Air Cylinder Series CM2

ø20, ø25, ø32, ø40

Longer life, increased by 50% (in-house comparison):

The cylinder's mounting and the machining accuracy of the parts have been improved. Furthermore, the shapes and the materials of the seals have been improved to enhance their wear resistance. As a result, the cylinder's life has been dramatically increased to 1.5 times that of Series CM.

Compact and light weight:

The tube is made of stainless steel and the cover and the piston are made of aluminum. Through a compact design, it weighs 30 to 40% less than Series CM. The lateral width of the cover has been reduced approximately 10%,

requiring less installation space

A tube that is resistant against external impacts:

Easy installation:

Because the rod cover and the head cover have

wide surfaces, a wrench can be placed over the

cover during installation, thus facilitating installation.

To prevent deformation or damage caused by external impacts, a stainless tube with a thicker wall has been adopted to increase its strength.

Furthermore, the strength of the support bracket has been increased.

Excellent dust resistance:

A special shaped rod seal with a composite formed dust lip has been adopted. It prevents the intrusion of external dust, enabling the cylinder to be operated in unfavourable environments containing large amounts of cutting chips.

Improved installation accuracy:

The cylinder body and the mounting support bracket have been made with an even higher level of accuracy. Improving the installation accuracy simplifies the installation work and prolongs the life of the cylinder.

Reduced piston rod deflection:

The clearance between the bushing and the piston rod, and between the tube and the wear ring have been decreased to achieve higher accuracy. Thus, the deflection of the piston rod has been decreased to 1/2 of Series CM.

Replaceable rod seal:

The rod seal, which is the first to wear out in a cylinder, can be replaced. This extends the life of the cylinder, and is economical. The seal can be replaced with the cylinder mounting, thus requiring less manpower.

High speed drive possible:

The cushion function can be selected in accordance with the drive speed condition to be used. Therefore, it can support a high-speed drive.

• Rubber bumper 50 to 750mm/s (Standard equipment)

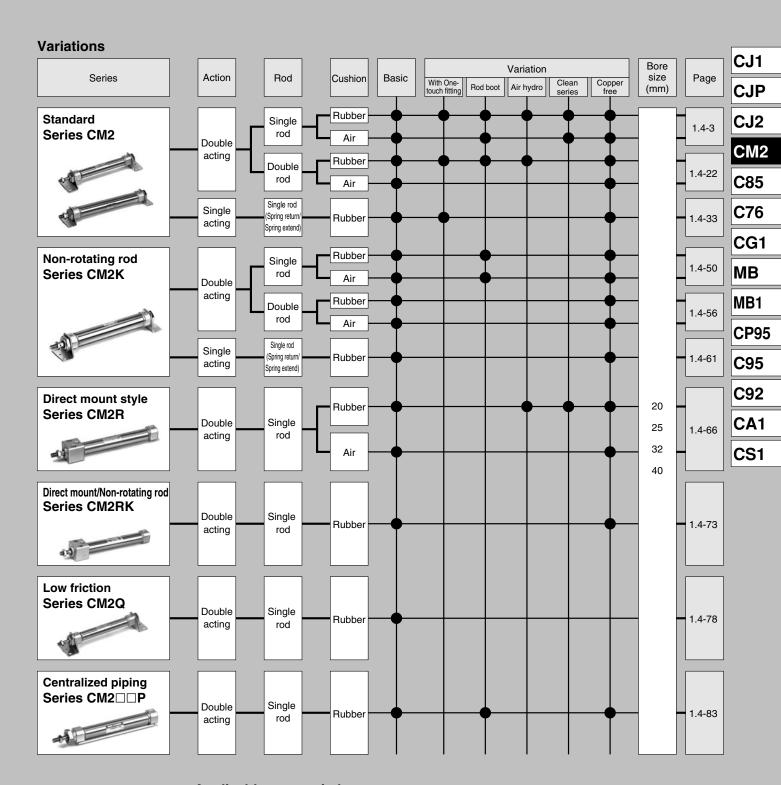






Air Cylinder Series CM2

ø20, ø25, ø32, ø40



Applicable auto switch

Applicable date	- William
Auto switch model	Band mounting
Reed switch	D-C7/C8, D-C73C/C80C, D-B5/B6 D-B59W, D-A3□A, D-A44A
Solid state switch	D-H7□, D-H7□W, D-H7□F D-H7BAL, D-G5NTL, D-G39A/K39A

Made to Order

Refer to p.5.4-1 for made to order specifications for series CM2.

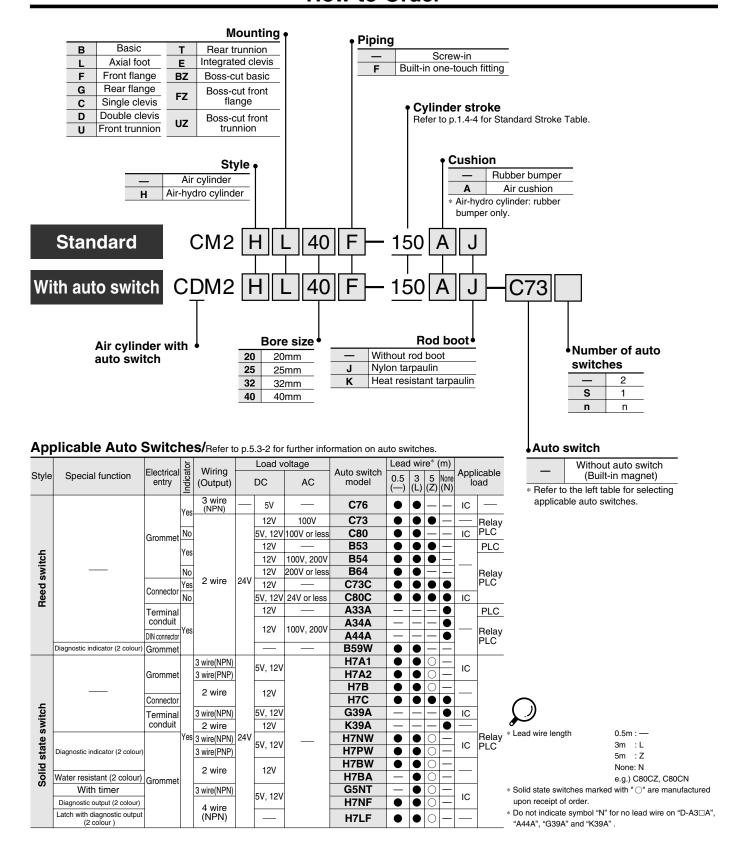


Standard: Double Acting Single Rod

Series CM2

ø20, ø25, ø32, ø40

How to Order





JIS symbol

Double acting/Single rod





Refer to p.5.4-1 for made to order specifications for series CM2.

Specifications

20	25	32	40	
	Air cy	linder		
	Double actir	ng/Single rod		
	A	ir		
	1.5	MРа		
1.0MPa				
0.05MPa				
Without auto switch: -10 to +70°C (No freezing) With auto switch: -10 to +60°C (No freezing)				
Non-lube				
JIS class 2				
+1.4 0				
50 to 750mm/s				
Rubber bumper				
0.27J	0.4J	0.65J	1.2J	
	Withou With a	Air cy Double actir A 1.51 1.01 0.05 Without auto switch: -10 Non JIS c +7 50 to 75 Rubber	Air cylinder Double acting/Single rod Air 1.5MPa 1.0MPa 0.05MPa Without auto switch: -10 to +70°C (With auto switch: -10 to +60°C (No Non-lube JIS class 2 +1.4 0 50 to 750mm/s Rubber bumper	

Standard Stroke

Bore size (mm)	Standard stroke(mm) (1)	Long stroke ⁽²⁾ (mm)	Max. stroke (mm)
20		400	1000
25	25, 50, 75, 100, 125, 150 200, 250, 300	450	1500
32		450	2000
40		500	2000



Note 1) Other intermediate strokes can be manufactured upon receipt of order.

Note 2) Long stroke applies to the axial foot style and the front flange style. If other mounting brackets are used or the length exceeds the long stroke limit, the stroke should be selected based on the stroke selection table. (Refer to Data on p.0-21.)

Number of switches

Minimum Strokes for Auto Switches Mounting

CS1

(mm)

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB1

CP95

C95

C92

CA1

Auto switch model	2	2		n	
Auto switch model	On different surfaces	On the same surface	On different surfaces	On the same surface	1
D-C7 D-C8	15	50	- 0	50+45(n-2)	10
D-H7□ D-H7□W D-H7BAL D-H7NF	15	60	$15+45 \left(\frac{n-2}{2}\right)$ (n=2, 4, 6···)	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)	73+00(H=2)	15
D-A3□A D-G39A D-K39A D-A44A	35	100	35+30 (n-2)	100+100(n-2)	10



Boss-cut Style

Boss for the head cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of total cylinder length with standard style (mm)

comparison of total dylinder longer than standard ctyle (IIIIII)					
ø20	ø25	ø32	ø40		
▲ 13	▲ 13	▲ 13	▲ 16		

Mounting

■Boss-cut basic (BZ)

■Boss-cut flange (FZ)

■Boss-cut trunnion (UZ)

Rod Boot Materials

Symbol	Material	Max. ambient temp.
J	Nylon tarpaulin	70°C
K	Neoprene cloth	110°C*

^{*} Maximum ambient temperature for the rod boot only.

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
Single clevis	CM-C020B	CM-C032B		CM-C040B
Double clevis (with pins)**	CM-D020B	CM-D032B		CM-D040B
Trunnion (with nuts)	CM-T020B	СМ-Т	032B	CM-T040B

^{*} Two foot brackets and a mounting nut are attached.

Auto Switch Mounting Bracket Part No.

Auto switch	Bore size (mm)					
model	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.)

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.

Precautions on Handling

⚠ Warning

1) Do not rotate the cover.

 When installing the cylinder or screwing a pipe fitting into the port, the coupling portion of the cover could break if the cover is rotated.

A Caution

① Be careful with the snap ring that could fly out.

When replacing the rod seal, be careful with the removal of the snap ring, as the snap ring could fly out.

② Do not touch the cylinder during operation.

 If the cylinder is operating at a high frequency, be aware that the cylinder tube surface could become very hot, creating the risk of burns.

^{**} Clevis pins and snap rings (cotter pins for bore size 40) are attached.

Mounting Accessories

Accessories		Standard			Standard Option			
Mounting	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint (3)	Pivot bracket	Rod boot	
Basic	● (1 pc.)	•	_	•	•	_	•	
Axial foot	• (2)	•	_	•	•	_	•	
Front flange	• (1)	•	_	•	•	_	•	
Rear flange	● (1)	•	_	•	•	_	•	
Integrated clevis	(1)	•	_	•	•	•	•	
Single clevis	(1)	•	_	•	•	_	•	
Double clevis (3)	(1)	•	•	•	•	_	•	
Front trunnion	●(1) ⁽²⁾	•	_	•	•	_	•	
Rear trunnion	●(1) ⁽²⁾	•	_	•	•	_	•	
Boss-cut basic	• (1)	•	_	•	•	_	•	
Boss-cut flange	● (1)	•	_	•	•	_	•	
Boss-cut trunnion	• (1)	•	_	•	•	_	•	
Note					With pins	With pins		



Note 1) Mounting nuts are not attached for the integrated clevis, the single clevis, and the double clevis styles.

Note 2) Trunnion nuts are attached for the front trunnion and the rear trunnion styles.

Note 3) Pins and snap rings (cotter pins for bore size 40) are attached for double clevis and the double knuckle joint.

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

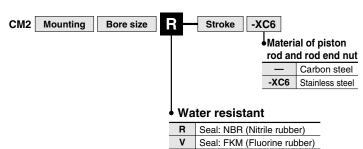
CS1

Weight					(kg)
	Bore size (mm)	20	25	32	40
	Basic	0.14	0.21	0.28	0.56
	Axial foot	0.29	0.37	0.44	0.83
	Flange	0.20	0.30	0.37	0.68
	Integrated clevis	0.12	0.19	0.27	0.52
Pagia waight	Single clevis	0.18	0.25	0.32	0.65
Basic weight -	Double clevis	0.19	0.27	0.33	0.69
	Trunnion	0.18	0.28	0.34	0.66
	Boss-cut basic	0.13	0.19	0.26	0.53
	Boss-cut flange	0.19	0.28	0.35	0.65
	Boss-cut trunnion	0.17	0.26	0.32	0.63
Additio	onal weight by each 50 stroke	0.04	0.06	0.08	0.13
	Pivot bracket (with pins)	0.07	0.07	0.14	0.14
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: CM2L32-100

- ●Basic weight:----- 0.44 (Foot, ø32)
- ●Additional weight:··· 0.08/50 stroke
- ●Cylinder stroke:----- 100 stroke 0.44+0.08 X 100/50=0.60kg

Water Resistant



Ideal for use in a machine tool environment exposed to coolant mist. Also suited for use in areas in which water splashes, such as food processing equipment or car washers.

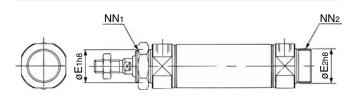


Specifications

•	
Action	Double acting/Single rod
Bore size	ø20, ø25, ø32, ø40
Max. operating pressure	1.0MPa
Min. operating pressure	0.05MPa
Cushion	Rubber bumper
Piping	Screw-in
Piston speed	50 to 750mm/s

^{*} Auto switch can be mounted.

Dimensions



Bore size (mm)	E1	E2*	NN1	NN2*
20	22_0.033	20_0.033	M22 X 1.5	M20 X 1.5

^{*} These dimensions and other dimensions are the same as standard style. Contact SMC for part numbers of the foot, the flange and the mounting nut for Ø20.



Air-hydro



A low hydraulic pressure cylinder used at a pressure of 1.0MPa or below.

Through the concurrent use of a CC series air-hydro unit, it is possible to operate at a constant or low speeds or to effect an intermediate stop, just like a hydraulic unit, while using pneumatic equipment such as a valve.



Specifications

Style	Air-hydro	
Fluid	Turbine oil	
Action	Double acting/Single rod	
Bore size	ø20, ø25, ø32, ø40	
Proof pressure	1.5MPa	
Max. operating pressure	1.0MPa	
Min. operating pressure	0.18MPa	
Piston speed	15 to 300mm/s	
Ambient and fluid temperature	+5 to +60°C	
Thread tolerance	JIS class 2	
Stroke tolerance	+1.4 0	
Cushion	Rubber bumper (Standard equipment)	
Mounting	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion, Integrated clevis, Boss-cut	

- * Auto switch can be mounted.
- * Dimensions are the same as the standard model.
- Construction: Refer to p.1.4-9
- Dimensions: Refer to p.1.4-10 to 1.4-18

With Air Cushion

CM2 Mounting Bore size Stroke A Rod boot

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.



Specifications

Action	Double acting/Single rod
Bore size	ø20, ø25, ø32, ø40
Max. operating pressure	1.0MPa
Min. operating pressure	0.05MPa
Cushion	Air cushion
Piston speed	50 to 1000mm/s
Mounting	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion, Integrated clevis, Boss-cut

^{*}Auto switches can be mounted.

Allowable Kinetic Energy

Bore size (mm)	Effective cushion length (mm)	Kinetic energy absorption			
20	11.0	0.54J			
25	11.0	0.78J			
32	11.0	1.27J			
40	11.8	2.35J			

- Construction: Refer to p.1.4-9
- Dimensions: Refer to p.1.4-10 to 1.4-18
- Refer to p.1.4-4 for other specifications.

Built-in One-touch Fitting

CM2	Mounting	Bore size	<u>F</u> — St	roke
			Built-in O	ne-touch fitting

A style in which One-touch fittings are built in the cylinder. It dramatically reduces the piping labour and installation space.



- Construction: Refer to p.1.4-9
- Dimensions: Refer to p.1.4-10 to 1.4-18
- Refer to p1.4-4 for other specifications.

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
Piping	Built-in One-touch fitting
Piston speed	50 to 750mm/s
Mounting	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion, Integrated clevis, Boss-cut

^{*} Auto switches can be mounted.

Applicable Tube O.D./I.D.

_ ' '				
Bore size (mm)	ø20	ø25	ø32	ø40
Applicable tube (mm)	ø6/4	ø6/4	ø6/4	ø8/6
Applicable tube material	Nylon, Soft nylon, Polyurethane			ne

⚠ Caution

The One-touch fitting cannot be replaced.

• The One-touch fitting is press-fit into the cover and cannot be replaced.



Clean Series

10-CM2 Mounting Bore size Stroke

Clean series

The rod portion of the actuator has a double seal construction, and a relief port is provided to discharge the exhaust air directly outside of the clean room. Thus, it can be used in a Class 100 clean room.



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/Air cushion
Relief port size	M5
Piston speed	30 to 400mm/s
Mounting	Basic, Axial foot, Front flange, Rear flange, Boss-cut

^{*} Auto switches can be mounted.

Copper Free

<u>20</u> -CM2	Mounting	Bore size	Stroke

Copper free

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



CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

C92

CA₁

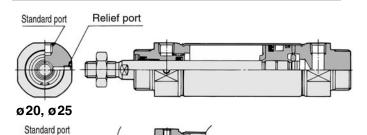
CS₁

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 Air cushion		
Piston speed	50 to 750mm/s 50 to1000mm/s		
Mounting	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion , Integrated clevis, Boss-cut		

^{*} Auto switches can be mounted.

Construction



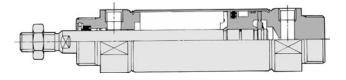
bumper.





ø32, ø40

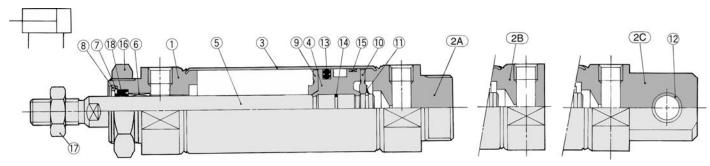
Construction





Construction

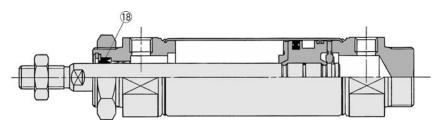
Rubber bumper



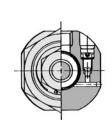
Boss-cut style Integrated clevis style

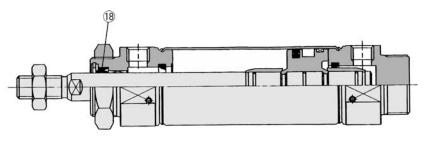


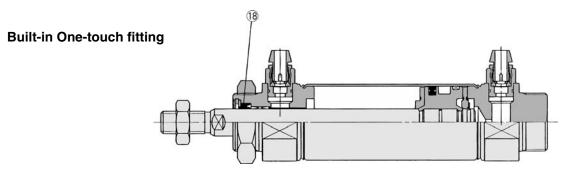












Component Parts

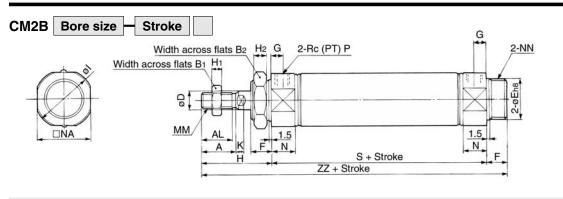
No.	Description	Material	Note
1	Rod cover	Aluminum alloy	White anodized
(2A)	Head cover A	Aluminum alloy	White anodized (Standard style)
2B)	Head cover B	Aluminum alloy	White anodized (boss-cut style)
2C)	Head cover C	Aluminum alloy	White anodized (Integrated clevis style)
3	Cylinder tube	Stainless steel	
4	Piston	Aluminum alloy	Chromated
(5)	Piston rod	Carbon steel	Hard chrome plated
6	Bushing	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	

No.	Description	Material	Note
12	Bushing for clevis	Oil impregnated sintered alloy	
13	Piston seal	NBR	
14)	Piston gasket	NBR	
15	Wearing	Resin	
16	Mounting nut	Carbon steel	Nickel plated
17)	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.						
No.	Description	Materiai	20	25	32	40
18	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14LZ
●Air-hydro style						
18	Rod seal	NBR	HDU-8	HDU-10	HDU-12L	HDU-14

Basic (B)



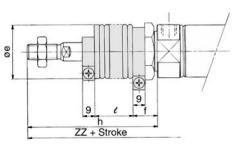
CJ₁

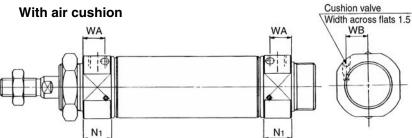
CJP

CJ₂

CM₂

With rod boot





C85

C76

CG₁

MB

MB₁

CP95

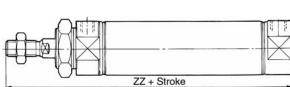
C95

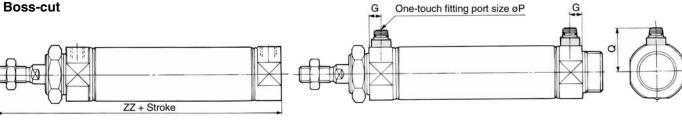
C92

CA₁

CS₁

Boss-cut





Built-in One-touch fitting

																					(mm)
Bore	Stroke range	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	H2	1	K	MM	N	NA	NN	Р	S	ZZ
 20	1 to 300	18	15.5	13	26	8	20_0.033	13	8	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	62	116
25	1 to 300	22	19.5	17	32	10	$26_{-0.033}^{0}$	13	8	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	62	120
32	1 to 300	22	19.5	17	32	12	$26_{-0.033}^{0}$	13	8	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64	122
40	1 to 300	24	21	22	41	14	$32_{-0.039}^{0}$	16	11	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88	154

With rod boot (mm) ZZ h 1 to 50 51 to 100 101 to 150 151 to 200 201 to 300 1 to 50 51 to 100 101to 150 151 to 200 201 to 300 1 to 50 51 to 100 101to 150 151 to 200 201 to 300 1 to 50 51 to 100 101 to 150 151 to 200 201 to 300 206 210 212

20	36	17	68	81	93	106	131	12.5	25	37.5	50	75	143	156	168	181
25	36	17	72	85	97	110	135	12.5	25	37.5	50	75	147	160	172	185
32	36	17	72	85	97	110	135	12.5	25	37.5	50	75	149	162	174	187
40	46	19	77	90	102	115	140	12.5	25	37.5	50	75	181	194	206	219
Boss-cu	ıt						(mm)	٧	Vith	air c	ushi	ion			E	3uilt
				ZZ					Во	ore	N ₁	V	VA	WB		В
Bore	With	out		Wi	th gaite	er			2	0	17	5 -	13	9.5	_	-

			ZZ			
Bore	Without		٧	Vith ga	iter	
	gaiter	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
20	103	130	143	155	168	193
25	107	134	147	159	172	197
32	109	136	149	161	174	199
40	138	165	178	190	203	228

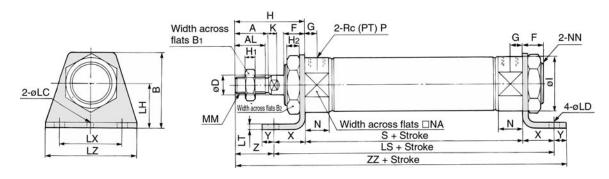
With air cu	ıshio	n	
Bore	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

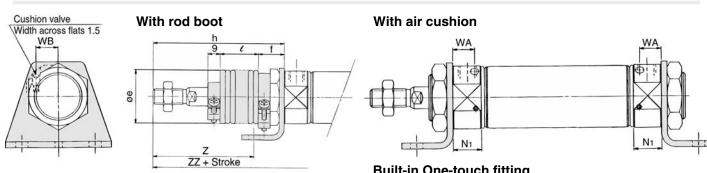
Built-in Or	າe-toເ	ıch fi	tting
Bore	G	Р	Q
20	8	6	23
25	8	6	26
32	8	6	28.5
40	11	8	32.5

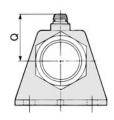
244

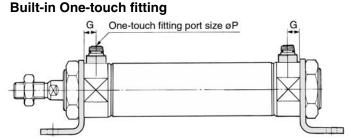
Axial Foot (L)











																														(mm)
Bore	Stroke range	Α	AL	В	B1	B ₂	D	F	G	Н	H1	H2	Τ	K	LC	LD	LH	LS	LT	LX	LZ	MM	Ν	NA	NN	Р	S	Χ	Υ	Z	ZZ
20	1to400	18	15.5	40	13	26	8	13	8	41	5	8	28	5	4	6.8	25	102	3.2	40	55	M8 X 1.25	15	24	M20 X 1.5	1/8	62	20	8	21	131
25	1to450	22	19.5	47	17	32	10	13	8	45	6	8	33.5	5.5	4	6.8	28	102	3.2	40	55	M10 X 1.25	15	30	M26 X 1.5	1/8	62	20	8	25	135
32	1to450	22	19.5	47	17	32	12	13	8	45	6	8	37.5	5.5	4	6.8	28	104	3.2	40	55	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64	20	8	25	137
40	1to500	24	21	54	22	41	14	16	11	50	8	10	46.5	7	4	7	30	134	3.2	55	75	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88	23	10	27	171

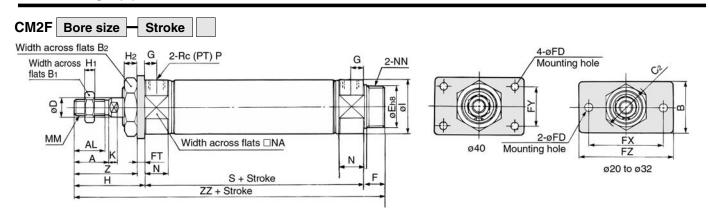
With rod boot (mm) h Z 1 to 50 | 51 to 100 | 101 to 150 | 151 to 200 | 201 to 300 | 301 to 400 | 401 to 500 | 1 to 50 | 51 18.2 12.5 37.5 18.2 12.5 37.5 18.2 12.5 37.5 20.2 190 | 12.5 37.5

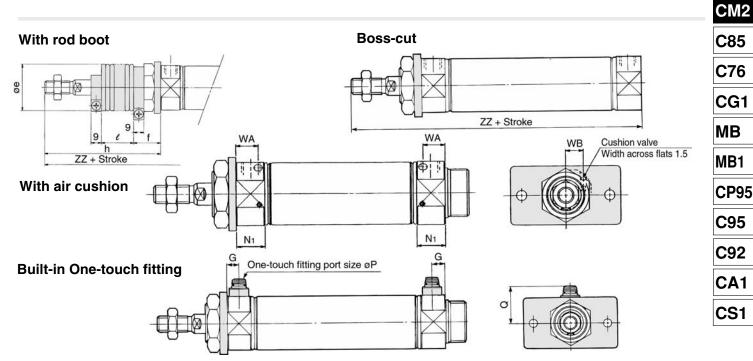
With roo		ot					(mm)
Symbol				ZZ			
Bore Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	158	171	183	196	221	246	_
25	162	175	187	200	225	250	275
32	164	177	189	202	227	252	277
40	198	211	223	236	261	286	311

