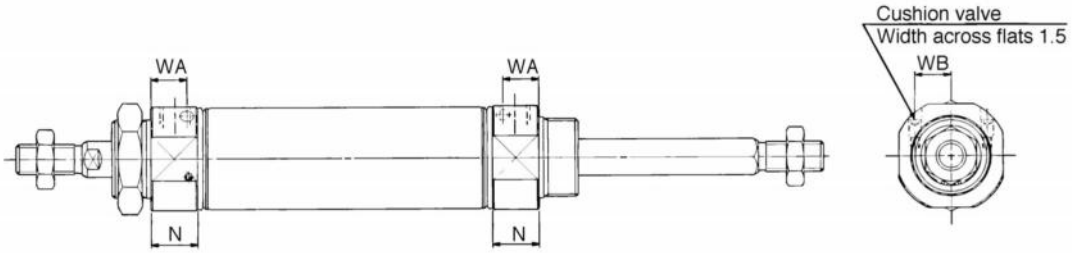
No.	Description	Material	Bore size(mm)/Part No.			
			20	**25**	**32**	**40**
⑰	Rod seal A	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14LZ
⑱	Rod seal B	NBR	PDR-8W	PDR-10W	PDR-12W	PDR-14W

Basic (B) CAD

CM2KWB **Bore size** — **Stroke** ☐



With air cushion



∗ 301mm or longer stroke range is regarded as long stroke. (mm)

Bore	Stroke range	A	AL	B1	B2	D	E	F	G	H	H1	H2	II	K	KA	MM	N	NA	NN	P	S	ZZ
20	1 to 300	18	15.5	13	26	8	$20^{0}_{-0.033}$	13	8	41	5	8	28	5	8.2	M8 X 1.25	15	24	M20 X 1.5	$1/8$	62	144
25	1 to 300	22	19.5	17	32	10	$26^{0}_{-0.033}$	13	8	45	6	8	33.5	5.5	10.2	M10 X 1.25	15	30	M26 X 1.5	$1/8$	62	152
32	1 to 300	22	19.5	17	32	12	$26^{0}_{-0.033}$	13	8	45	6	8	37.5	5.5	12.2	M10 X 1.25	15	34.5	M26 X 1.5	$1/8$	64	154
40	1 to 300	24	21	22	41	14	$32^{0}_{-0.033}$	16	11	50	8	10	46.5	7	14.2	M14 X 1.5	21.5	42.5	M32 X 2	$1/4$	88	188

With air cushion

Bore	N	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Dimensions for Other Mounting Brackets

The dimensions are the same as the standard style (double acting/double rod), except for K/A dimensions. Refer to p.1.4-19 and 1.4-20.

Auto Switch Mounting Position

The auto switch mounting position (at stroke end) is the same as the standard style (double acting/double rod). Refer to p.1.4-32.