With air cu	IShio	n	
Bore	N1	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

Built-in One	-touch	fitting	9
Bore	G	Р	Q
20	8	6	23
25	8	6	26
32	8	6	28.5
40	11	8	32.5

Front Flange (F)





																													1)	mm)
	Bore	Stroke range	Α	AL	В	B1	B ₂	C2	D	Е	F	FD	FT	FX	FY	FZ	G	Н	H1	H2	1	K	MM	Ν	NA	NN	Р	S	Ζ	ZZ
	20	1to400	18	15.5	34	13	26	30	8	20-0.033	13	7	4	60	_	75	8	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	62	37	116
	25	1to450	22	19.5	40	17	32	37	10	26 -0.033	13	7	4	60	_	75	8	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	62	41	120
	32	1to450	22	19.5	40	17	32	37	12	26-0.033	13	7	4	60	_	75	8	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64	41	122
Ī	40	1to500	24	21	52	22	41	47.3	14	32-0.039	16	7	5	66	36	82	11	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88	45	154

With rod boot (mm)

Symbol		f				h							l							ZZ			
Bore Stroke		'	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	36	19	68	81	93	106	131	156	_	12.5	25	37.5	50	75	100	_	143	156	168	181	206	231	
25	36	19	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	147	160	172	185	210	235	260
32	36	19	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	149	162	174	187	212	237	262
40	46	22	77	90	102	115	140	165	190	12.5	25	37.5	50	75	100	125	181	194	206	219	244	269	294

40

Boss-cut

	ZZ										
Bore	Without	With gaiter									
	gaiter	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 t o500			
20	103	130	143	155	168	193	218	_			
25	107	134	147	159	172	197	222	247			
32	109	136	149	161	174	199	224	249			
40	138	165	178	190	203	228	253	278			

With air cushion									
Bore	N ₁	WA	WB						
20	17.5	13	8.5						
25	17.5	13	10.5						
32	17.5	13	11.5						

21.5

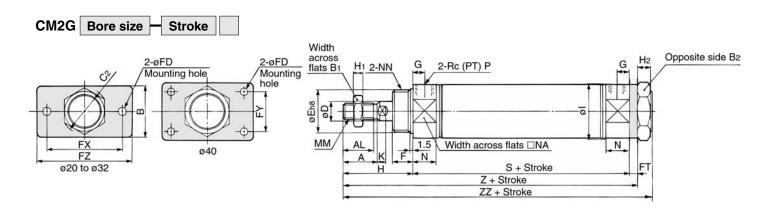
Built-in One-touch fitting									
Bore	G	Р	Q						
20	8	6	23						
25	8	6	26						
32	8	6	28.5						
40	11	8	32.5						

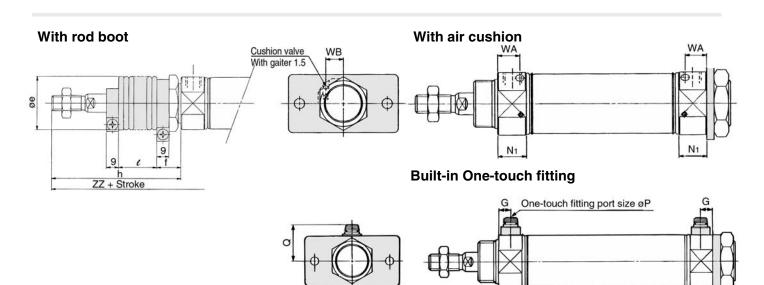
CJ₁

CJP

CJ₂

Rear Flange (G)





																				(mm)
Bore	Stroke range	Α	AL	В	B1	B ₂	C2	D	Е	F	FD	FT	FX	FY	FZ	G	Н	H1	H2	1
20	1 to 300	18	15.5	34	13	26	30	8	20-0.033	13	7	4	60	_	75	8	41	5	8	28
25	1 to 300	22	19.5	40	17	32	37	10	26-0.033	13	7	4	60	_	75	8	45	6	8	33.5
32	1 to 300	22	19.5	40	17	32	37	12	26-0.033	13	7	4	60	_	75	8	45	6	8	37.5
40	1 to 300	24	21	52	22	41	47.3	14	32-0.039	16	7	5	66	36	82	11	50	8	10	46.5

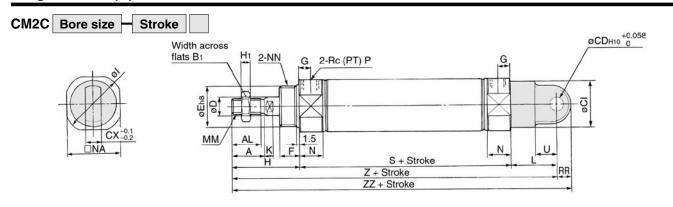
_										(mm)
	Bore	K	MM	N	NA	NN	Р	S	Z	ZZ
	20	5	M8 X 1.25	15	24	M20 X 1.5	1/8	62	107	116
	25	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	62	111	120
	32	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64	113	122
	40	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88	143	154

With ai	With air cushion											
Bore	N1	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									

Built-in One-touch fitting									
Bore	G	Р	Q						
20	8	6	23						
25	8	6	26						
32	8	6	28.5						
40	11	8	32.5						

Wi	th roc	l bo	ot															(mm)
	Symbol		f			h	h			e					ZZ			
Во	ore Stroke	Е	'	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
	20	35	17	68	81	93	106	131	12.5	25	37.5	50	75	143	156	168	181	206
	25	35	17	72	85	97	110	135	12.5	25	37.5	50	75	147	160	172	185	210
	32	35	17	72	85	97	110	135	12.5	25	37.5	50	75	149	162	174	187	212
	40	46	19	77	90	102	115	140	12.5	25	37.5	50	75	181	194	206	219	244

Single Clevis (C)



With rod boot With air cushion Cushion valve WB N₁ N₁ **Built-in One-touch fitting** One-touch fitting port size øP Z + Stroke ZZ + Stroke

(mm) Stroke range Bore CI CD CX D MM NN S U Z ZZ Α ΑL Вı F G Н H1 Κ Ν NA RR 1/8 20_0.033 20 1 to 300 18 15.5 13 24 9 10 8 13 8 41 5 28 5 30 M8 X 1.25 15 24 M20 X 1.5 9 62 14 133 142 33.5 5.5 M10 X 1.25 M26 X 1.5 1/8 26_0.033 13 9 14 | 137 | 146 25 1 to 300 22 19.5 30 9 10 10 8 45 6 30 15 30 62 17 26_0.033 13 1/8 34.5 M26 X 1.5 139 148 22 19.5 17 30 9 10 12 45 6 37.5 5.5 30 M10 X 1.25 15 9 64 14 32 1 to 300 8 46.5 7 M14 X 1.5 21.5 42.5 M32 X 2 40 24 21 22 38 10 15 14 39 18 | 177 | 188

1/4 32_0_016 1 to 300 50 8 11 88 11 With rod boot (mm)

	Symbol	е	f	h				e					Z					
1	Bore Stroke	-	•	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
	20	36	17	68	81	93	106	131	12.5	25	37.5	50	75	160	173	185	198	223
	25	36	17	72	85	97	110	135	12.5	25	37.5	50	75	164	177	189	202	227
	32	36	17	72	85	97	110	135	12.5	25	37.5	50	75	166	179	191	204	229
	40	46	19	77	90	102	115	140	12.5	25	37.5	50	75	204	217	229	242	267

					(mm)					
Symbol		ZZ 1 to 50 51 to 100 101 to 150 151 to 200 201 to 300								
Bore Bore	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300					
20	169	182	194	207	232					
25	173	186	198	211	236					
32	175	188	200	213	238					
40	215	228	240	253	278					

With air cushion									
Bore N ₁ 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						

Built-in One-touch fitting									
Bore	G	Р	Q						
20	8	6	23						
25	8	6	26						
32	8	6	28.5						
40	11	8	32.5						

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

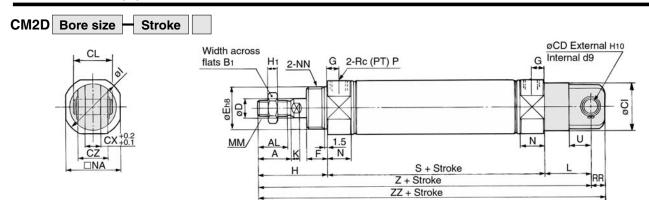
C95

C92

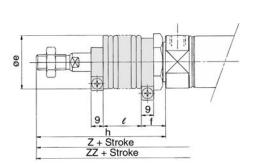
CA₁

CS₁

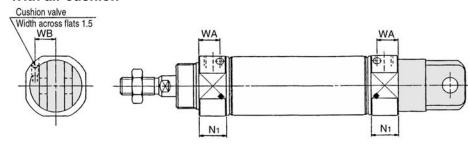
Double Clevis (D)



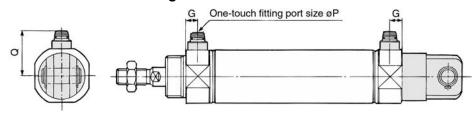
With rod boot



With air cushion



Built-in One-touch fitting



(mm)

Bore	Stroke range	Α	AL	B1	CD	CI	CL	CX	CZ	D	Е	F	G	Н	H1	1	K	L	MM	N	NA	NN	Р	RR	s	U	Ζ	ZZ
20	1 to 300	18	15.5	13	9	24	25	10	19	8	20_0.033	13	8	41	5	28	5	30	M8 X 1.25	15	24	M20 X 1.5	1/8	9	62	14	133	142
25	1 to 300	22	19.5	17	9	30	25	10	19	10	26_0.033	13	8	45	6	33.5	5.5	30	M10 X 1.25	15	30	M26 X 1.5	1/8	6	62	14	137	146
32	1 to 300	22	19.5	17	9	30	25	10	19	12	26_0.033	13	8	45	6	37.5	5.5	30	M10 X 1.25	15	34.5	M26 X 1.5	1/8	9	64	14	139	148
40	1 to 300	24	21	22	10	38	41.2	15	30	14	32_0.039	16	11	50	8	46.5	7	39	M14 X 1.5	21.5	42.5	M32 X 2	1/4	11	88	18	177	188
																				. —						- 1		

* Clevis pins and snap rings (cotter pins for ø40) are attached. (mm)

With rod boot

Sym		е	f			h					e					Z		
Bore	1/ _e	e	'	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
20	3	36	17	68	81	93	106	131	12.5	25	37.5	50	75	160	173	185	198	223
25	3	36	17	72	85	97	110	135	12.5	25	37.5	50	75	164	177	189	202	227
32	3	36	17	72	85	97	110	135	12.5	25	37.5	50	75	166	179	191	204	229
40	4	16	19	77	90	102	115	140	12.5	25	37.5	50	75	204	217	229	242	267

With rod boot

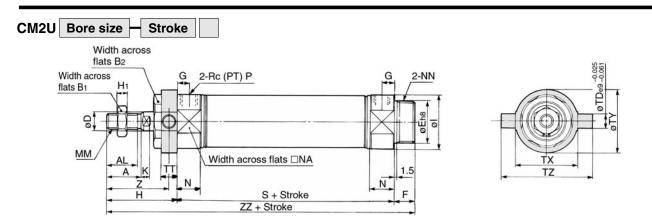
					(111111)
Symbol			ZZ		
Bore Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
20	169	182	194	207	232
25	173	186	198	211	236
32	175	188	200	213	238
40	215	228	240	253	278

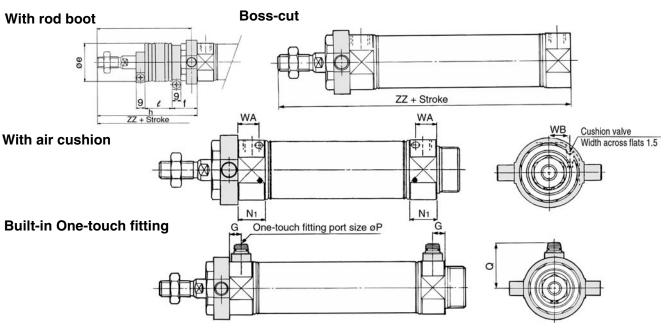
With air cushion

Bore	N1	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

Built-in One-touch fitting

Bore	G	Р	Q
20	8	6	23
25	8	6	26
32	8	6	28.5
40	11	8	32.5





											(mm)								
Bore size	Stroke range	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	Ι	K	MM	N	NA	NN	Р	
20	1 to 300	18	15.5	13	26	8	20_0.033	13	8	41	5	28	5	M8 X 1.25	15	24	M20 X 1.5	¹ / ₈	
25	25 1 to 300 22 19.5 17 32 10 26 _{-0.033} 13 8 45 6 33.5 5.5 M10 X 1.25 15 30 M26 X 1.5 1															1/8			
32 1 to 300 22 19.5 17 32 12 26 ⁰ _{-0.033} 13 8 45 6 37.5 5.5 M10 X 1.25 15 34.5 M26 X 1.5															¹ / ₈				
40	1 to 300	24	21	22	41	14	32_0.039	16	11	50	8	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	
										Wi	ith ro	d bo	ot						

Bore S TD TT TX ΤY ΤZ Z ZZ 20 62 8 10 32 32 52 36 116 9 10 40 40 60 40 120 25 62 32 64 9 10 40 40 60 40 122 88 44.5 154 40 10 53 53 77 11

Symbol	е	f				h			
Bore Stroke	U	-	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	36	24	68	81	93	106	131	156	
25	36	24	72	85	97	110	135	160	185
32	36	24	72	85	97	110	135	160	185
40	46	25	77	90	102	115	140	165	190

,	\A/!+l													- 4	Ю	40	-
	With roc	i boc	Dτ													(mm)
ĺ	Symbol			l					Z					ZZ			Ī
	Bore Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 30)
	20	12.5	25	37.5	50	75	63	76	88	101	126	143	156	168	181	206	
	25	12.5	25	37.5	50	75	67	80	92	105	130	147	160	172	185	210	1
	32	12.5	25	37.5	50	75	67	80	92	105	130	149	162	174	187	212	
	40	12.5	25	37.5	50	75	71.5	84.5	96.5	109.5	134.5	181	194	206	219	244	

Boss-cu	ıt style					(mm)
			ZZ			
Bore	Without		Wi	th gaite	er	
	gaiter	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
20	103	130	143	155	168	193
25	107	134	147	159	172	197
32	109	136	149	161	174	199
40	138	165	178	190	203	228

with air cu	n		
Bore	N ₁	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

Built-in Or	າe-toເ	ıch fi	tting
Bore	G	Р	Q
20	8	6	23
25	8	6	26
32	8	6	28.5
40	11	8	32.5

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

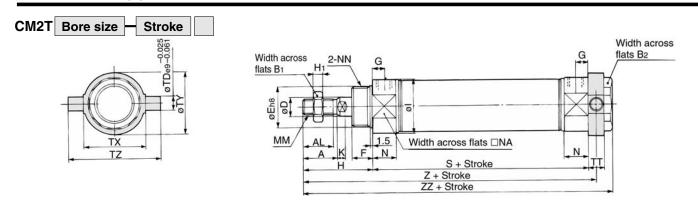
C95

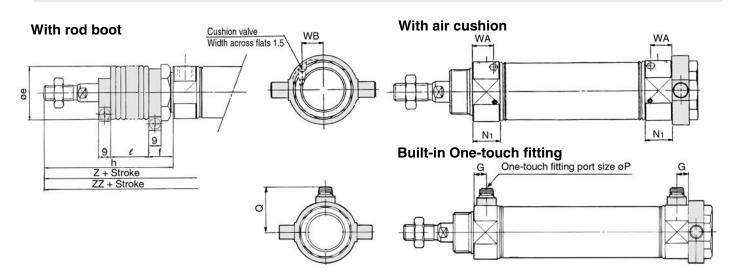
C92

CA₁

CS₁

Rear Trunnion (T)





																		(111111)
Bore	Stroke range	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	- 1	K	MM	N	NA	NN	Р
20	1 to 300	18	15.5	13	26	8	20-0.033	13	8	41	5	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8
25	1 to 300	22	19.5	17	32	10	26-0.033	13	8	45	6	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8
32	1 to 300	22	19.5	17	32	12	26-0.033	13	8	45	6	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8
40	1 to 300	24	21	22	41	14	32-0.039	16	11	50	8	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4

Bore	S	TD	TT	TX	TY	TZ	Z	ZZ
20	62	8	10	32	32	52	108	118
25	62	9	10	40	40	60	112	122
32	64	9	10	40	40	60	114	124
40	88	10	11	53	53	77	143.5	154

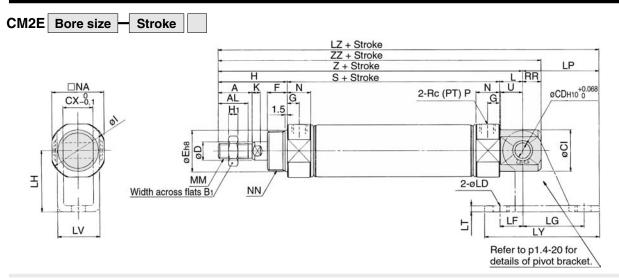
With ro	d bo	ot							
Symbo		f				h			
Bore Stroke		'	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	36	17	68	81	93	106	131	156	_
25	36	17	72	85	97	110	135	160	185
32	36	17	72	85	97	110	135	160	185
40	46	19	77	90	102	115	140	165	190

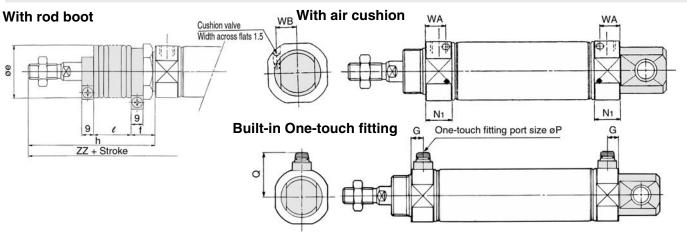
1	,															(mm)
	Symbol			e					Z			ZZ 1 to 50 51 to 100 101 to 150 151 to 200 201 to 300				
	Bore Bore	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
	20	12.5	25	37.5	50	75	135	148	160	173	198	145	158	170	183	208
	25	12.5	25	37.5	50	75	139	152	164	177	202	149	162	174	187	212
	32	12.5	25	37.5	50	75	141	154	166	179	204	151	164	176	189	214
	40	12.5	25	37.5	50	75	170.5	183.5	195.5	208.5	233.5	181	194	206	219	244

With air cu	ıshio	n	
Bore	N1	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

Built-in Or	ie-tol	ich ti	tting
Bore	G	Р	Q
20	8	6	23
25	8	6	26
32	8	6	28.5
40	11	8	32.5

Integrated Clevis (E)





	(mm)															CS1						
	Bore	Stroke range	Α	AL	B1	CD	CI	СХ	D	Е	F	G	Н	H1	- 1	K	L	MM	N	NA	NN	OO .
_	20	1 to 300	18	15.5	13	8	20	12	8	20-0.033	13	8	41	5	28	5	12	M8 X 1.25	15	24	M20 X 1.5	
	25	1 to 300	22	19.5	17	8	22	12	10	26-0.033	13	8	45	6	33.5	5.5	12	M10 X 1.25	15	30	M26 X 1.5	
	32	1 to 300	22	19.5	17	10	27	20	12	26-0.033	13	8	45	6	37.5	5.5	15	M10 X 1.25	15	34.5	M26 X 1.5	
	40	1 to 300	24	21	22	10	33	20	14	32-0.039	16	11	50	8	46.5	7	15	M14 X 1.5	21.5	42.5	M32 X 2	

With rod boot

Bore	Р	RR	S	U	Z	ZZ
20	1/8	9	62	11.5	115	124
25	1/8	9	62	11.5	119	128
32	1/8	12	64	14.5	124	136
40	1/4	12	88	14.5	153	165

Symbol					h		
Bore Stroke	е	T	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
20	36	17	68	81	93	106	131
25	36	17	72	85	97	110	135
32	36	17	72	85	97	110	135
40	46	19	77	90	102	115	140

,										40	40	19	11	90	102	113
	With roc	bod	ot													(mm)
	Symbol			l					Z			ZZ				
	Bore Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
	20	12.5	25	37.5	50	75	142	155	167	180	205	151	164	176	189	214
	25	12.5	25	37.5	50	75	146	159	171	184	209	155	168	180	193	218
	32	12.5	25	37.5	50	75	151	164	176	189	214	163	176	188	201	226
	40	12.5	25	37.5	50	75	180	193	205	218	243	192	205	217	230	255

N1	WA	
	VVA	WB
17.5	13	8.5
17.5	13	10.5
17.5	13	11.5
21.5	16	15
	17.5 17.5	17.5 13 17.5 13

Built-in One-touch fitting											
Bore	G	Р	Q								
20	8	6	23								
25	8	6	26								
32	8	6	28.5								
40	11	8	32.5								

Pivot bra	acke	t							(mm)
Bore	LD	LF	LG	LH	LP	LT	LV	LY	LZ
20	6.8	15	30	30	37	3.2	18.4	59	152
25	6.8	15	30	30	37	3.2	18.4	59	156
32	9	15	40	40	50	4	28	75	174
40	9	15	40	40	50	4	28	75	203

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

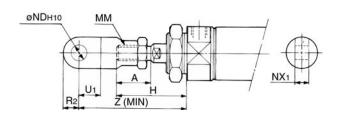
C92

CA₁

Series CM2 Accessory Dimensions



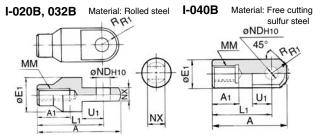




Bore size	Α	Н	MM	NDH10	NX1	U1	R ₂	Z
20	18	41	M8 X 1.25	9 +0.058	9 -0.1	14	10	66
25/32	22	45	M10 X 1.25		9 -0.1	14	10	69
40	24	50	M14 X 1.5	12 +0.070	16 ^{-0.1} _{-0.3}	20	14	92

Single Knuckle Joint

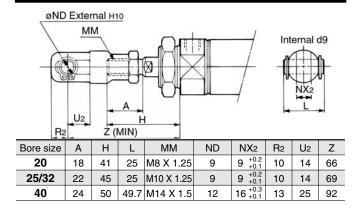
(mm)



Part No.	Applicable bore size	Α	A1	E1	L1	MM	NDH10	NX	R1	U1
I-020B	20	46	16	20	36	M8 X 1.25	9 +0.058	9 -0.1	10	14
I-032B	25/32	48	18	20	38	M10 X 1.25	9 +0.058	9 -0.1	10	14
I-040B	40	69	22	24	55	M14 X 1.5	12 +0.070	$16^{-0.1}_{-0.3}$	15.5	20

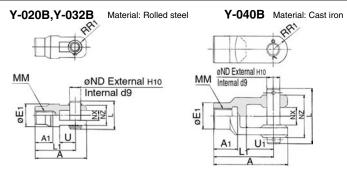
Double Knuckle Joint





Double Knuckle Joint

(mm)



Part No.	Applicable bore size	Α	A1	E1	L	L1	ММ	ND	NX	NZ	R1	U1	Applicable pin part No.	Snap ring/ Cotter pin size
Y-020B	20	46	16	20	25	36	M8 X 1.25	9	9 +0.2	18	5	14	CDP-1	C9 type for pivot
Y-032B	25,32	48	18	20	25	38	M10 X 1.25	9	9 +0.2	18	5	14	CDP-1	C9 type for pivot
Y-040B	40	68	22	24	49.7	55	M14 X 1.5	12	16 ^{+0.3} _{+0.1}	38	13	25	CDP-3	ø3 X 18ℓ

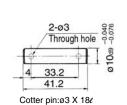
(mm)

Double Clevis Pin/Material: Carbon steel

Bore size:ø20, ø25, ø32

Bore size: ø40

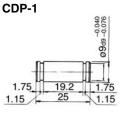
CDP-2



Double Knuckle Pin/Material: Carbon steel

bon steel (mm)

Bore size: ø40



Bore size:ø20, ø25, ø32

2-ø3 588 Through hole 999 4 41.7 8 49.7 Cotter pin:ø3 X 18¢

CDP-3

Snap ring: C9 type for pivot

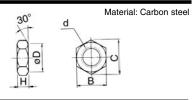
Snap ring: C9 type for pivot

CDP-1

^{*}Clevis pins and snap rings (cotter pins for bore size 40) are attached.

Rod End Nut

(mm)

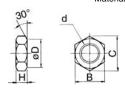


Ī	Part No.	Applicable bore size	В	С	D	d	Н
	NT-02	20	13	15.0	12.5	M8 X 1.25	5
	NT-03	25/32	17	19.6	16.5	M10 X 1.25	6
	NT-04	40	22	25.4	21.0	M14 X 1.5	8

Mounting Nut

(mm)

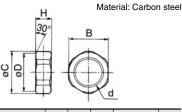
Material: Carbon steel



Part No.	Applicable bore size	В	С	D	d	Н
SN-020B	20	26	30	25.5	M20 X 1.5	8
SN-032B	25/32	32	37	31.5	M26 X 1.5	8
SN-040B	40	41	47.3	40.5	M32 X 2.0	10

Trunnion Nut

(mm)



Part No.	Applicable bore size	В	С	D	d	Н
TN-020B	20	26	28	25.5	M20 X 1.5	10
TN-032B	25/32	32	34	31.5	M26 X 1.5	10
TN-040B	40	41	45	40.5	M32 X 2	10

Pivot bracket for integrated clevis style CM2E: Please order it separately.

Pivot Bracket

Part No.

CM-E032B

(mm)

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

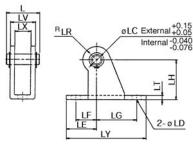
MB1

CP95

C95

C92

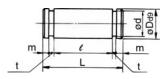
Material: Rolled steel



						LY	-	(2)	<u> </u>				
Applicable bore size	Г	LC	LD	LE	LF	LG	LH	LR	LT	LX	LY	LV	Applicable pin part No.
20/25	24.5	8	6.8	22	15	30	30	10	3.2	12	59	18.4	CD-S02
32/40	34	10	9	25	15	40	40	13	4	20	75	28	CD-S03

Clevis Pin (mm)

Material: Carbon steel



Part No.	Applicable bore size	Dd9	d	L	e	m	t	Applicable snap ring part No.
CD-S02	20/25	$8^{-0.040}_{-0.076}$	7.6	24.5	19.5	1.6	0.9	C8 type for pivot
CD-S03	32/40	10 ^{-0.040} 0.076	9.6	34	29	1.35	1.15	C10 type for pivot

CA1

Auto Switch Mounting Position and Mounting Height

Reed Switch Solid State Switch D-H7□/H7□W/H7□F/H7BAL D-C7/C8 Auto switch Auto switch 29 (36) *(): D-H7LF D-B5/B6/B59W D-G5NTL Auto switch Auto switch D-A33A/A34A G(PF)1/2 (Applicable cable O.D.: ø6.8 to ø9.6) D-G39A/K39A G(PF)1/2 (Applicable cable ≅Hs O.D.: ø6.8 to ø9.6) Auto switch Auto switch **D-A44A** Auto switch ≅Hs D-H7C Auto switch G(PF) 1/2 (Applicable cable D-C73C/C80C O.D.: ø6.8 to ø11.5) Auto switch

Auto Switch Mounting Position

ŀ	Auto S	witc	h M	ount	ting	Pos	itior	1							(mm)
	Auto switch model	D-B5		_			59W	D-A3□A D-G39A D-K39A D-A44A		D-H7□ D-H7C		D-H7□W D-H7BAL D-H7□F		D-G5NTL	
	Bore	Α	В	Α	В	Α	В	Α	В	Α	В	Α	В	Α	В
Ξ	ø20	1(0)	0(0)	7(5)	6(4)	4(2)	3(1)	0.5(0)	0(0)	6(4)	5(3)	4.5(2.5)	3.5(1.5)	2.5(0.5)	1.5(0)
	ø25	1(0)	0(0)	7(5)	6(4)	4(2)	3(1)	0.5(0)	0(0)	6(4)	5(3)	4.5(2.5)	3.5(1.5)	2.5(0.5)	1.5(0)
Ξ	ø32	2(0)	1(0)	8(6)	7(5)	5(3)	4(2)	1.5(0)	0.5(0)	7(5)	6(4)	5.5(3.5)	4.5(2.5)	3.5(1.5)	2.5(0.5)
	ø40	7	6	13	12	10	9	6.5	5.5	12	11	10.5	9.5	8.5	7.5

*/	١.	\M/ith	air	cushior	1

Mountin	g Heigh	t		(mm)
D-B5 D-B6 D-B59W D-G5NTL D-H7C	D-C7 D-C8 D-H7 W D-H7BAL D-H7 F	D-C73C D-C80C	D-A3□A D-G39A D-K39A	D-A44A
Hs	Hs	Hs	Hs	Hs
25.5	22.5	25	60	69.5
28	25	27.5	62.5	72
31.5	28.5	31	66	75.5
35.5	32.5	35	70	79.5

Standard: Double Acting Double Rod

Series CM2W

ø20, ø25, ø32, ø40

* Lead wire length

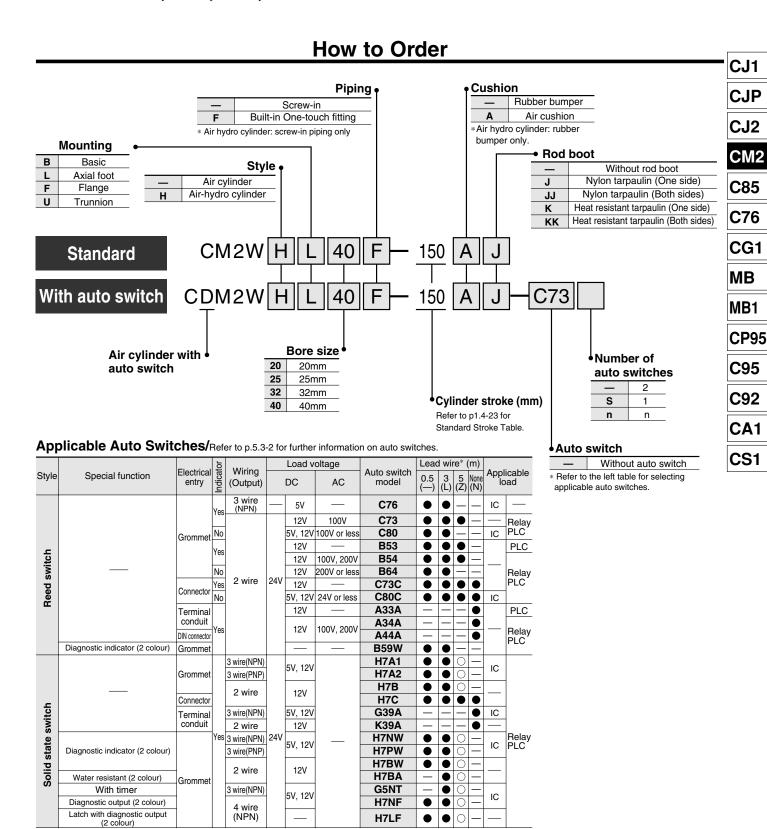
0.5m: -

3m : L

5m : Z

None: N

e.g.) C80CZ, C80CN



SMC

Solid state switches marked with " ()" are manufactured

Do not indicate symbol "N" for no lead wire on "D-A3□A",

upon receipt of order.

"A44A", "G39A" and "K39A" models.

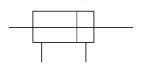
Series CM2W



Specifications

Bore size (mm)	20	25	32	40			
Action		Double actin	g/Double rod				
Fluid		A	Air				
Proof pressure	1.5MPa						
Max. operating pressure		1.0	MPa				
Min. operating pressure	0.08MPa						
Ambient and fluid temperature	Without auto switch: -10°C to +70°C (No freezing) With auto switch: -10°C to +60°C (No freezing)						
Lubrication		Non	-lube				
Thread tolerance		JIS c	lass 2				
Stroke tolerance			1.4 0				
Piston speed (mm/s)		50 to	750				
Cushion		Rubber	bumper				
Allowable kinetic energy	0.27J	0.4J	0.65J	1.2J			

JIS symbol Double acting/Double rod



Order Made to Order

Refer to p.5.4-1 for made to order specifications of series CM2W.

Standard Stroke

Bore size (mm)	Standard stroke (mm) (1)	Long stroke ⁽²⁾ (mm)	Max. stroke (mm)
20		400	
25	25, 50, 75, 100, 125, 150	450	500
32	200, 250, 300	450	500
40		500	



Note 1) Other intermediate strokes can be manufactured upon receipt of order.

Accessories

Refer to p.1.4-19 and 1.4-20

Mounting Bracket Part No.

Bore size mm	20	25	32	40
Axial foot *	CM-L020B	CM-L	032B	CM-L040B
Flange	CM-F020B	CM-F	032B	CM-F040B
Trunnion (with nuts)	CM-T020B	CM-T	032B	CM-T040B

^{*} Two foot brackets and a mounting nut are attached.

Rod boot Materials

Syn	nbol		Mass auchtant
One side	Both sides	Material	Max. ambient temperature
J	JJ	Nylon tarpaulin	70°C
K	KK	Heat resistant tarpaulin	110°C *

^{*} Maximum ambient temperature for the rod boot only.

Auto Switch Mounting Bracket Part No.

Auto switch	Bore size mm			
model	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 D-A44A D-G39A D-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.)

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

Note 2) Long stroke applies to the axial foot style and the front flange style. If other mounting brackets are used or the length exceeds the long stroke limit, the stroke should be selected based on the stroke selection table. (Refer to Data on p.0-21.)

Standard: Double Acting Double Rod Series CM2W

Mounting Accessories

	Accessories	Sta	ndard		Option	
Mounting		Mounting nut	Rod end nut	Single knuckle joint	Double ⁽²⁾ knuckle joint	Rod boot
Basic		● (1pc.)	• (2)	•	•	•
Foot		• (2)	• (2)	•	•	•
Flange		• (1)	• (2)	•	•	•
Trunnion		• (1) ⁽¹⁾	• (2)	•	•	•
Note					With pins	One/Both side

Note 1) Trunnion nuts are attached.

Note 2) Pins and snap rings (cotter pins for bore size 40) are attached for double knuckle joint.

Weight

Weight				(kg)	
	Bore size (mm)			32	40
	Basic	0.16	0.25	0.32	0.65
	Foot	0.31	0.41	0.48	0.92
Basic weight	Flange	0.22	0.34	0.41	0.77
	Trunnion	0.20	0.32	0.38	0.75
Additional weight by each 50 of stroke		0.06	0.09	0.13	0.19
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: CM2WL32-100

- ●Basic weight······0.48 (Foot, ø32)
- ●Additional weight…0.13/50 stroke
- ●Cylinder stroke······100 stroke 0.48+0.13 X 100/50=0.74kg

Minimum Strokes for Auto Switch Mounting

	Number of switches				
Auto switch model	2		n		
	On different surfaces	On the same surface	On different surfaces	On the same surface	1
D-C7 D-C8	15	50	n_2	50+45(n-2)	10
D-H7□ D-H7□W D-H7BAL D-H7NF	15	60	$ \begin{array}{c} 15+45(\frac{n-2}{2}) \\ (n=2, 4, 6\cdots) \end{array} $	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···)	73+33(11-2)	15
D-A3□A D-G39A D-K39A D-A44A	35	100	35+30(n-2)	100+100(n-2)	10

A Precautions

Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions and common precautions.

Handling

1) Do not rotate the cover.

 When installing the cylinder or screwing a pipe fitting into the port, the coupling portion of the cover could break if the cover is rotated.

A Caution

(mm)

1 Be careful with the snap ring that could fly out.

 When replacing the rod seal, be careful with the removal of the snap ring, as the snap ring could fly out.

2 Do not touch the cylinder during operation.

If the cylinder is operating at a high frequency, be aware that the cylinder tube surface could become very hot, creating the risk of burns.

3 The One-Touch fitting cannot be replaced.

 The One-Touch fitting is pressed into the cover and cannot be replaced. CJ1

CJP

CJ2

CM2 C85

C76

CG1

MB

MB1

CP95

C95

CA1

CS₁

Series CM2W

Air-hydro



A low hydraulic pressure cylinder used at a pressure of 1.0MPa or below.

Through the concurrent use of a CC series air-hydro unit, it is possible to operate at a constant or low speed or to effect an intermediate stop, just like a hydraulic unit, while using pneumatic equipment such as a valve.



Specifications

Style	Air-hydro style
Fluid	Turbine oil
Action	Double acting/Double rod
Bore size	ø20, ø25, ø32, ø40
Proof pressure	1.5MPa
Max. operating pressure	1.0MPa
Min. operating pressure	0.18MPa
Piston speed	15 to 300mm/s
Ambient and fluid temperature	+5 to +60°C
Thread tolerance	JIS class 2
Stroke tolerance	+1.4
Stroke tolerance	0
Cushion	Rubber bumper (Standard equipment)
Mounting	Basic, Axial foot, Flange, Trunnion

^{*} Auto switch can be mounted.

Construction: Refer to p.1.4-27.

• Dimensions: Refer to p.1.4-28 to 1.4-31.

With Air Cushion

CM2W	Mounting	Bore size	Stroke	Ą	Rod boot
		With	air aughian	. [

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.



Specifications

Action	Double acting/Double rod
Bore size	ø20, ø25, ø32, ø40
Max. operating pressure	1.0MPa
Min. operating pressure	0.08MPa
Cushion	Air cushion
Piston speed	50 to 1000mm/s
Mounting	Basic, Axial foot, Flange, Trunnion

^{*} Auto switches can be mounted.

Allowable Kinetic Energy

	Bore size (mm) Effective cushion length (mm)		Kinetic energy absorption
-	20	11.0	0.54J
	25	11.0	0.78J
	32	11.0	1.27J
	40	11.8	2.35J

- Construction: Refer to p.1.4-27.
- Dimensions: Refer to p.1.4-28 to 1.4-31.
- Refer to p.1.4-23 for other specifications.

Built-in One-touch Fitting



A style in which One-touch fittings are built in the cylinder. It dramatically reduces the piping labour and installation space.



- Construction: Refer to p.1.4-27.
- Dimensions: Refer to p.1.4-28 to 1.4-31.
- Refer to p.1.4-23 for other specifications.

Specifications

Action	Double acting/Double rod
Bore size	ø20, ø25, ø32, ø40
Max. operating pressure	1.0MPa
Min. operating pressure	0.08MPa
Cushion	Rubber bumper
Piping	Built-in One-touch fitting
Piston speed	50 to 750mm/s
Mounting	Basic, Axial foot, Flange, Trunnion

Auto switches can be mounted.

Applicable Tube O.D./I.D.

Bore size (mm)	ø20	ø25	ø32	ø40				
Applicable tube (mm)	ø6/4	ø6/4	ø6/4	ø8/6				
Applicable tube material	Nylon, Soft nylon, Polyurethane							



The One-touch fitting cannot be replaced.

• The One-touch fitting is press-fit into the cover and cannot be replaced.

Standard: Double Acting Double Rod Series CM2W

Clean Series

10-CM2W Mounting Bore size Stroke

The rod portion of the actuator has a double seal construction, and a relief port is provided to discharge the exhaust air directly outside of the clean room. Thus, it can be used in a Class 100 clean room.

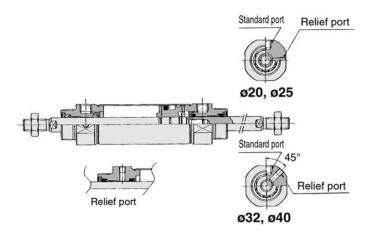


Specifications

•	
Action	Double acting/Double rod
Bore size	ø20, ø25, ø32, ø40
Max. operating pressure	1.0MPa
Min. operating pressure	0.08MPa
Cushion	Rubber bumper
Relief port size	M5
Piston speed	30 to 400mm/s
Mounting	Basic, Axial foot, Flange

^{*} Auto switches can be mounted.

Construction



Copper Free

20-CM2W Mounting	Bore size	Stroke
Max. operating pressure		

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



Specifications

Action	Double actin	g/Double rod	C76				
Bore size	ø20, ø25,	ø32, ø40					
Max. operating pressure	1.00	CG1					
Min. operating pressure	0.08	MPa	MD				
Cushion	Rubber bumper	Air cushion	MB				
Piston speed	50 to 750mm/s	50 to1000mm/s	MB1				
Maxima	D : A : 16 1	IVIDI					
Mounting	Basic, Axiai foot,	Basic, Axial foot, Flange, Trunnion					
			OF 33				

^{*} Auto switches can be mounted.

Construction



The above shows the case of rubber bumper.



C95

C92

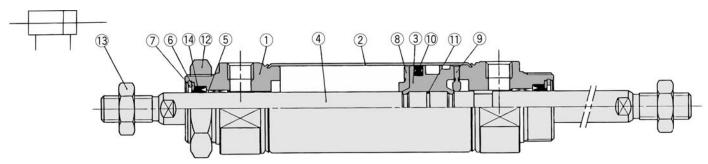
CA1

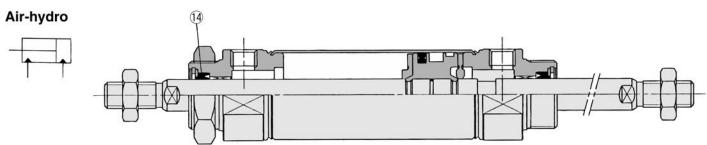
CS₁

Series CM2W

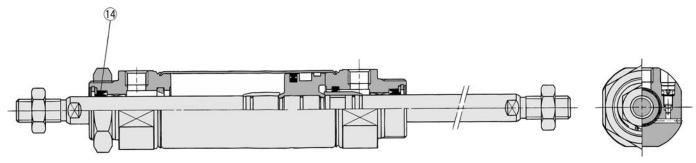
Construction

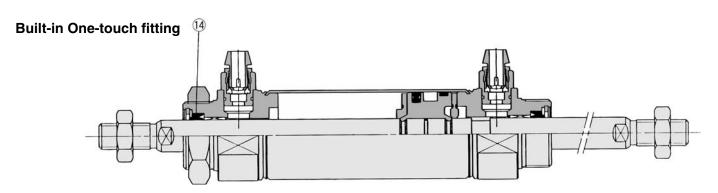
Rubber bumper





With air cushion





Component Parts

Com	ponent 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	Carbon steel	Hard chrome plated		
(5)	Bushing	Oil impregnated sintered alloy			
6	Seal retainer	Rolled steel	Nickel plated		
7	Snap ring	Carbon steel	Nickel plated		
8	Bumper A	Urethane			
9	Bumper B	Urethane			
10	Piston seal	NBR			
11)	Piston gasket	NBR			
12	Mounting nut	Carbon steel	Nickel plated		
13	Rod end nut	Carbon steel	Nickel plated		

Replacement Parts

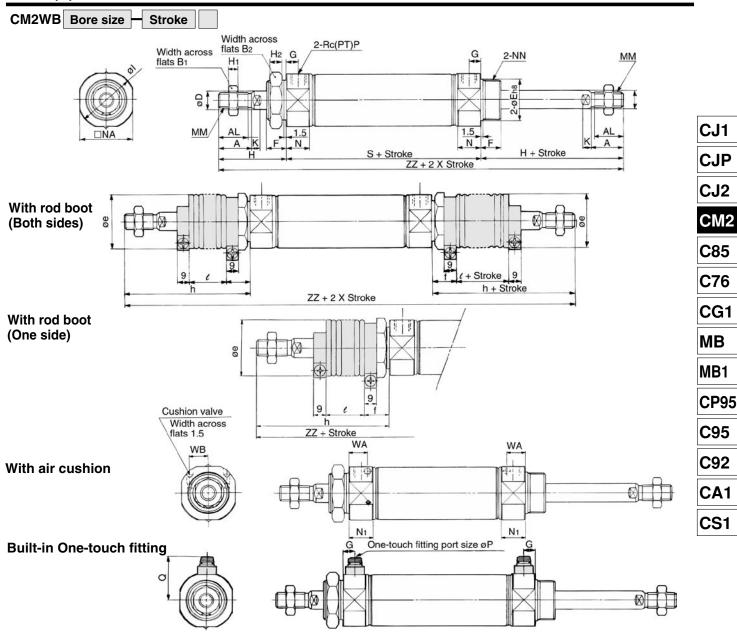
	With rubber bumper/With air cushion/Built-in One-touch fitting									
	Nia	December	Matarial	Bore size (mm)/Part No.						
	No.	Description	wateriai	20	25	32	40			
٠	14)	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14LZ			

●Air-hydro

No	Description	Motorial		Bore size (m	nm)/Part No.	
No.	Description	Material	20	25	32	40
14)	Rod seal	NBR	HDU-8	HDU-10	HDU-12L	HDU-14

Standard: Double Acting Double Rod Series CM2W

Basic (B)



* 301mm	* 301mm or longer stroke range is regarded as long stroke. (mn												(mm)								
Bore	Stroke range	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	H2	ı	K	MM	N	NA	NN	Р	S	ZZ
20	1 to 300	18	15.5	13	26	8	20 -0.033	13	8	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	62	144
25	1 to 300	22	19.5	17	32	10	26-0.033	13	8	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	62	152
32	1 to 300	22	19.5	17	32	12	26-0.033	13	8	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64	154
40	1 to 300	24	21	22	41	14	32-0.039	16	11	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88	188

With ro	With rod boot (mm)																
Poro		e f	h					e					ZZ (Both sides)				
Bore	е		1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
20	36	17	68	81	93	106	131	12.5	25	37.5	50	75	198	224	248	274	324
25	36	17	72	85	97	110	135	12.5	25	37.5	50	75	206	232	256	282	332
32	36	17	72	85	97	110	135	12.5	25	37.5	50	75	208	234	258	284	334
40	46	19	77	90	102	115	140	12.5	25	37.5	50	75	242	268	292	318	368

Bore	ZZ (One side)								
Dole	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300				
20	171	184	196	209	234				
25	179	192	204	217	242				
32	181	194	206	219	244				
40	215	228	240	253	278				

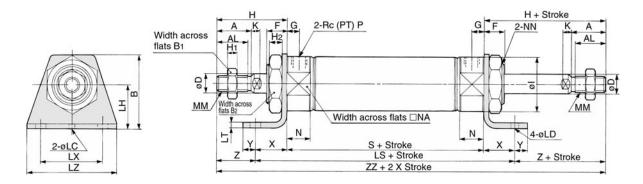
With air cushion								
Bore	N ₁	WA	WB					
20	17.5	13	8.5					
25	17.5	13	10.5					
32	17.5	13	11.5					
40	21.5	16	15					

Built-in One-touch fitting										
Bore	G	Р	Q							
20	8	6	23							
25	8	6	26							
32	8	6	28.5							
40	11	8	32.5							
•										

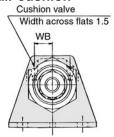
Series CM2W

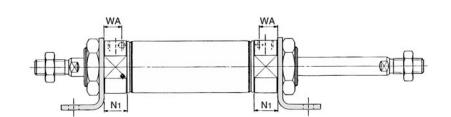
Axial Foot (L)

CM2WL Bore size Stroke

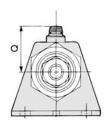


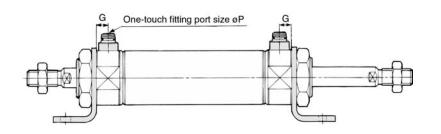
With air cushion





Built-in One-touch fitting





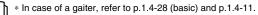
																														(mm)
Bore	Stroke range	Α	AL	В	B1	B ₂	D	F	G	Н	H1	H2	1	K	LC	LD	LH	LS	LT	LX	LZ	MM	N	NA	NN	Р	S	Χ	Υ	Z	ZZ
20	1 to 400	18	15.5	40	13	26	8	13	8	41	5	8	28	5	4	6.8	25	102	3.2	40	55	M8 X 1.25	15	24	M20 X 1.5	1/8	62	20	8	21	144
25	1 to 450	22	19.5	47	17	32	10	13	8	45	6	8	33.5	5.5	4	6.8	28	102	3.2	40	55	M10 X 1.25	15	30	M26 X 1.5	1/8	62	20	8	25	152
32	1 to 450	22	19.5	47	17	32	12	13	8	45	6	8	37.5	5.5	4	6.8	28	104	3.2	40	55	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64	20	8	25	154
40	1 to 500	24	21	54	22	41	14	16	11	50	8	10	46.5	7	4	7	30	134	3.2	55	75	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88	23	10	27	188

With air cushion

TTICH AN OUGHNON												
Bore	N ₁	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									

Built-in One-	-touch	fitting
---------------	--------	---------

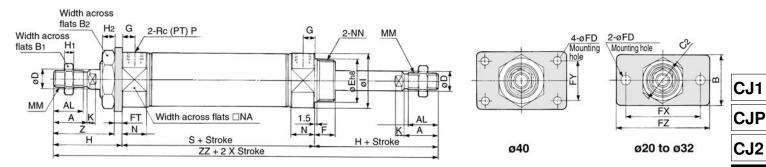
Bore	G	Р	Q
20	8	6	23
25	8	6	26
32	8	6	28.5
40	11	8	32.5



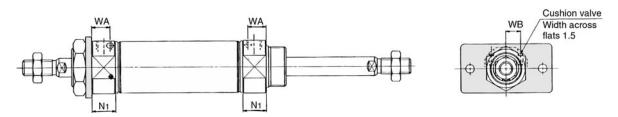
Standard: Double Acting Double Rod Series CM2W

Flange (F)

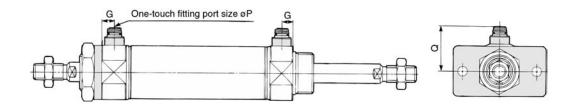
CM2WF Bore size - Stroke



With air cushion



Built-in One-touch fitting



_																							(mm)
	Bore	Stroke range	Α	AL	В	B ₁	B ₂	C2	D	Е	F	FD	FT	FX	FY	FZ	G	Н	H1	H ₂	- 1	K	MM
	20	1 to 300	18	15.5	34	13	26	30	8	20 _0.033	13	7	4	60	_	75	8	41	5	8	28	5	M8 X 1.25
	25	1 to 300	22	19.5	40	17	32	37	10	26 _0.033		7	4	60	_	75	8	45	6	8	33.5	5.5	M10 X 1.25
	32	1 to 300	22	19.5	40	17	32	37	12	26 -0.033		7	4	60	_	75	8	45	6	8	37.5	5.5	M10 X 1.25
	40	1 to 300	24	21	52	22	41	47.3	14	32 0 000		7	5	66	36	82	11	50	8	10	46.5	7	M14 X 1 5

							(mm)
Bore	N	NA	NN	Р	S	Z	ZZ
20	15	24	M20 X 1.5	1/8	62	37	144
25	15	30	M26 X 1.5	1/8	62	41	152
32	15	34.5	M26 X 1.5	1/8	64	41	154
40	21.5	42.5	M32 X 2	1/4	88	45	188

With air	cust	<u> 1ion</u>	
Bore	N1	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

Built-in One-touch fitting												
Bore	G	Р	Q									
20	8	6	23	* In case of a refer to p.1.4								
25	8	6	26	and p.1.4-13	٠,							
32	8	6	28.5									
40	11	8	32.5									

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

C92

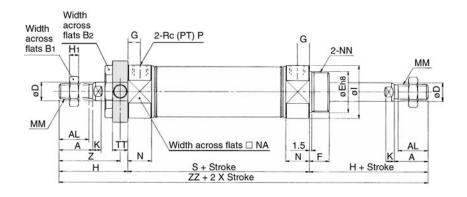
CA₁

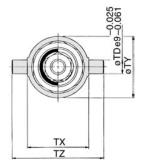
CS₁

Series CM2W

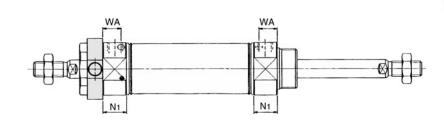
Trunnion (U)

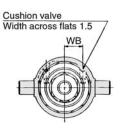
CM2WU Bore size - Stroke



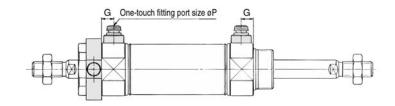


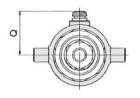
With air cushion





Built-in One-touch fitting



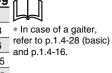


																			(mm)
Bore	Stroke range	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	- 1	K	MM	N	NA	NN	Р	S
20	1 to 300	18	15.5	13	26	8	20 _0.033	13	8	41	5	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	62
25	1 to 300	22	19.5	17	32	10	26 _0.033	13	8	45	6	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	62
32	1 to 300	22	19.5	17	32	12	26 _0.033	13	8	45	6	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64
40	1 to 300	24	21	22	41	14	32 _0.039	16	11	50	8	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88

							(mm)
Bore	TD	TT	TX	TY	TZ	Z	ZZ
20	8	10	32	32	52	36	144
25	9	10	40	40	60	40	152
32	9	10	40	40	60	40	154
40	10	11	53	53	77	44.5	188

With air cushion												
Bore	N1	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									

Built-in One-touch fitting												
Bore	G	Р	α									
20	8	6	23	* In								
25	8	6	26	refer								
32	8	6	28.5	anu								
40	11	8	32.5									



Standard: Double Acting Double Rod Series CM2W

Auto Switch Mounting Position and Mounting Height

Reed Switch Solid State Switch D-H7□/H7□W/H7□F/H7BAL D-C7/C8 Auto switch Auto switch 29 (36) *(): D-H7LF D-B5/B6/B59W D-G5NTL 12 Auto switch Auto switch В D-A33A/A34A G(PF)1/2 (Applicable cable O.D.: ø6.8 to ø9.6) ≅Hs D-G39A/K39A G(PF)1/2 (Applicable cable O.D.: ø6.8 to ø9.6) Auto switch Auto switch **D-A44A** 36 Auto switch D-H7C Auto switch G(PF)1/2 (Applicable cable O.D.: ø6.8 to ø11.5) D-C73C/C80C Auto switch

Auto Switch	Mounting	Position
-------------	----------	-----------------

Αı	Auto Switch Mounting Position (mm)												(mm)		
	Auto switch model	D-	B5 B6	D-C	D-C7 D-C8 D-C73C D-C80C		59W			D-H7□ D-H7C		D-H7□W D-H7BAL D-H7□F		D-G5NTL	
В	Bore \	Α	В	Α	В	Α	В	Α	В	Α	В	Α	В	Α	В
	ø20	1(0)	0(0)	7(5)	6(4)	4(2)	3(1)	0.5(0)	0(0)	6(4)	5(3)	4.5(2.5)	3.5(1.5)	2.5(0.5)	1.5(0)
	ø25	1(0)	0(0)	7(5)	6(4)	4(2)	3(1)	0.5(0)	0(0)	6(4)	5(3)	4.5(2.5)	3.5(1.5)	2.5(0.5)	1.5(0)
	ø32	2(0)	1(0)	8(6)	7(5)	5(3)	4(2)	1.5(0)	0.5(0)	7(5)	6(4)	5.5(3.5)	4.5(2.5)	3.5(1.5)	2.5(0.5)
	ø40	7	6	13	12	10	9	6.5	5.5	12	11	10.5	9.5	8.5	7.5

	,			-	
*():	With	air cu	ıshion	

Mounting Height (mm)											
D-B5 D-B6 D-B59W D-G5NTL D-H7C	D-C7 D-C8 D-H7 D-H7□W D-H7BAL D-H7□F	D-C73C D-C80C	D-A3□A D-G39A D-K39A	D-A44A							
Hs	Hs	Hs	Hs	Hs							
25.5	22.5	25	60	69.5							
28	25	27.5	62.5	72							
31.5	28.5	31	66	75.5							
25.5	20 5	25	70	70 F							



CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB1

CP95

C95

C92

CA₁

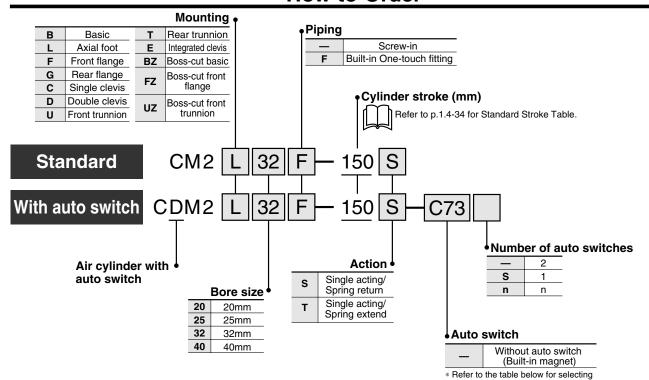
CS₁

Standard: Single Acting Spring Return/Extend

Series CM2

ø20, ø25, ø32, ø40

How to Order



applicable auto switches.

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

		F	tor	\A/isim =		Load v	oltage		Lea	iiw b	e (r	n)*			
Style	Special function	Electrical entry	Indicat	Wiring (Output)		DC	AC	Auto switch model	0.5 (—)	3 (L)		None (N)	' '10	pplicable load	
			Yes	3 wire (NPN)	_	5V	_	C76	•	•	_	_	IC	_	
						12V	100V	C73	•	•	•	_	_	Relay	
	Grommet	No			5V, 12V	100V or less	C80	•	•	_	_	IC	PLC		
_			Yes			12V		B53	•	•	•	_		PLC	
itc						12V	100V, 200V	B54	•	•	•	_		_	
Reed switch			No	2 wire	24V		200V or less	B64	•	•	_	_		Relay	
be		Connector	rresi	2 WITE	24 V	12V		C73C	•	•	•	•		PLC	
æ		Commodio					24V or less	C80C	•	•	•	•	IC		
		Terminal				12V		A33A	_	ᆮ	_	•		PLC	
		conduit	Yes		1	12V	100V, 200V	A34A	_	_	_	•		Relay	
		DIN connector				,	A44A	_	=	_	•	PLC			
	Diagnostic indicator (2colour)	Grommet					_	B59W	•	•	_	_			
				3 wire(NPN)		5V, 12V		H7A1	•		\bigcirc	_	IC		
		Grommet		3 wire(PNP)				H7A2	•	•	$\frac{\circ}{\circ}$	_		-	
				2 wire		12V		H7B H7C	•	•	$\overline{\bigcirc}$	_	—		
뜻		Connector		Oi (AIDAI)		5)/ 10)/			•	•	•	-	10		
¥		Terminal conduit		3 wire(NPN)	-	5V, 12V		G39A K39A	_	二	_	-	IC	-	
S		Coriduit	Vac	2 wire 3 wire(NPN)	24V	12V		H7NW	_		_	•		Relay	
ate	Diagnostic indicator (2colour)		1 63	3 wire(NPN)	241	5V, 12V	_	H7PW			$\stackrel{\smile}{\sim}$	\equiv	IC	PLC	
st	Diagnostic indicator (2001001)			3 WIIE(FINF)	<u>')</u>			H7BW			$\stackrel{\smile}{\sim}$	\equiv		-	
Solid state switch	Water resistant (2colour)			2 wire		12V		H7BA			$\frac{\circ}{\circ}$		_		
ഗ്	With timer	Grommet		3 wire(NPN)	-			G5NT	$\vdash \equiv$		$\stackrel{\smile}{\sim}$	_		-	
	Diagnostic output (2colour)					5V, 12V		H7NF			\mathbb{R}		IC		
	Latch with diagnostic output (2colour)			4 wire (NPN)		_		H7LF	•	•	0	_		1	

* Lead wire length

0.5m:-

3m : L 5m : Z None: N

^{*} Solid state switches marked with "\()" are manufactured upon receipt of order.

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

Standard: Single Acting Spring Return/Extend Series CM2



Specifications

Action	Single acting/Spring return	Single acting/Spring extend	
Style	Air cy	linder	
Cushion	Rubber	bumper	
Fluid	A	ir	
Proof pressure	1.5	MРа	
Max. operating pressure	1.0MPa		
Min. operating pressure	0.18MPa	0.23MPa	
Ambient and fluid temperature	Without auto switch: -10 With auto switch: -10 to	°C to +70°C (No freezing) o°C +60°C (No freezing)	
Lubrication	Non-	lube	
Thread tolerance	JIS class 2		
Stroke tolerance	+1.4 0		
Piston speed	50 to 75	50mm/s	

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

C92

Standard Stroke

Auto switch

model

D-C7

D-B59W

D-A3□A D-G39A

D-K39A D-A44A

Allowable Kinetic Energy

Bore size (mm)

Allowable kinetic energy

Standard stroke (mm) (1)
25, 50, 75, 100, 125, 150
25, 50, 75, 100, 125, 150
25, 50, 75, 100, 125, 150, 200
25, 50, 75, 100, 125, 150, 200, 250

20

0.27

25

0.4

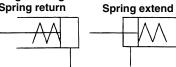
32

0.65

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

JIS symbol

Single acting/ Spring return



Minimum Strokes for Auto Switch Mounting Number of switches

15

(mm)

1

10

40

1.2

CA1

CS₁

10 10 10

D-C8 $15+45(\frac{n-2}{2})$ $D-H7\square$ D-H7□W (n=2, 4, 6···) 15 60 60+45(n-2) **D-H7BAL** D-H7NF **D-C73C** $15+50(\frac{n-2}{2})$ D-C80C 15 65 (n=2, 4, 6···) D-H7C 65+50(n-2) $20+50(\frac{n-2}{2})$ 20 D-H7LF 65 (n=2, 4, 6···) $15+50(\frac{n-2}{2})$ D-B5 15 75 10 D-B6 (n=2, 4, 6···) 75+55(n-2)

2 n
On different surfaces On the same surface On different surfaces On the same surface

 $20+50(\frac{n-2}{2})$ 20 75 15 (n=2, 4, 6···) 35 100 35+30(n-2) 100+100(n-2) 10

Made to Order

Refer to p.5.4-1 for made to order specifications of series CM2R.

Mounting Bracket

Refer to p.1.4-35 for part numbers of the mounting brackets.

Auto Switch Mounting Band

50+45(n-2)

Refer to p.1.4-35 for part numbers of the mounting bands.



Boss-cut Style

Boss for the head cover bracket is eliminated and the total length of cylinder is shortened.

Comparison of total cylinder length with standard style $_{(mm)}$

			\ /
ø20	ø25	ø32	ø40
▲ 13	▲ 13	▲ 13	▲ 16

Mounting

- ■Boss-cut basic (BZ)
- ■Boss-cut flange (FZ)
- ■Boss-cut trunnion (UZ)

Mounting Accessories

Accessories	Standard				Option	
Mounting	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint (3)	Pivot bracket
Basic	● (1 pc.)	•	_	•	•	_
Axial foot	• (2)	•	_	•	•	_
Front flange	• (1)	•	_	•	•	_
Rear flange	● (1)	•	_	•	•	_
Integrated clevis	(1)	•	_	•	•	•
Single clevis	(1)	•	_	•	•	_
Double clevis (3)	(1)	•	•	•	•	_
Front trunnion	●(1) ⁽²⁾	•	_	•	•	_
Rear trunnion	●(1) ⁽²⁾	•	_	•	•	_
Boss-cut basic	• (1)	•	_	•	•	_
Boss-cut flange	• (1)	•	_	•	•	_
Boss-cut trunnion	● (1)	•	_	•	•	_
Note				·	With pins	With pins

Note

Note 1) Mounting nuts are not attached for the integrated clevis, the single clevis, and the double clevis styles.

Note 2) Trunnion nuts are attached for the front trunnion and the rear trunnion styles.

Note 3) Pins and snap rings (cotter pins for bore size 40) are attached for double clevis and the double knuckle joint.

Rod End Accessories

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

Mounting Bracket Part No.

Bore size mm	20	25	32	40
Axial foot*	CM-L020B	CM-L	.032B	CM-L040B
Flange	CM-F020B	CM-F	032B	CM-F040B
Single clevis	CM-C020B	CM-C	032B	CM-C040B
Double clevis** (with pins)	CM-D020B	CM-D032B		CM-D040B
Trunnion (with nuts)	CM-T020B	CM-T	032B	CM-T040B

^{*} Two foot brackets and a mounting nut are attached.

Auto Switch Mounting Bracket Part No.

Auto switch		Bore siz	ze (mm)	
model	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.)

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.

^{**} Clevis pins and snap rings (cotter pins for bore size 40) are attached.

Standard: Single Acting Spring Return/Extend Series CM2

Weight

Spring	Spring Return (kg)							
	Bore size (mm)	20	25	32	40			
	25stroke	0.20	0.30	0.42	0.77			
	50stroke	0.22	0.33	0.46	0.84			
	75stroke	0.27	0.42	0.58	1.03			
Basic	100stroke	0.29	0.45	0.63	1.09			
weight	125stroke	0.35	0.54	0.76	1.29			
	150stroke	0.37	0.57	0.80	1.36			
	200stroke	_	_	0.97	1.61			
	250stroke		_	_	1.87			
	Axial foot	0.15	0.16	0.16	0.27			
	Flange	0.06	0.09	0.09	0.12			
	Single clevis	0.04	0.04	0.04	0.09			
	Double clevis	0.05	0.06	0.06	0.13			
Mounting bracket	Trunnion	0.04	0.07	0.07	0.10			
weight	Integrated clevis	-0.02	-0.02	-0.01	-0.04			
ŭ	Boss-cut basic	-0.01	-0.02	-0.02	-0.03			
	Boss-cut flange	0.05	0.07	0.07	0.09			
	Boss-cut trunnion	0.03	0.05	0.05	0.07			
	Pivot bracket (with pins)	0.07	0.07	0.14	0.14			
Accessory	Single knuckle joint	0.06	0.06	0.06	0.23			
ACCESSULY	Double knuckle joint (with pins)	0.07	0.07	0.07	0.20			

Calculation Example:	CM2L32-100S (Bore size ø32, Foot, 100 stroke)
	0.63 (Basic weight) +0.16 (Mounting bracket weight)=0.79kg

Spring Extend (kg)							
	Bore size (mm)	20	25	32	40		
	25stroke	0.19	0.29	0.40	0.74		
	50stroke	0.21	0.32	0.44	0.81		
	75stroke	0.25	0.39	0.54	0.97		
Basic	100stroke	0.27	0.42	0.58	1.03		
weight	125stroke	0.32	0.49	0.69	1.20	CJ1	
	150stroke	0.34	0.52	0.73	1.27	CJP	
	200stroke	_	_	0.88	1.49	CJP	
	250stroke	_	_	_	1.72	CJ2	
	Axial foot	0.15	0.16	0.16	0.27		
	Flange	0.06	0.09	0.09	0.12	CM2	
	Single clevis	0.04	0.04	0.04	0.09	C85	
	Double clevis	0.05	0.06	0.06	0.13	C03	
Mounting bracket weight	Trunnion	0.04	0.07	0.07	0.10	C76	
	Integrated clevis	-0.02	-0.02	-0.01	-0.04		
	Boss-cut basic	-0.01	-0.02	-0.02	-0.03	CG1	
	Boss-cut flange	0.05	0.07	0.07	0.09	МВ	
	Boss-cut trunnion	0.03	0.05	0.05	0.07	IVID	
	Pivot bracket (with pins)	0.07	0.07	0.14	0.14	MB1	
Accessory	Single knuckle joint	0.06	0.06	0.06	0.23	0005	
	Double knuckle joint (with pins)	0.07	0.07	0.07	0.20	CP95	

C95

C92

CA₁

CS₁

Built-in One-touch Fitting

Bore size | F CM2 Mounting **Stroke** Built-in One-touch fitting

A style in which One-touch fittings are built in the cylinder. It dramatically reduces the piping labour and installation space.



- Construction: Refer to p.1.4-38.
- Dimensions: Refer to p.1.4-39 to1.4-47.
- Refer to p.1.4-34 for other specifications.

Specifications

Action Single acting/Spring return Single acting/Spring extend Bore size Ø20, Ø25, Ø32, Ø40 Max. operating pressure 1.0MPa Min. operating pressure 0.18MPa 0.23MPa Cushion Rubber bumper Piping Built-in One-touch fitting Piston speed 50 to 750mm/s Mounting Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion , Integrated clevis, Boss-cut		•				
Max. operating pressure Min. operating pressure O.18MPa O.23MPa Cushion Rubber bumper Piping Built-in One-touch fitting Piston speed Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion,	-	Action	Single acting/Spring return	Single acting/Spring extend		
Min. operating pressure 0.18MPa 0.23MPa Cushion Rubber bumper Piping Built-in One-touch fitting Piston speed 50 to 750mm/s Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion,		Bore size	ø20, ø25, ø32, ø40			
Cushion Rubber bumper Piping Built-in One-touch fitting Piston speed 50 to 750mm/s Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion,		Max. operating pressure	1.01	1.0MPa		
Piping Built-in One-touch fitting Piston speed 50 to 750mm/s Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion,	-	Min. operating pressure	0.18MPa	0.23MPa		
Piston speed 50 to 750mm/s Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion,		Cushion	Rubber bumper			
Basic, Axial foot, Front flange, Rear flange, Mounting Single clevis, Double clevis, Front trunnion,	-	Piping	Built-in One-touch fitting			
Mounting Single clevis, Double clevis, Front trunnion,		Piston speed	50 to 750mm/s			
		Mounting	Single clevis, Double c	levis, Front trunnion,		

^{*} Auto switches can be mounted.

Applicable Tube O.D./I.D.

Bore size (mm)	ø20	ø25	ø32	ø40
Applicable tube (mm)	ø6/4	ø6/4	ø6/4	ø8/6
Applicable tube material	Nylon, Soft nylon, Polyurethane			

⚠ Caution

The One-touch fitting cannot be replaced.

The One-touch fitting is press-fit into the cover and cannot be replaced.

Copper Free

20-CM2 Mounting Bore size Stroke Action

Copper free

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

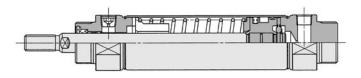


Specifications

Action	Single acting/Spring return	Single acting/Spring extend				
Bore size	ø20, ø25,	ø32, ø40				
Max. operating pressure	1.0MPa					
Min. operating pressure	0.18MPa	0.23MPa				
Cushion	Rubber bumper					
Relief port size	N	15				
Piston speed	50 to 750mm/s					
Mounting	Basic, Axial foot, Front Single clevis, Double cl Rear trunning, Integrate	evis, Front trunnion,				

^{*} Auto switches can be mounted.

Construction



* The above shows the case of single acting/spring return style.

⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions and common precautions.

Handling

Marning

- ①Do not rotate the cover.
 - When installing the cylinder or screwing a pipe fitting into the port, the coupling portion of the cover could break if the cover is rotated.

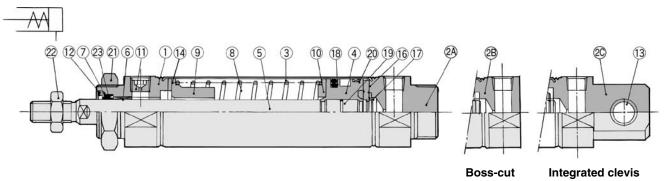


- 1) Be careful with the snap ring that could fly out.
 - When replacing the rod seal, be careful with the removal of the snap ring, as the snap ring could fly out.
- ②Do not touch the cylinder during operation.
 - If the cylinder is operating at a high frequency, be aware that the cylinder tube surface could become very hot, creating the risk of burns.
 - If the cylinder is operating at a high frequency, be aware that the cylinder tube surface could become very hot, creating the risk of burns.
- **3The One-Touch fitting cannot be replaced.**
 - The One-Touch fitting is press-fit into the cover and cannot be replaced.

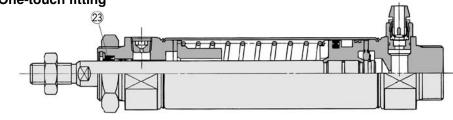
Standard: Single Acting Spring Return/Extend Series CM2

Construction

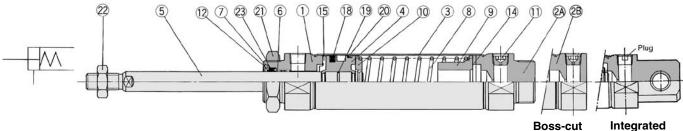
Spring return



Spring return/Built-in One-touch fitting



Spring extend



clevis

C92

CA₁

CS₁

CJ₁

CJP

CJ2

CM₂

C85

C76

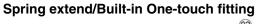
CG₁

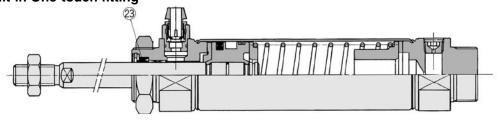
MB

MB1

CP95

C95





Component Parts

Standard style) Boss-cut style)
Boss-cut style)
grated clevis style)
nated
ne plated
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nated
nated
chromated
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ו

No.	Description	Material	Note
13	Bush for clevis	Oil impregnated sintered alloy	
14)	Bumper	Urethane	
15)	Bumper A	Urethane	
16	Bumper B	Urethane	
17	Snap ring	Stainless steel	
18	Piston seal	NBR	
19	Piston gasket	NBR	
20	Wearing	Resin	
21)	Mounting nut	Carbon steel	Nickel plated
22	Rod end nut	Carbon steel	Nickel plated

Replacement Parts

• With rubber bumper/Built-in One-touch fitting

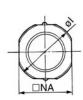
No	Description	Material		Bore size(m	m)/Part No.	
IVO.	Description		20	25	32	40
23	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14LZ

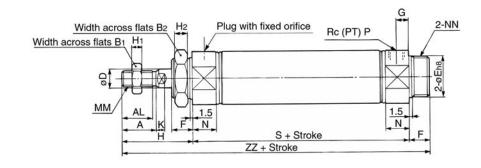
Series CM2

Basic (B)



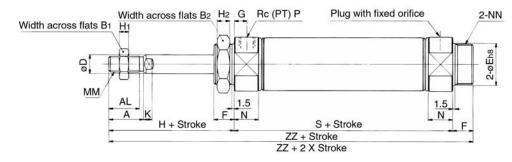
Spring return



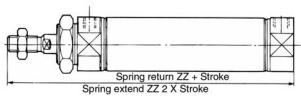


Spring extend



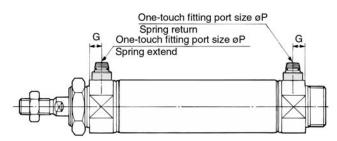


Boss-cut style



Built-in One-touch fitting





																		(111111)
Bore	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	H2	- 1	K	MM	N	NA	NN	Р
20	18	15.5	13	26	8	20 _0.033	13	8	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8
25	22	19.5	17	32	10	26 _0.033	13	8	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8
32	22	19.5	17	32	12	$26_{-0.033}^{0}$	13	8	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8
40	24	21	22	41	14	32 _0.039	16	11	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4

	Dimensions by stroke (mr											
Ī	Stroke		50	51 to	100	101 t	o 150	151 t	o 200	201 to 250		
	Bore Symbol	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ	
	20	87	141	112	166	137	191	_	_	_	_	
Ī	25	87	145	112	170	137	195	_	_	_	_	
	32	89	147	114	172	139	197	164	222	_	_	
ĺ	40	113	179	138	204	163	229	188	254	213	279	

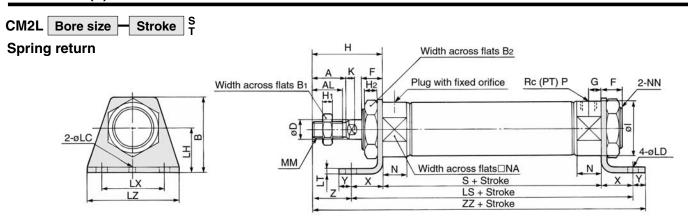
Boss-cut style (mm)											
Stroke		51 to 100	101 to 150	151 to 200	201 to 250						
Bore Symbol	ZZ	ZZ	ZZ	ZZ	ZZ						
20	128	153	178	_	_						
25	132	157	182	_	_						
32	134	159	184	209	_						
40	163	188	213	238	263						

Built-in One-touch fitting

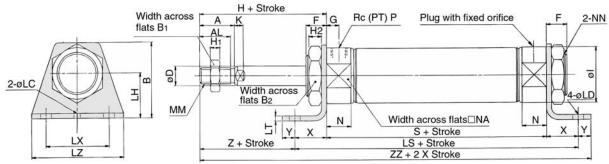
Bore	G	Р	Q
20	8	6	23
25	8	6	26
32	8	6	28.5
40	11	8	32.5

Standard: Single Acting Spring Return/Extend Series CM2

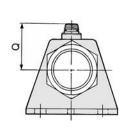
Axial Foot (L)

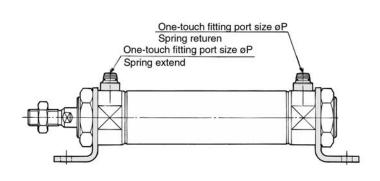


Spring extend



Built-in One-touch fitting





																											(mm)
Bore	Α	AL	В	B1	B ₂	D	F	G	Н	H1	H2	ı	K	LC	LD	LH	LT	LX	LZ	MM	N	NA	NN	Р	Х	Υ	Z
20	18	15.5	40	13	26	8	13	8	41	5	8	28	5	4	6.8	25	3.2	40	55	M8 X 1.25	15	24	M20 X 1.5	1/8	20	8	21
25	22	19.5	47	17	32	10	13	8	45	6	8	33.5	5.5	4	6.8	28	3.2	40	55	M10 X 1.25	15	30	M26 X 1.5	1/8	20	8	25
32	22	19.5	47	17	32	12	13	8	45	6	8	37.5	5.5	4	6.8	28	3.2	40	55	M10 X 1.25	15	34.5	M26 X 1.5	1/8	20	8	25
40	24	21	54	22	41	14	16	11	50	8	10	46.5	7	4	7	30	3.2	55	75	M14 X 1.5	21.5	42.5	M32 X 2	1/4	23	10	27

Dimensions by stroke (mm)										Dimens					
250	201 to 250			1 to 2	15	101 to 150			00	to 1	51	0	to 5		Stroke
ZZ	S	LS	ZZ	S	LS	ZZ	S	LS	ZZ	S	LS	ZZ	S	LS	Bore Symbol
_	_	_	_	_	_	206	137	177	181	112	152	156	87	127	20
-	_	_	_	_	_	210	137	177	185	112	152	160	87	127	25
1-	_	_	237	164	204	212	139	179	187	114	154	162	89	129	32
296	213	259	271	188	234	246	163	209	221	138	184	196	113	159	40
3	21		_	-	-			_	_		_	_			

Built-in One-touch fitting									
Bore	Р	Q							
20	6	23							
25	6	26							
32	6	28.5							
40	8	32.5							

CJ₁

CJP

CM	2
	_

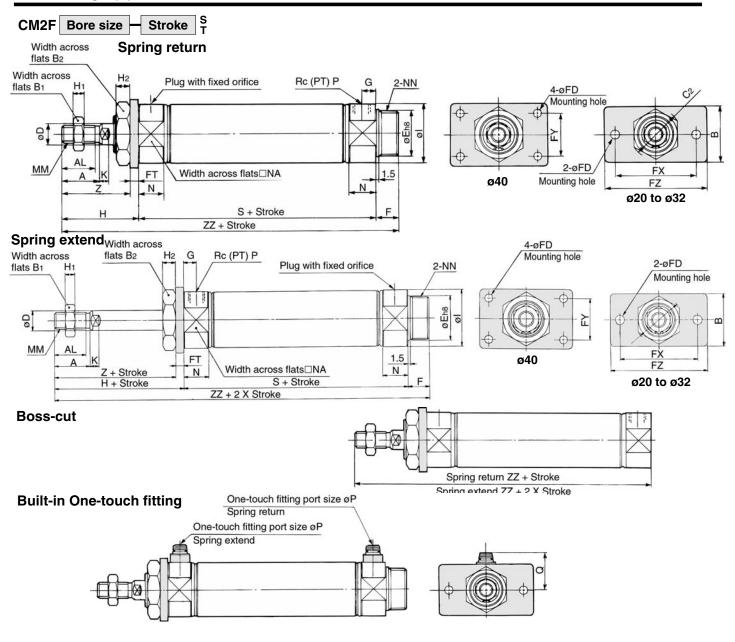
|--|

CA1

CS1

Series CM2

Front Flange (F)



																										(111111)
Bore	Α	AL	В	B ₁	B ₂	C2	D	Е	F	FD	FT	FX	FY	FZ	G	Н	H1	H2	1	K	MM	N	NA	NN	Р	Z
20	18	15.5	34	13	26	30	8	20-0.033	13	7	4	60	_	75	8	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	37
25	22	19.5	40	17	32	37	10	26-0.033	13	7	4	60	_	75	8	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	41
32	22	19.5	40	17	32	37	12	26_0.033	13	7	4	60	_	75	8	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	41
40	24	21	52	22	41	47.3	14	32_0.039	16	7	5	66	36	82	11	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	45
Dimono	ion	- h.	- A+	ماده												_										

Dimensions	s by	str	оке	•						(mm)
Stroke	1 to	50	51 to	100	101 t	o 150	151 t	0 200	201 to	250
Bore Symbol	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	_	_	_	_
25	87	145	112	170	137	195	_	_	_	_
32	89	147	114	172	139	197	164	222	_	
40	113	179	138	204	163	229	188	254	213	279

Boss-cut					(mm)
Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 250
Bore Symbol	ZZ	ZZ	ZZ	ZZ	ZZ
20	128	153	178		_
25	132	157	182	1	_
32	134	159	184	209	_
40	163	188	213	238	263

Built-in One-touch fitting

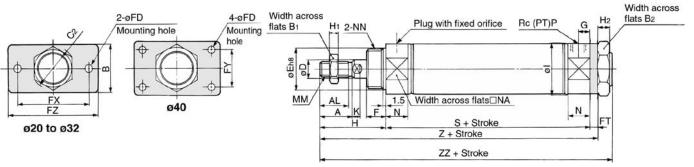
Bore	Р	Q
20	6	23
25	6	26
32	6	28.5
40	8	32.5

Standard: Single Acting Spring Return/Extend Series CM2

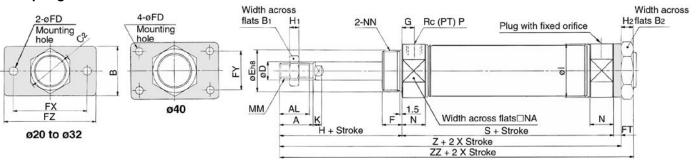
Rear Flange (G)

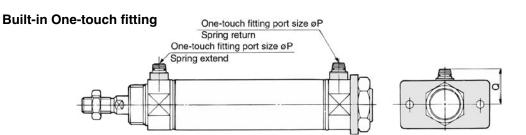


Spring return



Spring extend





_																										(mm)
Ī	Bore	Α	AL	В	B ₁	B ₂	C2	D	Е	F	FD	FT	FX	FY	FZ	G	Н	H ₁	H2	1	K	MM	Ν	NA	NN	Р
	20	18	15.5	34	13	26	30	8	20_0.033	13	7	4	60	_	75	8	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8
Ī	25	22	19.5	40	17	32	37	10	26_0.033	13	7	4	60	_	75	8	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8
Ī	32	22	19.5	40	17	32	37	12	26_0,033	13	7	4	60	_	75	8	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8
ı	40	24	21	52	22	41	47.3	14	32_0.039	16	7	5	66	36	82	11	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4

Dimensio	ns	by s	stro	ke											(mm)
Stroke	1	to 50)	51	to 1	00	10	1 to 1	50	15	1 to 2	200	20	1 to 2	250
Bore Symbol	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	132	141	112	157	166	137	182	191	_	_	_	_	_	_
25	87	136	145	112	161	170	137	186	195	_	_	—	_	—	_
32	89	138	147	114	163	172	139	188	197	164	213	222		_	_
40	113	168	179	138	193	204	163	218	229	188	243	254	213	268	279

Built-in One	-touch	fitting
Bore	Р	Q
20	6	23
25	6	26
32	6	28.5
40	8	32.5

CJ1

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

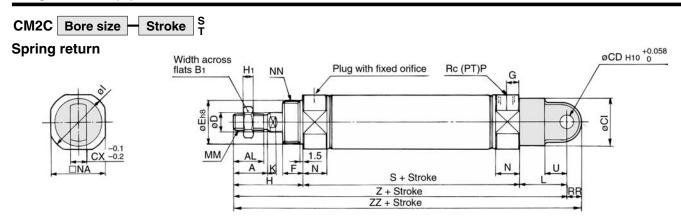
C95

CA1

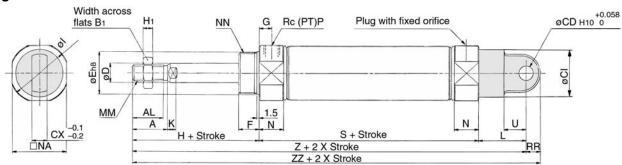
CS1

Series CM2

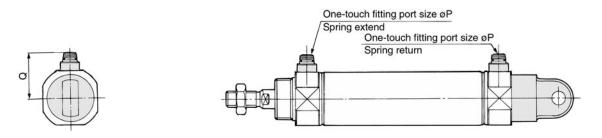
Single Clevis (C)



Spring extend



Built-in One-touch fitting



																						(mm)
Bore	Α	AL	B1	CD	CI	CX	D	Е	F	G	Н	H1	_	K	L	MM	N	NA	NN	Р	RR	U
20	18	15.5	13	9	24	10	8	20-0.033	13	8	41	5	28	5	30	M8 X 1.25	15	24	M20 X 1.5	1/8	9	14
25	22	19.5	17	9	30	10	10	26_0.033	13	8	45	6	33.5	5.5	30	M10 X 1.25	15	30	M26 X 1.5	1/8	9	14
32	22	19.5	17	9	30	10	12	26_0.033		8	45	6	37.5	5.5	30	M10 X 1.25	15	34.5	M26 X 1.5	1/8	9	14
40	24	21	22	10	38	15	14	32 _0.039		11	50	8	46.5	7	39	M14 X 1.5	21.5	42.5	M32 X 2	1/4	11	18

Dime	ension	s by	stro	oke												(mm)
	Stroke		1 to 50)	5	1 to 10	00	10	1 to 1	50	15	1 to 2	00	20	1 to 2	50
Bore	Symbol	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
	20	87	158	167	112	183	192	137	208	217	_	_	_	_	_	_
2	25	87	162	171	112	187	196	137	212	221	_	_	_	_	_	_
:	32	89	164	173	114	189	198	139	214	223	164	239	248	_	_	_
4	40	113	202	213	138	227	238	163	252	263	188	277	288	213	302	313

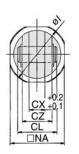
Built-in One-to	uch f	itting
Bore	Р	Q
20	6	23
25	6	26
32	6	28.5
40	8	32.5

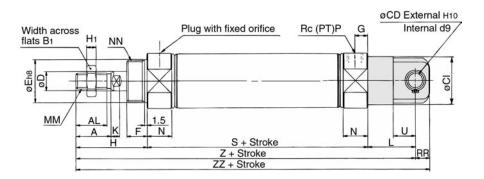
Standard: Single Acting Spring Return/Extend Series CM2

Double Clevis (D)

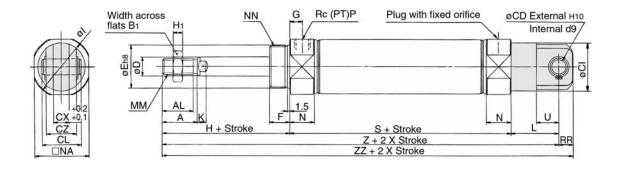


Spring return



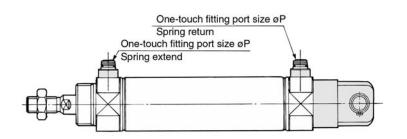


Spring extend



Built-in One-touch fitting





																								(mm)
Bore	Α	AL	B1	CD	CI	CL	СХ	CZ	D	Е	F	G	Н	H1	ı	K	L	MM	Ν	NA	NN	Р	RR	U
20	18	15.5	13	9	24	25	10	19	8	20 _0.033	13	8	41	5	28	5	30	M8 X 1.25	15	24	M20 X 1.5	1/8	9	14
25	22	19.5	17	9	30	25	10	19	10	26 _0.033	13	8	45	6	33.5	5.5	30	M10 X 1.25	15	30	M26 X 1.5	1/8	9	14
32	22	19.5	17	9	30	25	10	19	12	26 _0.033	13	8	45	6	37.5	5.5	30	M10 X 1.25	15	34.5	M26 X 1.5	1/8	9	14
40	24	21	22	10	38	41.2	15	30	14	32 _0,039	16	11	50	8	46.5	7	39	M14 X 1.5	21.5	42.5	M32 X 2	1/4	11	18

Dimensions by stroke * Clevis pins and snap rings (cotter pins for bore size 40) are attached.

		,, -	•												(111111)
Stroke				5	1 to 10	00	10	1 to 1	50	15	1 to 2	00	201 to 250		
Bore Symbol	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	158	167	112	183	192	137	208	217	_	_	_	_	_	_
25	87	162	171	112	187	196	137	212	221	_	_	_	_	_	_
32	89	164	173	114	189	198	139	214	223	164	239	248	_	_	_
40	113	202	213	138	227	238	163	252	263	188	277	288	213	302	313

Rı	ıilt_in	One	-t∩u	ch fi	ttina

Bore	Р	Q
20	6	23
25	6	26
32	6	28.5
40	8	32.5

CJ1

CJP

CJ2

CM2 C85

C03

C76

CG1

MB

MB1

CP95

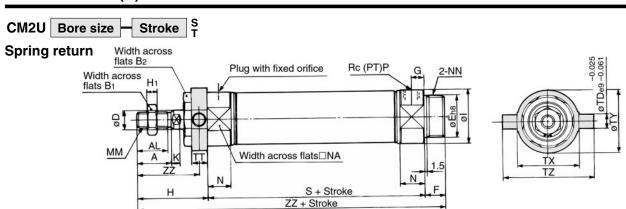
C92

CA1

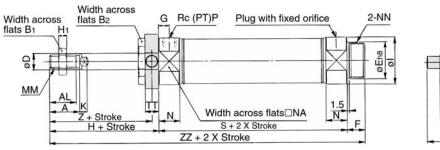
CS1

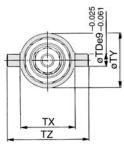
Series CM2

Front Trunnion (U)

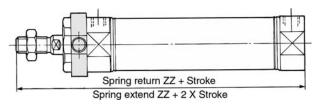


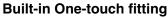
Spring extend

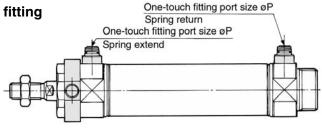


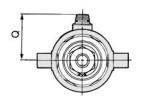


Boss-cut style









																							(mm)
Bore	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	1	K	MM	N	NA	NN	Р	TD	TT	TX	TY	TZ	Z
20	18	15.5	13	26	8	20 -0.033	13	8	41	5	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	8	10	32	32	52	36
25	22	19.5	17	32	10	26 _0.033	13	8	45	6	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	9	10	40	40	60	40
32	22	19.5	17	32	12	26 -0.033		8	45	6	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	9	10	40	40	60	40
40	24	21	22	41	14	32 _0 039		11	50	8	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	10	11	53	53	77	44.5

Dimensions by stroke (mr										
Stroke		50	51 to	100	101 t	o 150	151 to	o 200	201 to	250
Bore Symbol	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	_		_	_
25	87	145	112	170	137	195	_	_	_	_
32	89	147	114	172	139	197	164	222	_	_
40	113	179	138	204	163	229	188	254	213	279

5055-cut					(mm)
Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 250
Symbol Bore	ZZ	ZZ	ZZ	ZZ	ZZ
20	128	153	178	1	_
25	132	157	182	1	_
32	134	159	184	209	_
40	163	188	213	238	263

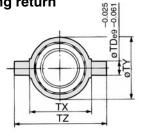
Built-in One-	touch	fitting
Bore	Р	Q
20	6	23
25	6	26
32	6	28.5
40	8	32.5

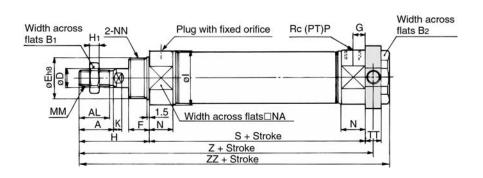
Standard: Single Acting Spring Return/Extend Series CM2

Rear Trunnion (T)



Spring return





CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

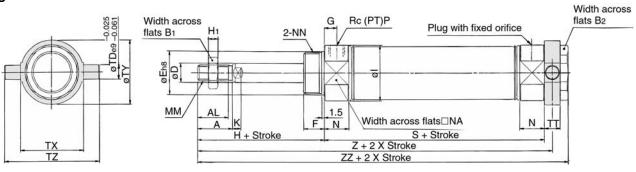
C95

C92

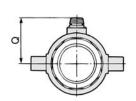
CA1

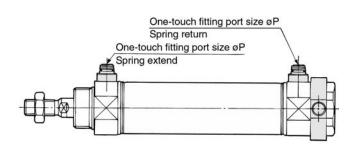
CS1

Spring extend



Built-in One-touch fitting





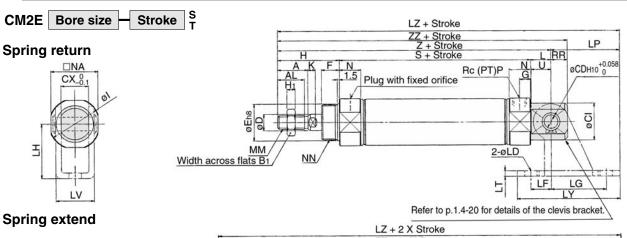
																						(mm)
Bore	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	- 1	K	MM	N	NA	NN	Р	TD	TT	TX	TY	TZ
20	18	15.5	13	26	8	20 _0.033	13	8	41	5	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	8	10	32	32	52
25	22	19.5	17	32	10	26 -0.033	13	8	45	6	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	9	10	40	40	60
32	22	19.5	17	32	12	26 -0.033	13	8	45	6	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	9	10	40	40	60
40	24	21	22	41	14	32 _0.039	16	11	50	8	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	10	11	53	53	77

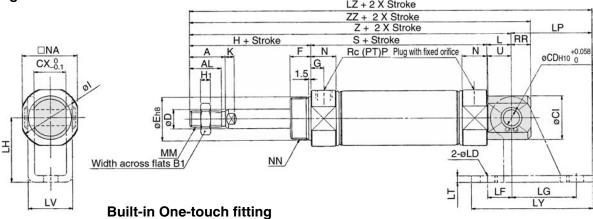
0	5.					Dimensions by stroke (mm)										
	5	1 to 10	00	10	1 to 1	50	15	1 to 2	00	201 to 250						
ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ				
143	112	158	168	137	183	193	_	_	_	_	_	_				
147	112	162	172	137	187	197						_				
149	114	164	174	139	189	199	164	214	224			_				
179	138	193.5	204	163	218.5	229	188	243.5	254	213	268.5	279				
	ZZ 143 147 149	ZZ S 143 112 147 112 149 114	ZZ S Z 143 112 158 147 112 162 149 114 164	ZZ S Z ZZ 143 112 158 168 147 112 162 172 149 114 164 174	ZZ S Z ZZ S 143 112 158 168 137 147 112 162 172 137 149 114 164 174 139	ZZ S Z ZZ S Z 1 143 112 158 168 137 183 1 147 112 162 172 137 187 1 49 114 164 174 139 189	ZZ S Z ZZ S Z ZZ 1 143 112 158 168 137 183 193 1 147 112 162 172 137 187 197 1 149 114 164 174 139 189 199	ZZ S Z ZZ S Z ZZ S 143 112 158 168 137 183 193 — 147 112 162 172 137 187 197 — 149 114 164 174 139 189 199 164	ZZ S Z ZZ S Z ZZ S Z 143 112 158 168 137 183 193 — — 147 112 162 172 137 187 197 — — 149 114 164 174 139 189 199 164 214	ZZ S Z ZZ S Z ZZ S Z ZZ ZZ	ZZ S Z ZZ S Z ZZ S Z ZZ S 143 112 158 168 137 183 193 — — — — 147 112 162 172 137 187 197 — — — — 149 114 164 174 139 189 199 164 214 224 —	ZZ S Z Z ZZ S Z </th				

Built-in One-touch fitting									
Bore	Р	Q							
20	6	23							
25	6	26							
32	6	28.5							
40	8	32.5							

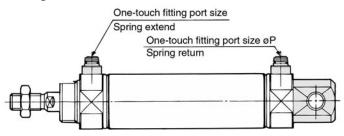
Series CM2

Integrated Clevis (E)









(mm) U Bore Вı CD CI СХ D Е F G Н H1 Κ MM Ν NA NN Р PR AL 20 -0.033 18 15.5 12 8 13 8 5 28 5 12 M8 X 1.25 24 M20 X 1.5 1/8 9 11.5 20 13 8 20 41 15 $26_{-0.033}^{0}$ 1/8 22 19.5 17 8 22 12 10 13 8 45 6 33.5 5.5 12 M10 X 1.25 15 30 M26 X 1.5 9 11.5 26 _0.033 1/8 32 22 19.5 17 10 27 20 12 13 8 45 6 37.5 5.5 15 M10 X 1.25 15 34.5 M26 X 1.5 12 14.5 32 _0.039 M14 X 1.5 21.5 42.5 40 24 21 22 10 33 20 14 16 11 50 8 46.5 15 M32 X 2 12 | 14.5

Dimensions by stroke (mm) Stroke 1 to 50 51 to 100 101 to 150 151 to 200 201 to 250 Bore S Z ZΖ S Ζ ZZ S Ζ ZZ S Z ZZ S Z ΖZ 20 140 149 112 165 174 137 190 199 25 87 144 153 112 169 178 137 194 203 89 149 161 114 174 186 139 199 211 164 224 236 40 113 178 190 138 203 215 163 228 240 188 253 265 213 278 290

Pivot brace	cket											-	(mm)
Bore	LD	LF	LG	LH	LP	LT	LV	LY	1 to 50	51 to 100	101 to 150	151 to 200	201 to 250
Боге		LF	LG		LF		LV	Lī	LZ	LZ	LZ	LZ	LZ
20	6.8	15	30	30	37	3.2	18.4	59	177	202	227	_	_
25	6.8	15	30	30	37	3.2	18.4	59	181	206	231	_	_
32	9	15	40	40	50	4	28	75	199	224	249	274	_
40	9	15	40	40	50	4	28	75	228	253	278	303	328

Built-in One-touch fitting

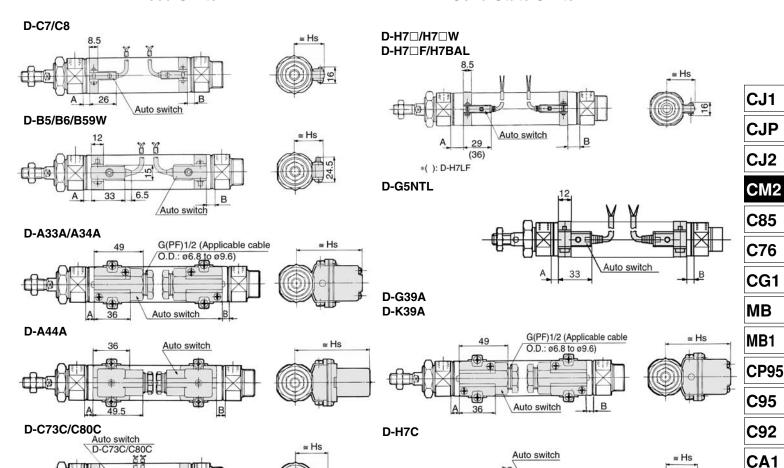
Bore	Р	Q
20	6	23
25	6	26
32	6	28.5
40	8	32.5

Standard: Single Acting Spring Return/Extend Series CM2

Auto Switch Mounting Position and Mounting Height: Spring Return (S)

Reed Switch

Solid State Switch



Auto Switch P

40

33.5

Auto switch model

Position: Spring Return (S)											
Dava sina		,	A dimensions	3		D					
Bore size	to 50	51 to 100	101 to 150	151 to 200	200 to 250	В					
20	26	51	76	_	_	0					
25	26	51	76	_		0					
32	27	52	77	102	_	1					
40	32	57	82	107	132	6					
20	32	57	82	_	_	6					
25	32	57	82	_	_	6					
32	33	58	83	108	_	7					

			20	31	/ 6		_	U
D)-B5	25	26	51	76	_	_	0
D)-B6	32	27	52	77	102	_	1
		40	32	57	82	107	132	6
D)-C7	20	32	57	82	_	_	6
D)-C8	25	32	57	82	_		6
D	-C73C	32	33	58	83	108	_	7
D	-C80C	40	38	63	88	113	138	12
		20	29	54	79	_	_	3
_)-B59W	25	29	54	79	_	_	3
	-D39W	32	30	55	80	105	_	4
		40	35	60	85	110	135	9
D)-A3□A	20	25.5	50.5	75.5	_	_	0
D	-G39A	25	25.5	50.5	75.5	_	_	0
D	-K39A	32	26.5	51.5	76.5	101.5	_	0.5
D)-A44A	40	31.5	56.5	81.5	106.5	131.5	5.5
		20	31	56	81	_	_	5
D)-H7□	25	31	56	81		_	5
D	-H7C	32	32	57	82	107	_	6
		40	37	62	87	112	137	11
п)-H7□W	20	29.5	54.5	79.5	_	_	3.5
)-H7BAL	25	29.5	54.5	79.5	_	_	3.5
_)-H7□F	32	30.5	55.5	80.5	105.5	_	4.5
	/-II/ UI	40	35.5	60.5	85.5	110.5	135.5	9.5
		20	27.5	52.5	77.5	_		1.5
п	-G5NTL	25	27.5	52.5	77.5	_	_	1.5
	-GJITI L	32	28.5	53.5	78.5	103.5		2.5

58.5

83.5

Mounting Height

wounting rieight						
Bore size	Hs					
20	25.5					
25	28					
32	31.5					
40	35.5					
20	22.5					
25	25					
32	28.5					
40	32.5					
20	25					
25	27.5					
32	31					
40	35					
20	60					
25	62.5					
32	66					
40	70					
20	69.5					
25	72					
32	75.5					
40	79.5					
	Bore size 20 25 32 40 20 25 32 40 20 25 32 40 20 25 32 40 20 25 32 40 20 25 32 40 20 25 32 40 20 25 32					

133.5

7.5

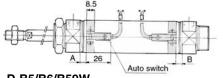
Series CDM2

Auto Switch Mounting Position and Mounting Height: Spring Extend (T)

Reed Switch

Solid State Switch

D-C7/C8

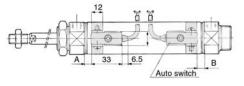




D-H7□/H7□W D-H7□F/H7BAL 8.5 Auto switch (36) * (): D-H7LF

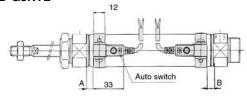


D-B5/B6/B59W



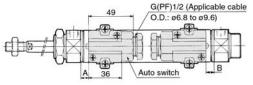


D-G5NTL





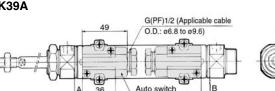
D-A33A/A34A





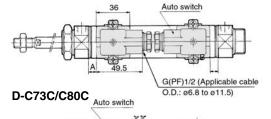
D-G39A **D-K39A**

D-H7C



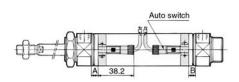


D-A44A





B dimensions



(mm)



Auto Switch Position: Spring Extend (T)

Bore size

	Auto switch model	Bore size	Α			B aimensions	3	
	Auto switch model	(mm)	A	to 50	51 to 100	101 to 150	151 to 200	200 to 250
		20	1	25	50	75	_	_
	D-B5	25	1	25	50	75	_	_
	D-B6	32	2	26	51	76	101	_
		40	7	31	56	81	106	131
	D-C7	20	7	31	56	81	_	_
	D-C8	25	7	31	56	81	_	_
	D-C73C	32	8	32	57	82	107	_
	D-C80C	40	13	37	62	87	112	137
		20	4	28	53	78	_	_
D DEOW	25	4	28	53	78	_	_	
	D-B59W	32	5	29	54	79	104	_
		40	10	34	59	84	109	134

D-R2	25	1	25	50	/5	_	_
D-B6	32	2	26	51	76	101	_
	40	7	31	56	81	106	131
D-C7	20	7	31	56	81	_	_
D-C8	25	7	31	56	81	_	_
D-C73C	32	8	32	57	82	107	_
D-C80C	40	13	37	62	87	112	137
	20	4	28	53	78	_	_
D-B59W	25	4	28	53	78	_	_
D-D3944	32	5	29	54	79	104	_
	40	10	34	59	84	109	134
D-A3□A	20	0.5	24.5	49.5	74.5	_	_
D-G39A	25	0.5	24.5	49.5	74.5	_	_
D-K39A	32	1.5	25.5	50.5	75.5	100.5	_
D-A44A	40	6.5	30.5	55.5	80.5	105.5	130.5
	20	6	30	55	80	_	_
D-H7□	25	6	30	55	80	_	_
D-H7C	32	7	31	56	81	106	_
	40	12	36	61	86	111	136
D-H7□W	20	4.5	28.5	53.5	78.5	_	_
D-H7BAL	25	4.5	28.5	53.5	78.5	_	_
D-H7⊟F	32	5.5	29.5	54.5	79.5	104.5	_
D-117 🗆 F	40	10.5	34.5	59.5	83.5	109.5	134.5
	20	2.5	26.5	51.5	76.5	_	_
D-G5NTL	25	2.5	26.5	51.5	76.5		_
D-GSIVI L	32	3.5	27.5	52.5	77.5	102.5	_
	40	8.5	32.5	57.5	81.5	107.5	132.5
4 4 40							

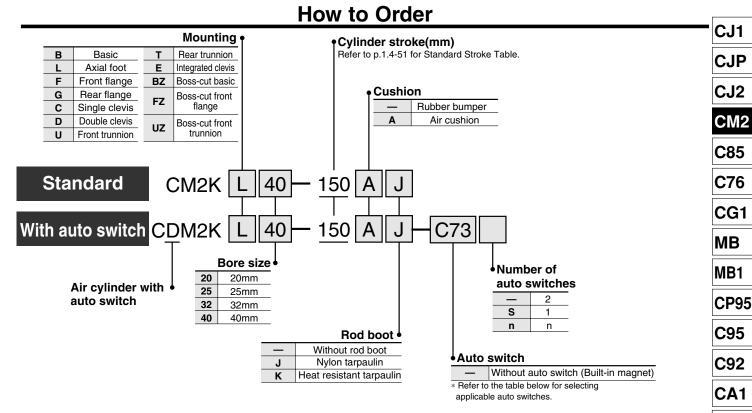
ounting Height

Mounting He	(mm)	
Auto switch model	Bore size (mm)	≅ Hs
D-B5	20	25.5
D-B6	25	28
D-B59W	32	31.5
D-G5NTL	40	35.5
D-C7/C8	20	22.5
D-H7□ D-H7□W	25	25
D-H7⊟W D-H7BAL	32	28.5
D-H7□F	40	32.5
	20	25
D-C73C	25	27.5
D-C80C D-H7C	32	31
51110	40	35
D 40004	20	60
D-A3□A D-G39A	25	62.5
D-K39A	32	66
	40	70
	20	69.5
D-A44A	25	72
D-ATTA	32	75.5
	40	79.5

Non-rotating Rod: Double Acting Single Rod

Series CM2K

ø20, ø25, ø32, ø40



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

		□ 4-:	tor	ပြု Wiring		Load v	oltage	A 4	Lead	l wi	re*	(m)										
Style	Special function	Electrical entry	Indicator	(Output)		DC	AC	Auto switch model	0.5 (—)	3 (L)	5 (Z)	None (N)	Appi	icable ad								
			Yes	3 wire (NPN)	_	5V	_	C76	•	•	_	_	IC									
						12V	100V	C73	•	•	•	_		Relay								
		Grommet	No				100V or less		•	•	=	_	IC	PLC								
_			Yes			12V		B53	•	•	•			PLC								
Reed switch						12V	100V, 200V	B54	•		•	_	_									
Š			No	2 wire	24V		200V or less		•	•	二	_		Relay								
Ö		Connector	Yes	2 WITE	240	12V		C73C	•	•	•	•		PLC								
ě		Connector	No				24V or less	C80C	•		•	•	IC									
_		Terminal		Yes		12V	_	A33A	_	_	_	•		PLC								
		conduit	Vac			s	s	es	es	s	es			12V	100V, 200V	A34A	_	_	_	•		Dalasi
		DIN connector														124	1000, 2000	A44A	_	_	_	•
	Diagnostic indicator (2colour)	Grommet					_	B59W	•	•	_	_										
			1	3 wire(NPN)	1 150 120	5V, 12\	5\/ 12\/		H7A1	•		0	_	IC								
		Grommet		3 wire(PNP)			JV, 12V		H7A2		lacksquare	0	_	2								
				2 wire			H7B		lacksquare	0	_	_										
_		Connector					120		H7C				•									
달		Terminal		3 wire(NPN)		5V, 12V		G39A	_	_	_	•	IC									
<u>``</u>		conduit		2 wire		12V		K39A	_	_		•	_									
Solid state switch			Yes	3 wire(NPN)	24V	5V, 12V		H7NW	•	lacksquare	0	<u> </u>	2	Relay								
stal	Diagnostic indicator (2colour)			3 wire(PNP)	1	5V, 12V		H7PW	•	•	0	_	IC	PLC								
9				Ouring	1	10) (H7BW	•	•	0	_		1								
<u></u>	Water resistant (2colour)	Grommet		2 wire		12V		Н7ВА	_	•	0	_										
S	With timer	GIGITITIE		3 wire(NPN)	1	=>		G5NT	_	•	0	_										
	Diagnostic output (2colour)	1		4 wire	1	1	5V,12V		H7NF	•	•	0	_	IC								
	Latch with diagnostic output (2colour)			4 wire (NPN)		_		H7LF	•	•	0	_										



* Lead wire length

0.5m: 3m : L

5m : Z None: N

e.g.) C80CZ, C80CN

^{*} Solid state switches marked with "O" are manufactured upon receipt of order.

^{*} Do not indicate symbol "N" for no lead wire on "D-A3 \(\text{A}\), "A44A", "G39A" and "K39A" models.

Series CM2K

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 standard 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/Single rod





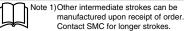
Refer to p.5.4-1 for made to order specifications of series CM2K.

Specifications

Bore size (mm)	ø20	ø25	ø32	ø40		
Rod non-rotating accuracy	±0.7° ±0.5°					
Style		Air cy	/linder			
Action		Double actir	ng/Single rod			
Fluid		Д	ir			
Cushion		Rubber	bumper			
Proof pressure		1.5	MPa			
Max. operating pressure	1.0MPa					
Min. operating pressure		0.05	БМРа			
Ambient and fluid temperature			0 to +70°C (No to +60°C (No fro	٠,		
Lubrication		Non	-lube			
Thread tolerance		JIS c	lass 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

- 101110101101	
Bore size (mm)	Standard stroke (mm) (1)
20	
25	25, 50, 75, 100, 125, 150
32	200, 250, 300
40	



Minimum Strokes for Auto Switch Mounting

Auto switches can be mounted. Refer to p.1.4-4 for minimum stroke table.

Rod Boot Materials

Symbol	Material	Max. ambient temp.
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C*

^{*} Maximum ambient temperature for the gaiter only.

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	
Single clevis	CM-C020B	CM-C	032B	CM-C040B	
Double clevis** (with pins)	CM-D020B	CM-D032B		CM-D040B	
Trunnion (with nuts)	CM-T020B	CM-T032B		CM-T040B	

^{*} Two foot brackets and a mounting nut are attached.

Auto Switch Mounting Bracket Part No.

tate emiter meaning practical action											
Auto switch	Bore size (mm)										
model	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.)

BBA3: D-B5/B6/G5 BBA4: D-C7/C8/H7

When a switch only is shipped, "BBA4" screws are attached.

 $[\]ast\ast$ Clevis pins and snap rings (cotter pins for bore size 40) are attached.

 $[\]cdot$ "D-H7BAL" switch is set on the cylinder with the screws above when shipped.

Non-rotating Rod: Double Acting Single Rod Series CM2K

Boss-cut Style

Boss for the head cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of total cylinder length with standard style (mm)

<u> </u>	•	9	2 (111111)
ø20	ø25	ø32	ø40
▲ 13	▲ 13	▲ 13	▲ 16

Mounting

■Boss-cut basic (BZ)

■Boss-cut flange (FZ)

■Boss-cut trunnion (UZ)

Mounting Accessories

Accessories		Standard Option					
Mounting	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint (3)	Pivot bracket	Rod boot
Basic	●(1 pc.)	•	_	•	•	_	•
Axial foot	• (2)	•	_	•	•	_	•
Front flange	• (1)	•	_	•	•	_	•
Rear flange	• (1)	•	_	•	•	_	•
Integrated clevis	(1)	•	_	•	•	•	•
Single clevis	(1)	•	_	•	•	_	•
Double clevis (3)	(1)	•	•	•	•	_	•
Front trunnion	●(1) ⁽²⁾	•	_	•	•	_	•
Rear trunnion	●(1) ⁽²⁾	•	_	•	•	_	•
Boss-cut basic	• (1)	•	_	•	•	_	•
Boss-cut flange	• (1)	•	_	•	•	_	•
Boss-cut trunnion	• (1)	•	_	•	•	_	•
Note					With pins	With pins	



Note 1) Mounting nuts are not attached for the integrated clevis, the single clevis, and the double clevis styles.

Note 2) Trunnion nuts are attached for the front trunnion and the rear trunnion style.

Note 3) Pins and snap rings (cotter pins for bore size 40) are attached for double clevis and the double knuckle joint.

Waiaht

Weight					(kg)
	Bore size (mm)	20	25	32	40
	Basic	0.14	0.21	0.28	0.57
	Axial foot	0.29	0.37	0.44	0.84
	Flange	0.20	0.30	0.37	0.69
	Integrated clevis	0.12	0.19	0.27	0.53
Basic weight	Single clevis	0.18	0.25	0.32	0.66
3	Double clevis	0.19	0.27	0.33	0.70
	Trunnion	0.18	0.28	0.34	0.67
	Boss-cut basic	0.13	0.19	0.26	0.53
	Boss-cut flange	0.19	0.28	0.35	0.66
	Boss-cut trunnion	0.17	0.26	0.32	0.63
Addit	ional weight by each 50 stroke	0.04	0.07	0.09	0.14
	Pivot bracket (with pins)	0.07	0.07	0.14	0.14
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

⚠ Precautions

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

CJ1

CJ₂

CM₂

C85

C76

CG1

MB

MB₁

CP95

C95

C92

Handling

Cautions

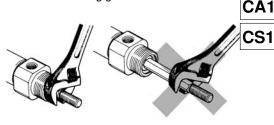
①Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.

If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the nonrotating accuracy. Refer to the table below for the

Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational	ø20	ø25	ø32	ø40
torque (Nm)	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.



②To 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.

Calculation example: CM2KL32-100

- ●Basic weight: 0.44 (Foot, ø32)
- ●Additional weight: 0.09/50 stroke
- ●Cylinder stroke: 100 stroke 0.44 + 0.09 X 100/50 = 0.62kg



Series CM2K

Copper Free

20-CM2K Mounting Bore size Stroke

This cylinder eliminates any influences of copper ions or fluororesins on colour 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	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion, Integrated clevis, Boss-cut

With Air Cushion

CM2K Mounting Bore size Stroke 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.



Specifications

Action	Double acting/Single rod				
Bore size	ø20, ø25, ø32, ø40				
Max. operating pressure	1.0MPa				
Min. operating pressure	0.05MPa				
Cushion	Air cushion				
Piston speed	50 to 500mm/s				
Mounting	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion, Integrated clevis, Boss-cut				

^{*}Auto switches can be mounted.

Allowable Kinetic Energy

Bore size (mm)	Effective cushion length (mm)	Allowable kinetic energy		
20	11.0	0.54J		
25	11.0	0.78J		
32	11.0	1.27J		
40	11.8	2.35J		

- Construction: Refer to p.1.4-54.
- Dimensions: Refer to p.1.4-55.
- Refer to p.1.4-51 for other specifications.

Auto switch mounting position

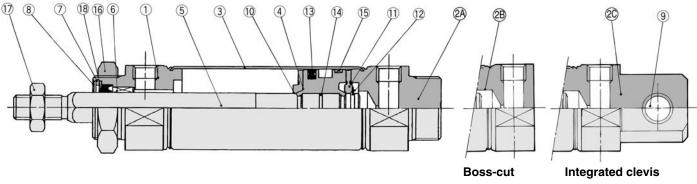
Refer to the standard type (double acting/single rod) on p.1.4-21.

Non-rotating Rod: Double Acting Single Rod Series CM2K

Construction

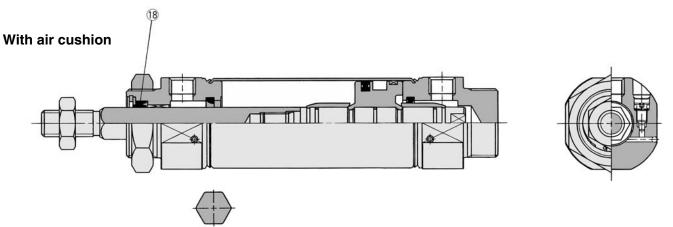
Rubber bumper







Rod section



Rod section

Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	White anodized
2A	Head cover A	Aluminum alloy	White anodized(Standard style)
2B	Head cover B	Aluminum alloy	White anodized(Boss-cut style)
20	Head cover C	Aluminum alloy	White anodized(Integrated clevis style)
3	Cylinder tube	Stainless steel	
4	Piston	Aluminum alloy	Chromated
(5)	Piston rod	Stainless steel	
6	Non-rotating guide	Oil impregnated sintered metal	
7	Seal retainer	Rolled steel	Nickel plated
8	Snap ring	Carbon steel	Nickel plated
9	Bushing for clevis	Oil impregnated sintered metal	
10	Bumper A	Urethane	
11)	Bumper B	Urethane	

No.	Description	Material	Note
12	Snap ring	Stainless steel	
13	Piston seal	NBR	
14)	Piston gasket	NBR	
15	Wearing	Resin	
16	Mounting nut	Carbon steel	Nickel plated
17	Rod end nut	Carbon steel	Nickel plated

Replacement Parts

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

CJ₁

CJP

CJ2

CM₂

C85

C76

CG₁

MB

MB1

CP95

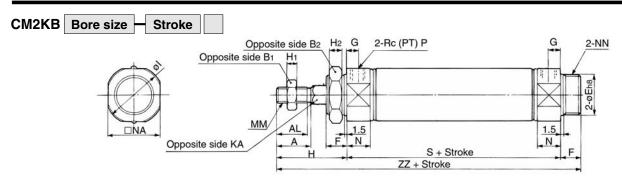
C95

C92

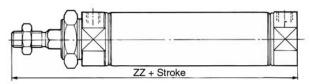
CA₁

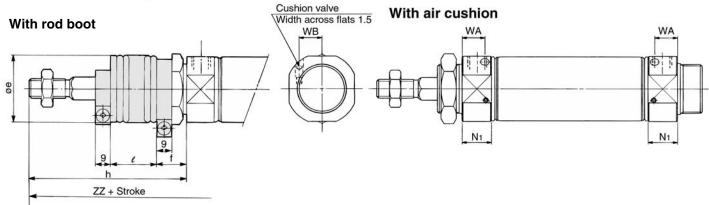
Series CM2K

Basic (B)









																			(111111)
Bore	Α	AL	B1	B ₂	E	F	G	Н	H1	H2	ı	KA	MM	N	NA	NN	Р	S	ZZ
20	18	15.5	13	26	20 -0.033	13	8	41	5	8	28	8.2	M8 X 1.25	15	24	M20 X 1.5	1/8	62	116
25	22	19.5	17	32	26 -0.033	13	8	45	6	8	33.5	10.2	M10 X 1.25	15	30	M26 X 1.5	1/8	62	120
32	22	19.5	17	32	26 -0.033	13	8	45	6	8	37.5	12.2	M10 X 1.25	15	34.5	M26 X 1.5	1/8	64	122
40	24	21	22	41	32 -0.039	16	11	50	8	10	46.5	14.2	M14 X 1.5	21.5	42.5	M32 X 2	1/4	88	154

With rod boot (mm) ΖZ е 1 to 50 | 51 to 100 | 101 to 150 | 151 to 200 | 201 to 300 | 301 to 400 | 401 to 500 | 1 to 50 | 51 to 100 | 101 to 150 | 151 to 200 | 201 to 300 | 1 to 50 | 51 to 100 101 to 150 151 to 200 201 to 300 12.5 37.5 12.5 37.5 12.5 37.5 12.5 37.5

Boss-cut

			ZZ						
Bore	Without	With gaiter							
	gaiter	1to50	51to100	101to150	151to200	201to300			
20	103	130	143	155	168	193			
25	107	134	147	159	172	197			
32	109	136	149	161	174	199			
40	138	165	178	190	203	228			

With air cushion

Bore	N ₁	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

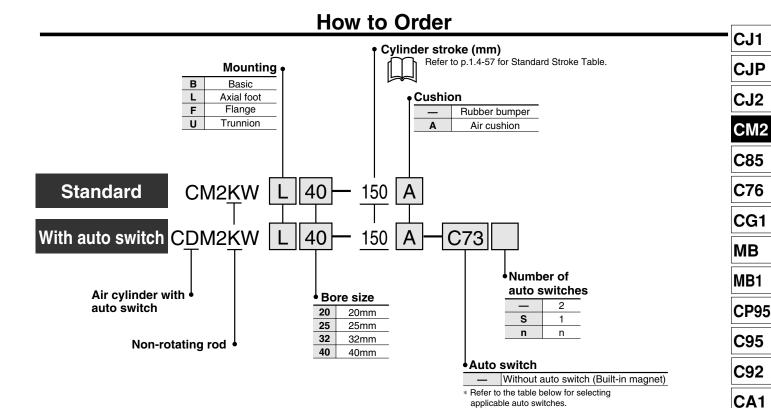
The dimensions are the same as standard style (double acting/single rod), except for the configuration of the piston rod. Refer to p.1.4-10 to 1.4-18. Specifications for the auto switch equipped style are the same as CDM2 series standard style.



Non-rotating Rod: Double Acting Double Rod

Series CM2KW

ø20, ø25, ø32, ø40



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

<u> </u>	Applicable Auto Switches/Refer to p.5.3-2 for further information on auto switches.																						
		Clootric - I	tor	Wiring		Load v	oltage	Lead wire* (m)															
Style	Special function	Electrical entry	Indicato	(Output)		DC	AC	Auto switch model	0.5 (—)	3 (L)		None (N)	Appi	icable ad									
			Yes	3 wire (NPN)	_	5V	_	C76	•	•	_	_	IC										
						12V	100V	C73		•	•	_	_	Relay									
		Grommet	ot No			5V, 12V	100V or less	C80	•	•	_	_	IC	PLC									
_			Yes			12V		B53	•	•	•	_		PLC									
Reed switch			163			12V	100V, 200V	B54	•			_											
Š			No			12V	200V or less	B64	•	•	_	_		Relay									
$\frac{7}{8}$		Connector	Yes	2 wire	24V	12V	_	C73C	•	•	•	•		PLC									
ě	Connector			5V, 12V	24V or less	C80C	•	lacktriangle		•	IC												
_		Terminal		20	Yes	⁄es	Yes	Yes	'es	/es	es				12V	_	A33A		_	_	•		PLC
		conduit	Yes										12V	100V, 200V	A34A	_	_	_	•		Dalau		
		DIN connector		163								165	63	63	163		12.0	1000, 2000	A44A	_	_	_	•
	Diagnostic indicator (2 colour)	Grommet							_	_	B59W	•	•	_	_								
				3 wire(NPN)			5V, 12V		H7A1	•	•	0	_	IC									
		Grommet		3 wire(PNP)			34, 124		H7A2	•	•	0	_	10									
				2 wire	2 wire	2 wire	2 wire	2 wire	2 wire		wire	12V		H7B	•	•	0	_					
_		Connector				12 V		H7C	•			•											
Solid state switch		Terminal		3 wire(NPN)		5V, 12V		G39A	_	_	_	•	IC										
Š		conduit		2 wire		12V		K39A	_	_	_	•	_										
Ę.			Yes	3 wire(NPN)	24V	5V, 12V		H7NW	•	•	0	_	IC	Relay PLC									
sta	Diagnostic indicator (2 colour)			3 wire(PNP)		34, 124		H7PW	•	•	0	_	10	FLC									
<u>0</u>				2 wire		12V		H7BW	•	•	0	_											
줐	Water resistant (2 colour)	Grommet		2 WIIE	12.4		H7BA	_	•	0	_												
0,	With timer			3 wire(NPN)		5V, 12V		G5NT	_	•	0	_	IC										
	Diagnostic output (2 colour)			4 wire	01, 121		H7NF	•	•	0	-	10	1										
	Latch with diagnostic output (2 colour)			(NPN)		—		H7LF	•	•	0	_	_										

* 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.

Series CM2KW

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

Non-rotating accuracy \emptyset 20, \emptyset 25— \pm 0.7° \emptyset 32, \emptyset 40— \pm 0.5°

Can operate without lubrication.

The same installation dimensions as the stand ard cylinder.

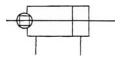
Auto switches can also be mounted.

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



JIS symbol

Double acting/Double rod





Rod End Accessories

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

Specifications

Bore size (mm)	ø20	ø25	ø32	ø40	
` '			7		
Rod non-rotating accuracy	±0).7°	<u>±0</u>	.5°	
Style		Air cy	/linder		
Cushion		Rubber	bumper		
Action		Double actin	g/Double rod		
Fluid		A	ir		
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)				
Ambient and haid temperature	With auto switch: -10 to +60°C (No freezing)				
Lubrication		Non	-lube		
Thread tolerance	JIS class 2				
Stroke tolerance	+1.4				
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	25, 50, 75, 100, 125, 150					
32	200, 250, 300					
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)

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

Mounting and Accessories

Accessories	Stan	dard	Option	
	NAti	5	Single knuckle	Double knuckle
Mounting	Mounting nut	Rod end nut	joint	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.



Non-rotating Rod: Double Acting Double Rod Series CM2KW

Weight (kg) 25 32 40 20 Bore size (mm) Basic style 0.16 0.25 0.32 0.66 Axial foot style 0.31 0.41 0.48 0.93 Basic weight 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 0.14 0.06 0.1 0.20 Single knuckle joint 0.06 0.06 0.06 0.23 Accessory 0.07 0.07 Double knuckle joint (with pins) 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	СМ-Т	032B	CM-T040B

^{*} Two foot brackets and a mounting nut are attached.

Auto Switch Mounting Bracket Part No.

Auto switch	Bore size (mm)				
model	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

A 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.

---- CJP

Handling

⚠ Cautions

- ①Avoid 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 nonrotating accuracy.
 Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational	ø20	ø25	ø32	ø40
torque (Nm)	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.

МВ

CJ2

CM₂

C85

C76

CG1

CP95

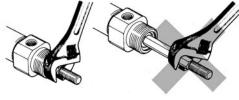
MB1

C95

C92

CA1

CS1



②To 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

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

Copper free

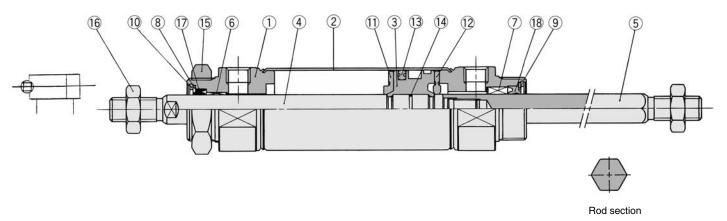
This cylinder eliminates any influences of copper ions or fluororesins on colour CRTs. Copper materials have been nickel plated or replaced with non-copper materials to prevent the generation of copper ions.

Refer to p.1.4-8 for specifications.

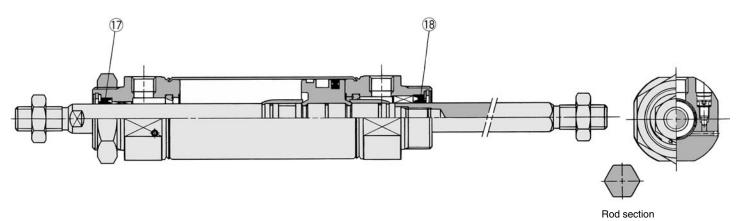
Series CM2KW

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

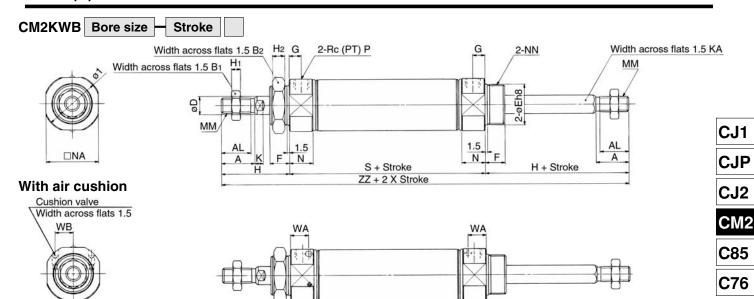
●With rubber bumper/With air cushion/Built-in One-touch fitting

Nia	Description Material Bore size(mm)/Part No					
No. Description		Material	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

Non-rotating Rod: Double Acting Double Rod Series CM2KW

N

Basic (B)



* 301mm or longer stroke range is regarded as long stroke.

(mm) D F H₁ S ZZ Bore Stroke range AL В1 B₂ G Н H₂ Ш Κ KA MM Ν NA NN 20 _0.033 20 1 to 300 18 15.5 13 26 8 13 8 41 5 8 28 5 8.2 M8 X 1.25 15 24 M20 X 1.5 1/8 62 144 1/8 26 -0.033 25 1 to 300 22 19.5 17 32 10 13 8 45 6 8 33.5 5.5 10.2 M10 X 1.25 15 30 M26 X 1.5 62 152 1/8 26 -0.033 32 1 to 300 22 19.5 17 32 12 13 8 45 6 8 37.5 5.5 12.2 M10 X 1.25 15 34.5 M26 X 1.5 64 154 $32_{-0.033}^{0}$ 14.2 M14 X 1.5 21.5 40 1 to 300 24 21 22 41 14 16 11 50 8 10 46.5 42.5 M32 X 2 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.

CG₁

MB

MB₁

CP95

C95

C92

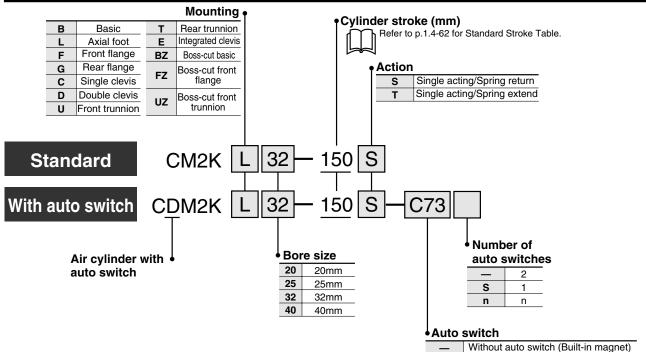
CA₁

Non-rotating Rod: Single Acting Spring Return/Extend

Series CM2K

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

Load voltage Lead wire						(m)) Applicable							
Style	Special function	Electrical entry	Indicator	Wiring (Output)		DC	AC	Auto switch model	0.5 (—)	3 (L)	5 (Z)	None (N)	1.5	nad
			Yes	3 wire (NPN)	_	5V		C76	•	•	_	_	IC	
						12V	100V	C73	•	•	•	_	Relay	
		Grommet	No				100V or less		•	•	_	_	IC	PLC'
_			Yes			12V	_	B53	•		•	_		PLC
댪						12V	100V, 200V	B54	•	•	•	_		
Š			No		۵.,	12V	200V or less	B64	•	•		_		Relay
ğ		Connector	Yes	2 wire	24V	12V		C73C	•		•			PLC
Reed switch		Connector	No			5V, 12V	24V or less	C80C	•	•	•	•	IC	
		Terminal				12V	_	A33A	_	_	_	•		PLC
		conduit	Yes			12V 1	100V, 200V	A34A	_	_	_		l	
		DIN connector		65			1000, 2000	A44A	_	_	_			Relay PLC
	Diagnostic indicator (2 colour)	Grommet				—	_	B59W	•		-] ' -	-0
				3 wire(NPN)	4	5V, 12V	H7A1	•	•	0	_	IC		
		Grommet	Grommet	3 wire(PNP)				H7A2	•	•	0	_		
				2 wire	;	12V		H7B	•	•	0	_		
_		Connector		2 WIIE				H7C	•	•	•	•		
호		Terminal		3 wire(NPN)	1	5V, 12V		G39A	_	_	_	•	IC	1
Solid state switch		conduit		2 wire	1	12V		K39A	_	_	_	•	_	
ė			Yes	3 wire(NPN)	24V	EV 40V		H7NW	•	•	0	_		Relay
ia	Diagnostic indicator (2 colour)			3 wire(PNP)	1	5V, 12V		H7PW	•	•	0	_	IC	PLC'
9					1	40)/		H7BW	•	•	0	-		1
≒	Water resistant (2 colour)	Grommet		2 wire		12V		Н7ВА	_	•	0	-		
S	With timer	Groninet	3 wire(NPN)	1	=) ((0) (G5NT	_	•	0	_		1	
	Diagnostic output (2 colour)			, ,	1	5V, 12V		H7NF	•	•	Ō	1-	IC	
	Latch with diagnostic output (2 colour)			4 wire (NPN)		_		H7LF	•	•	0	_	_	1



Lead wire length

0.5m:-

None: N

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

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

Non-rotating Rod: Single Acting Spring Return/Extend Series CM2K

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 standard cylinder.

Auto switches can also be mounted.

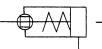
It can be installed with auto switches to simplify the detection of the stroke position of the cylinder.

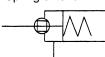


JIS symbol

Single acting/ Spring return

Spring extend







Refer to p.5.4-1 for made to order specifications of series CM2K.



Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions and common precautions and refer to p.1.4-52 for those on CM2K series.

Specifications

Bore size (mm)		ø20	ø25	ø32	ø40	
Action		Single acting/Spring return, Spring extend				
Fluid			А	ir		
Cushion			Rubber	bumper		
Proof pressure			1.51	/IPa		
Max. operating p	oressure		1.01	/IPa		
Min. operating	Spring return		0.18	MPa		
pressure	Spring extend	0.23MPa				
Ambient and flui	d temperature	Without auto switch: -10 to +70°C (No freezing)				
7 in biorit and na	a temperature	With auto switch: -10 to +60°C (No freezing)				
Lubrication		Non-lube				
Thread tolerance	Э	JIS class 2				
Stroke tolerance		+1.4				
Piston speed (mm/s)		50 to 500				
Rod non-rotating	accuracy	±0.7° ±0.5°).5°	
Allowable kinetic	energy	0.27J	0.4J	0.65J	1.2J	

Standard Stroke

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

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

Minimum Strokes for Auto Switch Mounting

Refer to p.1.4-4 for minimum stroke table.

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		
Single clevis	CM-C020B	CM-C	CM-C032B			
Double clevis** (with pins)	CM-D020B	CM-D	CM-D032B		1-D032B CM-D0	
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	Bore size (mm)					
model	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		



 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



CJ₁

CJP

CJ₂

CM₂

C85

C76

CG1

MB

MB₁

CP95

C95

C92

CA₁

^{**} Clevis pins and snap rings (cotter pins for bore size 40) are attached.

Series CM2K

Mounting and Accessories

Accessories		Standard		Option			
Mounting	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint ⁽³⁾	Pivot bracket	
Basic	● (1 pc.)	•	_	•	•	_	
Axial foot	• (2)	•	_	•	•	_	
Front flange	• (1)	•	_	•	•	_	
Rear flange	• (1)	•	_	•	•	_	
Integrated clevis	(1)	•	_	•	•	•	
Single clevis	(1)	•	_	•	•	_	
Double clevis (3)	(1)	•	•	•	•	_	
Front trunnion	● (1) ⁽²⁾	•	_	•	•	_	
Rear trunnion	● (1) ⁽²⁾	•	_	•	•	_	
Boss-cut basic	• (1)	•	_	•	•	_	
Boss-cut flange	● (1)	•	_	•	•	_	
Boss-cut trunnion	● (1)	•	_	•	•	_	
Note					With pins	With pins	

Note 1) Mounting nuts are not attached for the integrated clevis type, the single clevis type, and the double clevis type.

Note 2) Trunnion nuts are attached for the front trunnion styles and the rear trunnion styles.

Note 3) Pins and snap rings (cotter pins for bore size 40) are attached for double clevis and the double knuckle joint.

Weight

Spring	Spring Return/(): Spring Extend (kg)							
	Bore size (mm)	20	25	32	40			
	25stroke	0.20(0.19)	0.31(0.30)	0.43(0.41)	0.78(0.75)			
	50stroke	0.23(0.21)	0.34(0.33)	0.48(0.45)	0.86(0.83)			
	75stroke	0.29(0.25)	0.43(0.41)	0.61(0.56)	1.08(0.99)			
Basic	100stroke	0.31(0.27)	0.47(0.44)	0.66(0.60)	1.14(1.06)			
weight	125stroke	0.37(0.32)	0.56(0.52)	0.81(0.72)	1.34(1.23)			
	150stroke	0.39(0.34)	0.59(0.55)	0.85(0.76)	1.39(1.31)			
	200stroke	—(—)	—(—)	1.04(0.92)	1.71(1.54)			
	250stroke	—(—)	—(—)	—(—)	2.00(1.78)			
	Axial foot style	0.15(0.15)	0.16(0.16)	0.16(0.16)	0.27(0.27)			
	Flange style	0.06(0.06)	0.09(0.09)	0.09(0.09)	0.12(0.12)			
	Single clevis style	0.04(0.04)	0.04(0.04)	0.04(0.04)	0.09(0.09)			
	Double clevis style	0.05(0.05)	0.06(0.06)	0.06(0.06)	0.13(0.13)			
Mounting	Trunnion style	0.04(0.04)	0.07(0.07)	0.07(0.07)	0.10(0.10)			
bracket weight	Integrated clevis style	-0.02(-0.02)	-0.02(-0.02)	-0.01(-0.01)	-0.04(-0.04)			
g	Boss-cut basic style	-0.01(-0.01)	-0.02(-0.02)	-0.02(-0.02)	-0.03(-0.03)			
	Boss-cut flange style	0.05(0.05)	0.07(0.07)	0.07(0.07)	0.09(0.09)			
	Boss-cut trunnion style	0.03(0.03)	0.05(0.05)	0.05(0.05)	0.07(0.07)			
	Clevis bracket (with pins)	0.07(0.07)	0.07(0.07)	0.14(0.14)	0.14(0.14)			
Agggggggg	Single knuckle joint	0.06(0.06)	0.06(0.06)	0.06(0.06)	0.23(0.23)			
Accesssory	Double knuckle joint (with pins)	0.07(0.07)	0.07(0.07)	0.07(0.07)	0.20(0.20)			

Calculation example:

CM2KL32-100S (ø32, Foot, 100 stroke)

0.66 (Basic weight) + 0.16 (Mounting bracket weight)=0.82kg

Boss-cut Style

Boss for the head cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of total cylinder length with standard style (mm)

ø20 ø25		ø32	ø40	
▲ 13	▲ 13	▲ 13	▲ 16	

Mounting

- ■Boss-cut basic (BZ)
- ■Boss-cut flange (FZ)
- ■Boss-cut trunnion (UZ)

Auto Switch Mounting Position

The auto switch mounting position (at stroke end is the same as standard style (single acting/spring return, extend). Refer to p.1.4-48 and 1.4-49.

Non-rotating Rod: Single Acting Spring Return/Extend Series CM2K

Copper Free

20-CM2K Mounting Bore size Stroke Action

Copper free

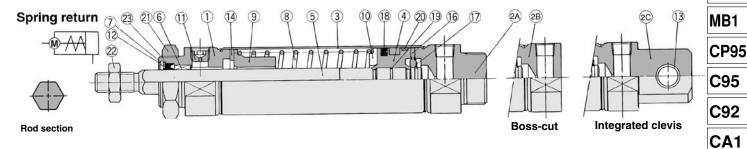
This cylinder eliminates any influences of copper ions or fluororesins on colour CRTs. Copper materials have been nickel plated or replaced with non-copper materials to prevent the generation of copper ions.

Specifications

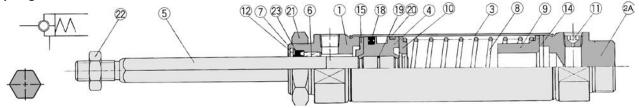
Action	Single acting/Spring return	Single acting/Spring extend		
Bore size Ø20, Ø25, Ø3		ø32, ø40		
Max. operating pressure	1.0MPa			
Min. operating pressure	0.18MPa	0.23MPa		
Cushion	Rubber bumper			
Piston speed	50 to 500mm/s			
Mounting	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double cievis, Front trunnion, Rear trunnion, Integrated clevis, Boss-cut			

^{*} Auto switches can be mounted.

Construction



Spring extend



Rod section

Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	White anodized
2A)	Head cover A	Aluminum alloy	White anodized (Standard style)
2B	Head cover B	Aluminum alloy	White anodized (Boss-cut style)
2C	Head cover C	Aluminum alloy	White anodized (Integrated clevis style)
3	Cylinder tube	Stainless steel	
4	Piston	Aluminum alloy	Chromated
5	Piston rod	Stainless steel	
6	Non-rotating guide	Oil impregnated sintered alloy	
7	Seal retainer	Rolled steel	Nickel plated
8	Return spring	Steel wire	Zinc chromated
9	Spring guide	Aluminum alloy	Chromated
10	Spring seat	Aluminum alloy	Chromated
11)	Plug with fixed orifice	Alloy steel	Black zinc chromated

No.	Description	Material	Note
12	Snap ring	Carbon steel	Nickel plated
13	Bushing for clevis	Oil impregnated sintered alloy	
14)	Bumper	Urethane	
15	Bumper A	Urethane	
16	Bumper B	Urethane	
17)	Snap ring	Stainless steel	
18	Piston seal	NBR	
19	Piston gasket	NBR	
20	Wearing	Resin	Nickel plated
21)	Mounting nut	Carbon steel	Nickel plated
22	Rod end nut	Carbon steel	

Replacement Parts

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

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

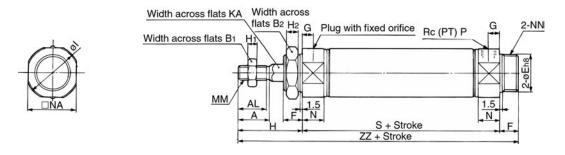
MB

Series CM2K

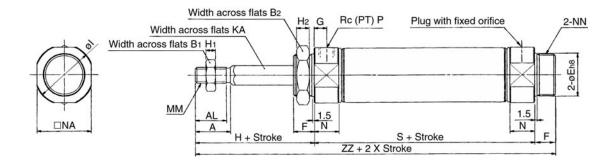
Basic (B)

CM2KB Bore size Stroke S

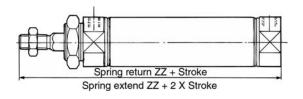
Spring return



Spring extend



Boss-cut



																	(mm)
Bore	Α	AL	B1	B ₂	Е	F	G	Н	H1	H2	- 1	KA	MM	N	NA	NN	Р
20	18	15.5	13	26	20 _0.033	13	8	41	5	8	28	8.2	M8 X 1.25	15	24	M20 X 1.5	1/8
25	22	19.5	17	32	26 -0.033	13	8	45	6	8	33.5	10.2	M10 X 1.25	15	30	M26 X 1.5	1/8
32	22	19.5	17	32	26 -0.033	13	8	45	6	8	37.5	12.2	M10 X 1.25	15	34.5	M26 X 1.5	1/8
40	24	21	22	41	32 _0.039	16	11	50	8	10	46.5	14.2	M14 X 1.5	21.5	42.5	M32 X 2	1/4

Dimensi	Dimensions by stroke (mm)									
Stroke		50	51 to 100		101 t	o 150	151 t	200	201 t	250
Bore Symbol	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	_	_	_	_
25	87	145	112	170	137	195	_	_	_	_
32	89	147	114	172	139	197	164	222	_	_
40	113	179	138	204	163	229	188	254	213	279

Boss-cut	t				(mm)
Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 250
Bore Symbol	ZZ	ZZ	ZZ	ZZ	ZZ
20	128	153	178	_	
25	132	157	182	_	_
32	134	159	184	209	_
40	163	188	213	238	263



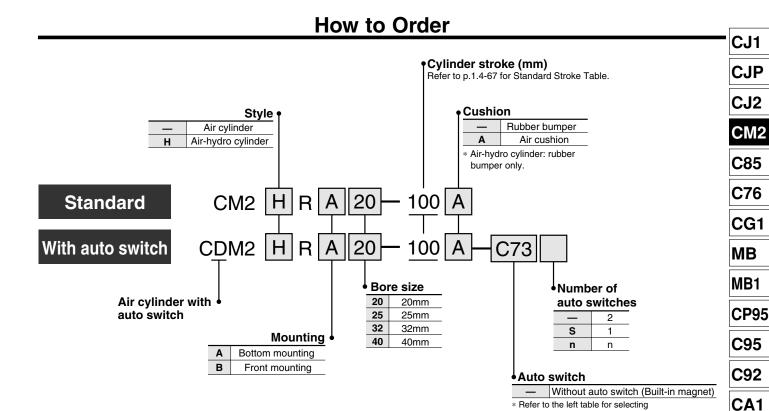
The dimensions are the same as standard style (single acting/spring return, extend), except for the configuration of the piston rod. Refer to p.1.4-39 to 1.4-47. Specifications of the auto switch equipped style are the same as standard style (CDM2- \Box S/T).



Direct Mount: Double Acting Single Rod

Series CM2R

ø20, ø25, ø32, ø40



applicable auto switches.

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

74	Jilcable Auto 3	VVICO		J neiei ii) p.5			imation on ac	Lea			(m)					
Style	Special function	Electrical entry	ndicator	Wiring (Output)		Load v	AC	Auto switch model	0.5 (—)	_		None (N)	Appl lc	icable ad			
			Yes	3 wire (NPN)	_	5V	_	C76	•	•	_	_	IC	\vdash			
			No			12V	100V 100V or less	C73 C80	•	•	•	_	IC	Relay PLC			
		Grommet	Yes	1		12V	_	B53	•	•	•		10	PLC			
witcl			No			12V 12V	100V, 200V 200V or less	B54 B64	•	•	• —	=	—	Relay			
Reed switch		Connector	Yes No	4	24V	120		C73C C80C	•	•	•	•	IC	PLC			
æ		Terminal	INO					12V	24V or less	A33A				•	IC	PLC	
		conduit DIN connector	Yes			12V	100V, 200V	A34A A44A		믙	=	•	—	Relay			
	Diagnostic indicator (2 colour)						_	B59W	•	•	<u> </u>	_		PLC			
		Grommet		3 wire(NPN) 3 wire(PNP)					5V, 12V		H7A1 H7A2	•	•	0		IC	
				2 wire				12V		H7B	•	•	Ŏ	_	_	1	
도		Connector Terminal		3 wire(NPN)		5V, 12V		H7C G39A	_			•	IC	1			
swit		conduit		2 wire		12V		K39A	_	-	-	•					
Solid state switch	Diagnostic indicator (2 colour)		Yes	3 wire(NPN) 3 wire(PNP)	24V	5V, 12V	_	H7NW H7PW	•	•	0		IC	Relay PLC			
dst	Diagnostic indicator (2 colour)	7		2 wire		12V		H7BW	•	•	6	_		1			
Soli		Grommet				120		Н7ВА	_	•	0	_					
	With timer Diagnostic output (2 colour)			3 wire(NPN)		5V, 12V		G5NT H7NF	-		18		IC				
	Latch with diagnostic output (2 colour)			4 wire (NPN)		_		H7LF	•	•	0	_	_				

* Lead wire length

0.5m : — 3m : L 5m : Z

None: N
e.g.) C80CZ, C80CN

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

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

Series CM2R

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

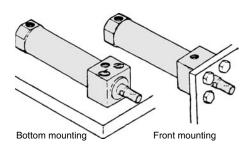
Space saving configuration.

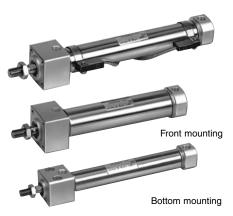
Because it is a directly mounted style without using brackets, its overall length is shorter, and its installation pitch can be made smaller. Thus, the space that is required for installation has been dramatically reduced.

Improved installation accuracy and strength

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



Refer to p.5.4-1 for made to order specifications of series CM2R.

Specifications

<u> </u>							
Bore size (mm)	20	25	32	40			
Action	Double acting/Single rod						
Fluid		A	Air				
Proof pressure		1.5	МРа				
Max. operating pressure		1.0	МРа				
Min. operating pressure		0.05	iMPa				
Ambient and fluid temperature	Without auto switch: -10 to +70°C (No freezing)						
Ambient and hald temperature	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 750						
Cushion		Rubber	bumper				
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
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 Switches Mounting

Refer to p.1.4-4 for minimum stroke table.

Auto Switch Mounting Bracket Part No.

Auto switch	Bore size (mm)							
model	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

Direct Mount: Double Acting Single Rod Series CM2R

Accessories

Accessories	Standard	Option			
Mounting	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

Weight		(Kg)					
Bore size (m	20	25	32	40			
Donie weight	Bottom mounting	0.14	0.23	0.32	0.62		
Basic weight	Front mounting	0.14	0.22	0.32	0.61		
Additional weight by	0.04	0.06	0.08	0.13			

Calculation example: CM2RA32-100

(ø32, 100 stroke, Bottom mounting)

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

C92

CA₁

CS₁

- Basic weight: 0.32kg
- Additional weight: 0.08kg
- Cylinder stroke: 100mm
 0.32+0.08 X 100/50=0.48kg

Air-hydro

CM2HR Mounting Bore size Stroke

Air-hydro type

A low hydraulic pressure cylinder used at a pressures of 1.0MPa or below.

Through the concurrent use of a CC series air-hydro unit, it is possible to operate at a constant or low speed or to effect an intermediate stop, just like a hydraulic unit, while using pneumatic equipment such as a valve.



Specifications

Style	Air-hydro
Fluid	Turbine oil
Action	Double acting/Single rod
Bore size	ø20, ø25, ø32, ø40
Proof pressure	1.5MPa
Max. operating pressure	1.0MPa
Min. operating pressure	0.18MPa
Piston speed	15 to 300mm/s
Cushion	Rubber bumper
Ambient and fluid temperature	+5 to +60°C
Thread tolerance	JIS class 2
Stroke tolerance	+1.4 0
Mounting	Bottom mounting, Front mounting

^{*} Auto switches can be mounted.

Dimensions are the same as standard style.

- Construction: Refer to p.1.4-70.
- Dimensions: Refer to p.1.4-71 and 1.4-72.

Clean Series

10-CM2R Mounting Bore size Stroke

Clean series (with relief port)

The rod portion of the actuator has a double seal construction, and a relief port is provided to discharge the exhaust air directly outside of the clean room. Thus, it can be used in a Class 100 clean room.

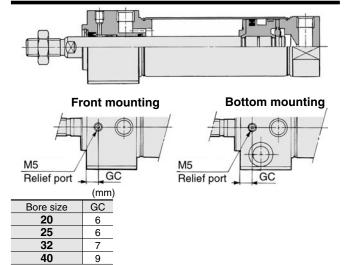


Specifications

Action	Double acting/Single rod
Bore size	ø20, ø25, ø32, ø40
Max. operating pressure	1.0MPa
Min. operating pressure	0.05MPa
Cushion	Rubber bumper (standard equipment)
Relief port size	M5
Piston speed	30 to 400mm/s
Mounting	Bottom mounting, Front mounting

^{*} Auto switches can be mounted.

Construction



Series CM2R

With Air Cushion

CM2R Mounting Bore size Stroke 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.

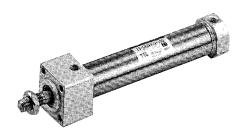


Copper Free

20-CM2R Mounting Bore size Stroke

Copper free

This cylinder eliminates any influences of copper ions or fluororesins on colour 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
Piping	Screw-in
Piston speed	50 to 1000mm/s
Mounting	Bottom mounting, Front mounting

^{*} Auto switches can be mounted.

Bore size (mm)	Effective cushion length (mm)	Kinetic energy absorption
20	11.0	0.54J
25	11.0	0.78J
32	11.0	1.27J
40	11.8	2.35J

- Construction: Refer to p.1.4-70.
- Dimensions: Refer to p.1.4-71 and 1.4-72.
- Refer to p.1.4-67 for other specifications.

Specifications

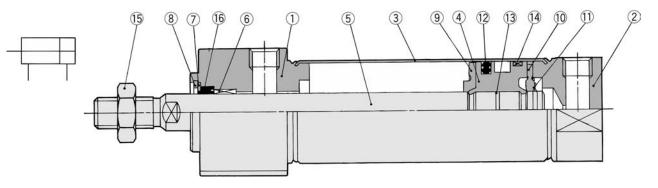
Action	Double acting/Single rod					
Bore size	ø20, ø25, ø32, ø40					
Max. operating pressure	1.0MPa					
Min. operating pressure	0.05MPa					
Cushion	Rubber bumper					
Piston speed	50 to 750mm/s					
Mounting	Bottom mounting, Front mounting					

^{*} Auto switches can be mounted.

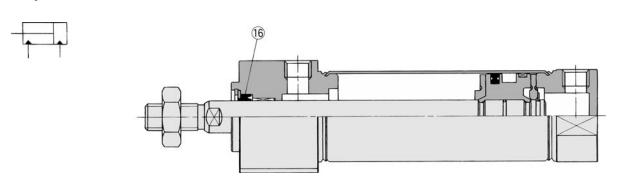
Direct Mount: Double Acting Single Rod Series CM2R

Construction

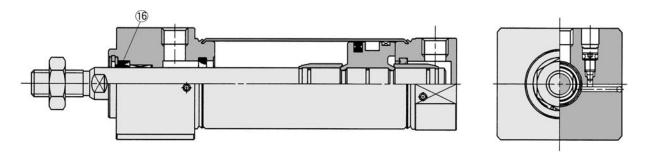
Rubber bumper



Air-hydro



With air cushion



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	Hard chrome plated		
6	Bushing	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: With rubber bumper/With air cushion

NI.	Description	Matarial	Bore size(mm)/Part No.									
INC	b. Description	watenai	20	25	32	40						
10	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14LZ						

Air-hydro style

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

SMC

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

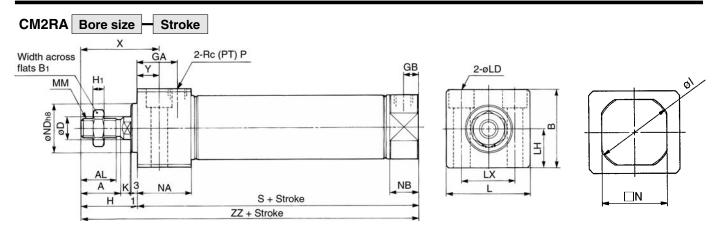
C95

C92

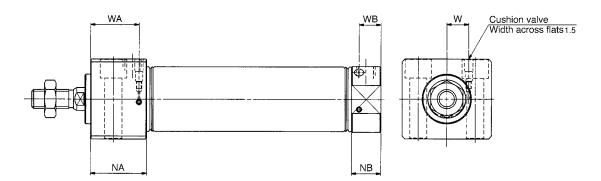
CA₁

Series CM2R

Bottom Mounting



With air cushion



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

																								((mm)
Bore	Α	AL	В	B1	D	GA	GB	Н	H1	ı	K	L	LD	LH	LX	MM	N	NA	NB	ND	Р	S	Х	Υ	ZZ
20	18	15.5	30.3	13	8	22	8	27	5	28	5	33.5	ø5.5, ø9.5 Depth of counter bore 6.5	15	21	M8 X 1.25	24	29	15	20-0.033	1/8	76	39	12	103
25	22	19.5	36.3	17	10	22	8	31	6	33.5	5.5	39	ø6.6, ø11 Depth of counter bore 7.5	18	25	M10 X 1.25	30	29	15	26_0.033	1/8	76	43	12	107
32	22	19.5	42.3	17	12	22	8	31	6	37.5	5.5		ø9, ø14 Depth of counter bore 10	21	30	M10 X 1.25	34.5	29	15	26-0.033	1/8	78	43	12	109
40	24	21	52.3	22	14	27	11	34	8	46.5	7	58.5	ø11, ø17.5 Depth of counter bore 12.5	26	38	M14 X 1.5	42.5	37.5	21.5	32-0.039	1/4	104	49	15	138

SMC

With air cushion

Bore	NA	NB	WA	WB	W
20	31.5	17.5	27	13	8.5
25	31.5	17.5	27	13	10.5
32	31.5	17.5	27	13	11.5
40	37.5	21.5	33.5	16	15

Direct Mount: Double Acting Single Rod Series CM2R

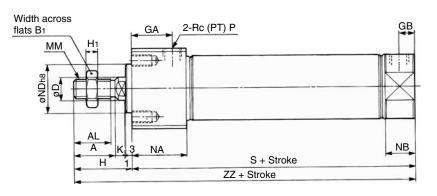
Front Mounting

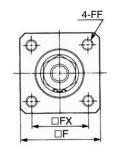


With air cushion

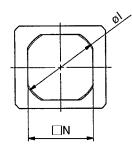
WA

NA





Cushion valve Width across flat



CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB1

CP95

C95

C92

(mm) Stroke range CA₁ CS₁

Up to 150 Up to 200 Up to 200 Up to 300

Bore size

20

25

32 40

																					(mm)
Bore	Α	AL	B1	D	F	FF	FX	GA	GB	Н	H1	- 1	K	MM	N	NA	NB	ND	Р	S	ZZ
20	18	15.5	13	8	30.4	M5 X 0.8 Depth 9	22	22	8	27	5	28	5	M8 X 1.25	24	29	15	20 _0.033	1/8	76	103
25	22	19.5	17	10	36.4	M6 X 1 Depth 11	26	22	8	31	6	33.5	5.5	M10 X 1.25	30	29	15	26 -0.033	1/8	76	107
32	22	19.5	17	12	42.4	M6 X 1 Depth 11	30	22	8	31	6	37.5	5.5	M10 X 1.25	34.5	29	15	26 -0.033	1/8	78	109
40	24	21	22	14	52.4	M8 X 1.25 Depth 14	36	27	11	34	8	46.5	7	M14 X 1.5	42.5	37.5	21.5	32 -0 039	1/4	104	138

WB

NB

0

With air cushion

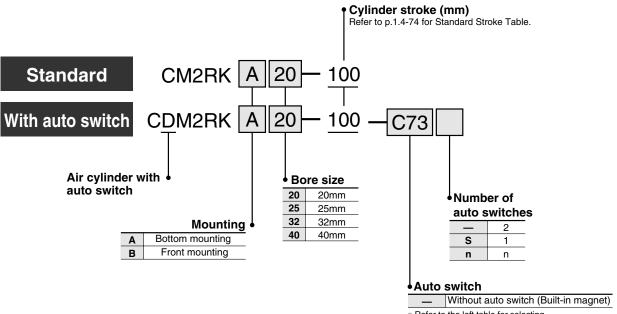
Bore	NA	NB	WA	WB	W		
20	31.5	17.5	27	13	8.5		
25	31.5	17.5	27	13	10.5		
32	31.5	17.5 27		13	11.5		
40	37.5	21.5	33.5	16	15		

Direct Mount Non-rotating Rod: Double Acting Single Rod

Series CM2RK

ø20, ø25, ø32, ø40

How to Order



^{*} Refer to the left table for selecting applicable auto switches

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

			to			Load v	oltage		Lead	l wi	re*	(m)							
Style	Special function	Electrical entry	Indicator	Wiring (Output)		DC	AC	Auto switch model	0.5 (—)	3 (L)		None (N)		icable ad					
			Yes	3 wire (NPN)	_	5V	_	C76	•	•	_	_	IC	_					
			169			12V	100V	C73	•	•	•	_	_	Relay					
		Grommet	No			5V, 12V	100V or less	C80	•	•	_	_	IC	PLC					
_			Yes			12V	—	B53	•	•	•	_		PLC					
Reed switch			_			12V	100V, 200V	B54	•	•	•								
S			No	2 wire	24V		200V or less	B64	•	•	_	_		Relay					
8		Connector	Yes	ZWIIE	240	12V		C73C	•	•	•	•		PLC					
æ			No				24V or less	C80C	•	•	•	•	IC						
		Terminal conduit		us						12V		A33A	_		_	•		PLC	
			Yes							12V	100V, 200V	A34A	_	_	_	-	—	Relay	
		DIN connector	ł				A44A B59W	_		_		PLC							
	Diagnostic indicator (2 colour)	Grommet		3 wire(NPN)	4	4 1				H7A1		-		=					
		Grommet		3 wire(NPN)				5V, 12V		H7A2		=	K	\equiv	IC				
		Grommet											H7B		•	H	\equiv		1
		Connector		2 wire		12V		H7C		-	ĕ								
등		Terminal	ł	3 wire/NPNI	3 wire(NPN)	3 wire(NPNI)	3 wire(NPN)	3 wire(NPN) 5	5V, 12V		G39A				ě	IC	1		
ž		conduit		2 wire		12V		K39A	_	_	_	•		1					
S			Yes	3 wire(NPN)	24V	=> / / 0> /		H7NW	•	•	0	_		Relay					
tat	Diagnostic indicator (2 colour)			3 wire(PNP)		5V, 12V		H7PW	•	•	Ŏ	_	IC	PLC					
9						40) (H7BW	•		1								
Solid state switch	Water resistant (2 colour)	Grommet		2 wire 3 wire(NPN)		12V		H7BA	_	•	0	_							
S	With timer	Gronninet				5V, 12V		G5NT	_	•	0	_	2	1					
	Diagnostic output (2 colour)			4 wire	1	1	1	1	1	5v, 12	5V, 12V		H7NF	•	•	0	_	IC	
	Latch with diagnostic output (2 colour)			(NPN)		_		H7LF	•	•	0	-	_						

* Lead wire length

0.5m : — 3m : L 5m : Z

^{*} Solid state switches marked with "O" 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.

ø20, ø25—±0.7° ø32, ø40—±0.5°

Space saving configuration

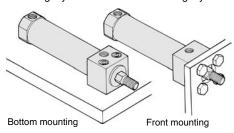
Because it is a directly mounted style without using brackets, its overall length is shorter, and its installation pitch can be made smaller. Thus, the space that is required for installation has been dramatically reduced.

Improved installation accuracy and strength

A centring 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		A	\ir		_		
Proof pressure		1.5	МРа		_		
Max. operating pressure		1.0	МРа		_		
Min. operating pressure		0.05	МРа		_		
Ambient and fluid temperature	Without a	uto switch: -10) to +70°C (N	o freezing)	_		
Ambient and fluid temperature	With aut	o switch: -10	to +60°C (No	freezing)	CJ1		
Lubrication		Non	-lube		O ID		
Thread tolerance		JIS c	lass 2		CJP		
Stroke tolerance		+	1.4 0		CJ2		
Piping (Screw-in)	ø20 t	to ø32: Rc(PT)) ¹ / ₈ , ø40: Ro	(PT)) ¹ / ₄	CJZ		
Non-rotating rod accuracy	ø	20, ø25: ±0.7°	, ø32, ø40: ±0	.5°	CM2		
Piston speed (mm/s)		50 to	500				
Mounting	Вс	ottom mounting	g, Front mount	ting	C85		
Allowable kinetic energy	0.27J	0.4J	0.65J	1.2J			
	· · · · · · · · · · · · · · · · · · ·	1	1	1	−∣C76		

Standard Stroke

Otariaara Otrono	
Bore size (mm)	Standard stroke (mm) (1)
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

CG₁

MB

MB₁

CP95

C95

C92

CA1

CS₁

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		Bore siz	ze (mm)	
model	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

Coper free

This cylinder eliminates any influences of copper ions or fluororesins on colour CRTs. Copper materals 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	Op:	tion
Mounting	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

Weight	l .				(kg)
Е	ore size (mm)	20	25	32	40
Basic	Bottom mounting	0.14	0.23	0.32	0.63
weight	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

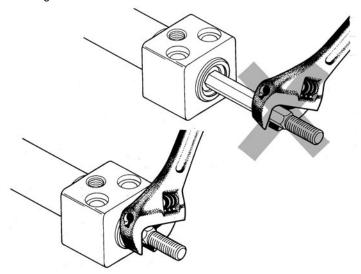
1) Avoid using the air cylinder in such a way that rotational

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	ø20	ø25	ø32	ø40
Nm	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.



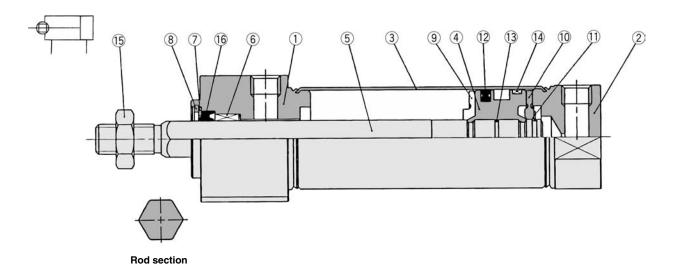
2 To replace a rod seal, contact SMC.

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

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

CJ1

CJP

CJ2

CM2

C85

C76

CG1

МВ

MB1

CP95

C95

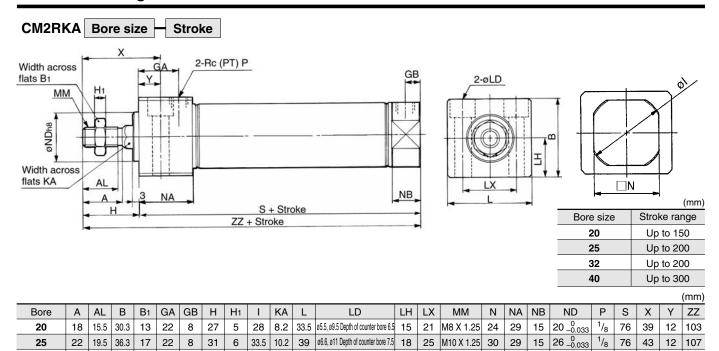
C92

CA1

CS1

Series CM2RK

Bottom Mounting



ø9, ø14 Depth of counter bore 10

58.5 ø11, ø17.5 Depth of counter bore 12.5 26

46.5 14.2

21 30

M10 X 1.25 34.5

29 | 15

38 M14 X 1.5 42.5 37.5 21.5 32

26 _0.033

¹/₈ | 78 | 43 | 12 | 109

¹/₄ | 104 | 49 | 15 | 138

Front Mounting

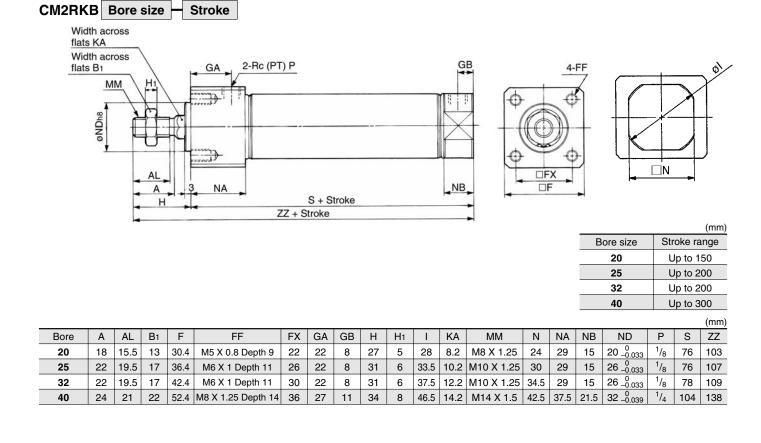
19.5 | 42.3 | 17 | 22 | 8 | 31 | 6 | 37.5 | 12.2 | 47

52.3 22 27 11 34 8

32

40

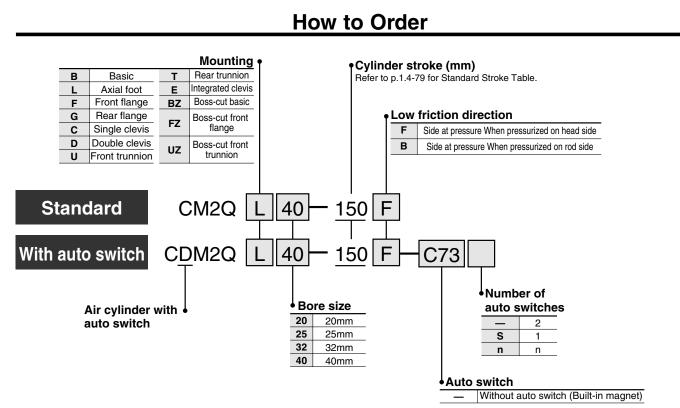
1.4-77



Low Friction: Double Acting Single Rod

Series CM2Q

ø20, ø25, ø32, ø40



* Refer to the left table for selecting applicable auto switches.

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

	pplicable Auto			ico, nei	51 10	<u> </u>		mormation or											
		F	ģ	Wiring Load voltage			oltage	Lead wire* (m)											
Style	Special function	Electrical entry	Indicator	(Output)		DC	AC	Auto switch model	0.5 (—)	3 (L)	5 (Z)	None (N)		icable ad					
			Yes	3 wire (NPN)	_	5V	_	C76	•	•	_	_	IC						
						12V	100V	C73	•	•	•	_	_	Relay					
		Grommet	No			5V, 12V	100V or less		•	•	_	_	IC	PLC					
_			Yes			12V	—	B53	•	•	•	_		PLC					
Reed switch						12V	100V, 200V	B54	•		•	_							
Š			No	2 wire	24V		200V or less	B64	•	lacksquare	二			Relay					
b		Connector	Yes	2 wire	5V,	12V	_	C73C	•	•	•	•		PLC					
ě		Commodion	No				24V or less	C80C	•		•	•	IC						
		Terminal				12V		A33A	_		二	lacksquare		PLC					
		conduit	Yes				12V 10	100V, 200V	A34A	_	_	_	•	— Relay	Polov				
		DIN connector				121 1001,20	.001, 2001	A44A	_	_	_	•	PL	PLC					
	Diagnostic indicator (2 colour)	Grommet			_			B59W	•	lacksquare	_	_							
				3 wire(NPN)		5V, 12V		H7A1	•		0	_	IC						
		Grommet		3 wire(PNP)		01, 121		H7A2	•	•	0		10						
				2 wire		12V		H7B	•	lacksquare	0		_						
_		Connector											H7C	•		•	•		
달		Terminal		3 wire(NPN)			G39A	_		一	•	IC							
Solid state switch		conduit		2 wire		12V		K39A	_	_	_	lacksquare	_						
<u>e</u>			Yes	3 wire(NPN)	24V	5V, 12V	_	H7NW	•	•	0	_	IC	Relay PLC					
sta	Diagnostic indicator (2colour)			3 wire(PNP)		01, 121		H7PW	•	lacksquare	0	_		FLC					
<u>.0</u>				2 wire	2 wire	12V		H7BW	•	•	0	_							
줐	Water resistant (2 colour)	Grommet		2 WIIC		12.4		H7BA	_	•	0	_]					
-	With timer			3 wire(NPN)		5V, 12V		G5NT	_		0	_	10						
	Diagnostic output (2 colour)			4 wire		JV, 12V		H7NF	•		Ō	_	IC]					
	Latch with diagnostic output (2 colour)			(NPN)				H7LF	•	•	0								

Lead wire length

0.5m: 3m : L 5m : Z None: N CJ₁

CJP

CJ₂

CM₂

C76

MB

MB₁

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.

C95

C92

CA₁

CS₁

Series CM2Q

Designed with a low sliding resistance of the piston, this air cylinder is ideal for applications such as contact pressure control, which requires smooth movements at low pressures.

Low sliding resistance Minimum operating pressure: 0.025MPa Stable sliding resistance

The sliding resistance remains stable even when the operating pressure changes.



JIS symbol

Double acting/Single rod

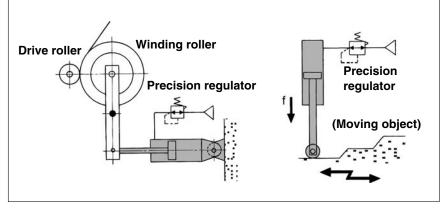


Application Example

A low friction cylinder is used in combination with a precision regulator (Series IR, etc.).

①Even if the external diameter of the winding roller changes, the changes in the pressing force against the drive roller are kept low.

②Even if there is any change in the shape of the moving object, the changes in the f value of the cylinder's pressing force are kept low, resulting in a stable pressing force.



Specifications

Bore size (mm)	20	25	32	40			
Action		Double acting/Single rod					
Low friction direction		One di	rection				
Fluid		A	Air				
Proof pressure		1.05	МРа				
Max. operating pressure		0.7	MPa				
Min. operating pressure		0.02	5МРа				
Ambient and fluid temperature	Without auto switch: -10 to +70°C (No freezing)						
Ambient and fluid temperature	With aut	o switch: -10	to +60°C (N	o freezing)			
Allowable leakage		0.5 e/min (A	NR) or less	6			
Lubrication		Non	-lube				
Thread tolerance		JIS c	lass 2				
Stroke tolerance	+1.4						
Cushion		Rubber	bumper				
Piping (Screw-in)	Rc(PT) 1/8 Rc(PT) 1/						

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Long stroke ⁽²⁾ (mm)
20		400
25	25, 50, 75, 100, 125, 150	450
32	200, 250, 300	450
40		500



Note 1) Any intermediate stroke that is not indicated above will be produced on order.

Note 2) The long stroke style is applicable to the axial foot style and the rod side flange style. If other mounting brackets are used or the application exceeds the long stroke limit, the maximum stroke that can be used is determined based on the stroke selection table in technical data.

Note 3) The longer the stroke, the greater the sliding resistance could become, due to the deflection of the piston rod. Therefore, consider installing a guide for such operation.

Note 4) Contact SMC for applications that exceed the stroke ranges shown above. (The maximum manufacturable stroke is 1000mm.)

Minimum Strokes for Auto Switch Mounting

Refer to p.1.4-4 for minimum stroke table.



Low Friction: Double Acting Single Rod Series CM2Q

(ka)

Mounting Accessories

	Accessories		Standard		Option					
Mounting		Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint	Pivot bracket			
Basic		● (1 pc.)	•	_	•	•	_			
Axial foot		• (2)	•	_	•	•	_			
Front flange		• (1)	•	_	•	•	_			
Rear flange		● (1)	•	_	•	•	_			
Integrated clevis		(1)	•	_	•	•	•			
Single clevis		(1)	•	_	•	•	_			
Double clevis		(1)	•	•	•	•	_			
Front trunnion		●(1) ⁽²⁾	•		•	•	_			
Rear trunnion		●(1) ⁽²⁾	•	_	•	•	_			
Boss-cut basic		• (1)	•	_	•	•	_			
Boss-cut flange		• (1)	•	_	•	•	_			
Boss-cut trunnion		• (1)	•	_	•	•	_			
Note						With pins	With pins			



Note 1) Mounting nuts are not attached for the integrated clevis, the single clevis, and the double clevis styles.

Note 2) Trunnion nuts are attached for the front and rear trunnion styles.

Weight

Basic style 0.14 0.21 0.28 0.5											
	Bore size (mm)	20	25	32	40						
	Basic style	0.14	0.21	0.28	0.56						
	Axial foot style	0.29	0.37	0.44	0.83						
	Flange style	0.20	0.30	0.37	0.68						
	Integrated clevis style	0.12	0.19	0.27	0.52						
Basic weight	Single clevis style	0.18	0.25	0.32	0.65						
basic weight	Double clevis style	0.19	0.27	0.33	0.69						
	Trunnion style	0.18	0.28	0.34	0.66						
	Boss-cut basic style	0.13	0.19	0.26	0.53						
	Boss-cut flange style	0.19	0.28	0.35	0.65						
	Boss-cut trunnion style	0.17	0.26	0.32	0.63						
Additio	onal weight by each 50 stroke	0.04	0.06	0.08	0.13						
	Pivot bracket (with pins)	0.07	0.07	0.14	0.14						
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: CM2L32-100

- ●Basic weight: ······· 0.44 (Foot, ø32)
- •Additional weight: ··· 0.08/50 stroke
- •Cylinder stroke: ····· 100 stroke 0.44 + 0.08 X 100/50 = 0.60kg

Mounting Bracket Part No.

Bore size(mm)	20	25	32	40		
Axial foot*	CM-L020B	CM-L	CM-L032B			
Flange	CM-F020B	020B CM-F032B C				
Single clevis	CM-C020B	CM-C	032B	CM-C040B		
Double clevis (with pins)**	CM-D020B	CM-D	032B	CM-D040B		
Trunnion (with nuts)	CM-T020B	CM-T	032B	CM-T040B		

 $[\]ast$ Two foot brackets and a mounting nut are attached.

Auto Switch Mounting Bracket Part No.

														
Auto switch	Bore size (mm)													
model	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										



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

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

C92

CA₁

CS₁

^{**} Clevis pins and snap rings (cotter pins for bore size 40) are attached.

 [&]quot;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 CM2Q

Boss-cut Style

Boss for the head cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of total cylinder length with standard style (mm)

I		- 3-	(IIIIII)
ø20	ø25	ø32	ø40
▲ 13	▲ 13	▲ 13	▲ 16

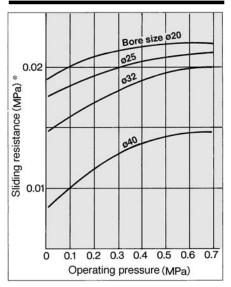
Mounting

■Boss-cut basic (BZ)

■Boss-cut flange (FZ)

■Boss-cut trunnion (UZ)

Sliding Resistance of The Low Friction Side



Conversion into the cylinder operating pressure:

Selecting The Low Friction Direction

To use the air cylinder as a balancer, pressurize it only from one of the ports as shown in the application example, and keep the other port open to the atmosphere.

To operate by applying pressure from the rod cover port:

Low friction direction B <Application example ①>

To operate by applying pressure from the head cover port:

Low friction direction F <Application example ②>

In either case, if the piston rod is moved by an external force, it will

In either case, if the piston rod is moved by an external force, it wil effect low friction operation both in the extending and retracting directions.

Precautions

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

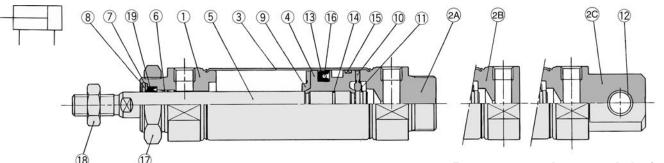
Handling



① In the direction of low friction operation, speed control must be effected through the meter-in system. With meter-out control, the exhaust pressure will increase and create a greater sliding resistance.

Low Friction: Double Acting Single Rod Series CM2Q

Construction



Boss cut

Integrated clevis

Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	White anodized
2A	Head cover A	Aluminum alloy	White anodized (Standard style)
2B	Head cover B	Aluminum alloy	White anodized (Boss-cut style)
20	Head cover C	Aluminum alloy	White anodized (Integrated clevis style)
3	Cylinder tube	Stainless steel	
4	Piston	Aluminum alloy	Chromated
(5)	Piston rod	Carbon steel	Hard chrome plated
6	Bushing	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	

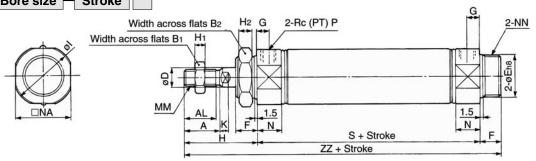
No.	Description	Material	Note
11)	Snap ring	Stainless steel	
12	Bushing for clevis	Oil impregnated sintered alloy	
13	Piston seal	NBR	
14)	Piston gasket	NBR	
15	Wearing	Resin	
16	Back up O ring	NBR	
17	Mounting nut	Carbon steel	Nickel plated
18	Rod end nut	Carbon steel	Nickel plated

Replacement Parts

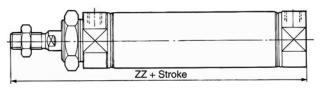
No	Description	Motorial	Bore size(mm)/Part No.								
INO.	Description	Ivialeriai	20 25 32 40								
19	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14LZ					

Basic (B)





Boss cut



																					(mm)
Bore	Stroke range	Α	AL	B1	B ₂	D	E	F	G	Н	H1	H2	_	K	MM	N	NA	NN	Р	S	ZZ
20	1 to 300	18	15.5	13	26	8	20 -0.033	13	8	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	65	119
25	1 to 300	22	19.5	17	32	10	26 _0.033	13	8	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	65	123
32	1 to 300	22	19.5	17	32	12	26 _0.033	13	8	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	67	125
40	1 to 300	24	21	22	41	14	32 _0.039	16	11	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	91	157

25

40

110 112

141

Boss-c	ut	Dimensions for Other Mounting Brackets
Bore	ZZ	Add 3mm to each "ZZ" dimension of the standard style (d
20	106	

d style (double acting/single rod) on p.1.4-10 to 1.4-18.

Auto Switch Position

Add 3mm to each "A" dimension of the standard style (double acting/single rod) on p.1.4-21.

C85 C76

CJ₁

CJP

CJ₂

CM₂

CG₁

MB

MB1

CP95

C95

C92

CA₁

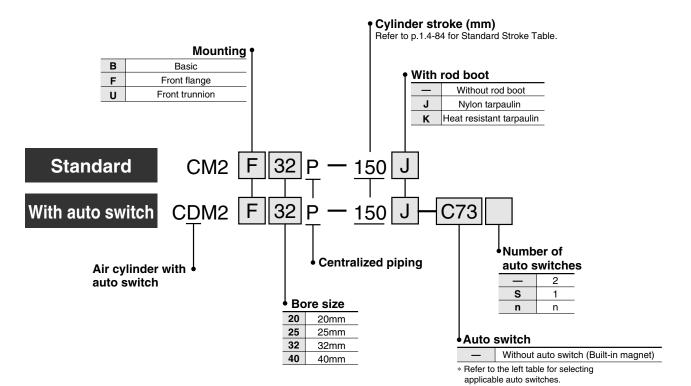
CS₁

Centralized Piping: Double Acting Single Rod

Series CM2

ø20, ø25, ø32, ø40

How to Order



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

			ō			Load v	oltage		Lea	d wir	re* (m)			
Style	Special function	Electrical entry	Indicator	Wiring (Output)		DC	AC	Auto switch model	0.5 (—)	3 (L)		None (N)		icable ad	
			Yes	3 wire (NPN)	_	5V	_	C76	•	•	_	_	IC		
						12V	100V	C73	•	•	•	$\left - \right $		Relay	
두		Grommet	No			5V, 12V	100V or less	C80	•	•	_	_	IC	PLC	
switch			Yes			12V	_	B53	•	•	•			PLC	
9			163	2 wire	24V	12V	100V, 200V	B54	•	•	•				
Reed			No	2 wire	24 V	12V	200V or less	B64	•	•	_			Relay	
Œ		Connector	Yes			12V	—	C73C	•	•	•	•		PLC	
		Connector	No			5V, 12V	24V or less	C80C	•	•	•	•	IC		
	Diagnostic indicator(2 colour)	Grommet	Yes					B59W	•	•	_	-		Relay PLC	
				3 wire(NPN)	5V, 12V	5V 12V	5V 12V		H7A1	•	•	0		IC	
		Grommet		3 wire(PNP)		01, 121		H7A2	•	•	0		10		
당				2 wire			H7B	•	•	0					
switch		Connector						H7C	•	•	•	•			
S	Diagnostic indicator			3 wire(NPN)		5V, 12V		H7NW	•	•	0		IC	Dalass	
state	(2 colour)		Yes	3 wire(PNP)	24V		_	H7PW	•	•	0			Relay PLC	
S C	, ,			2 wire		12V		H7BW	•	•	0				
Solid	Water resistant(2 colour)	Grommet						Н7ВА	_	•	0	-			
	With timer	ļ		3 wire(NPN)				G5NT	_	•	0		IC		
	With diagnostic output(2 colour)			4 wire 5	5V, 12V		H7NF	•	•	0	-				
	Latch with diagnostic output (2 colour)			(NPN)			50, 120		H7LF	•	•	0	-	_	



* 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.

Centralized Piping: Double Acting Single Rod $Series\ CM2\square\ P$

A cylinder in which two piping ports are provided in the head cover, enabling pipes to be connected only in the axial direction.



Specifications

Bore size (mm)	20	25	32	40
Action		Double actino	g/Single rod	
Fluid	Air			
Proof pressure		1.5M	1Pa	
Max. operating pressure	1.0MPa			
Min. operating pressure	0.05MPa			
Ambient and fluid temperature	Without auto switch: -10 to +70°C (No freezing)			
Ambient and haid temperature	With auto switch: -10 to +60°C (No freezing)			
Lubrication		Non-lube		
Thread tolerance		JIS cla	ass 2	
Stroke tolerance		+1. 0	4	
Piston speed		Rubber bumper		
Cushion	50 to 700 mm/s	50 to 650 mm/s	50 to 590 mm/s	50 to 240 mm/s
Allowable kinetic energy	0.27J	0.4J	0.65J	1.2J

Standard Stroke

Bore size (mm)	Standard stroke (mm) ⁽¹⁾	Long stroke ⁽²⁾ (mm)			
20		400			
25	25, 50, 75, 100, 125, 150	450			
32	200, 250, 300	450			
40		500			

Note 1) Other intermediate strokes can be manufactured upon receipt of order.

Note 2) Long stroke applies to the front flange style. If other mounting brackets are used or the application exceeds the long stroke limit, the maximum stroke is determined based on the stroke selection table in technical data.

Mounting Accessories

Accessories	Stan	dard	Option		
Mounting	Mounting nut	Rod end nut	Single knuckle joint	Double knuckle joint (with pins) *	Rod boot
Basic	● (1pc.)	•	•	•	•
Front flange	● (1pc.)	•	•	•	•
Front trunnion	● (1pc.)	•	•	•	•

^{*} Pins and snap rings (cotter pins for ø40) are attached.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Flange	CM-F020B	CM-F032B CM-T032B		CM-F040B
Trunnion (with nuts)	CM-T020B			CM-T032B CM-

Auto Switch Mounting Bracket Part No.

		J			
Auto switch	Bore size (mm)				
model	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	



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.

JIS symbol

Double acting/Single rod



A 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.

CJ₁

CJP

CJ₂

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

C92

CA₁

CS1

Series CM2□P

Rod Boot Materials

Symbol	Material	Max. ambient temperature	
J	Nylon tarpaulin	70°C	
K	Neoprene cloth	110°C*	

 $[\]ast$ Maximum ambient temperature for the gaiter only.

Weight

****	9111				(kg)
	Bore size (mm)	20	25	32	40
ight	Basic	0.14	0.21	0.27	0.58
Basic weight	Front flange	0.20	0.30	0.36	0.70
Bas	Front trunnion	0.18	0.28	0.33	0.68
	ditional weight by each 50 stroke	0.05	0.08	0.10	0.17
Accessory	Single knuckle joint	0.06	0.06	0.06	0.23
Acce	Double knuckle joint (with pins)	0.07	0.07	0.07	0.20

Calculation example: CM2F32P-100

Basic weight : 0.36

Additional weight: 0.10

Cylinder stroke : 100 stroke
0.36+0.10 X 100/50=0.56kg

Copper Free

			. –	
20-CM2	Mounting	Bore size	Р—	Stroke
Τ_ :				

Copper free

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



Specifications

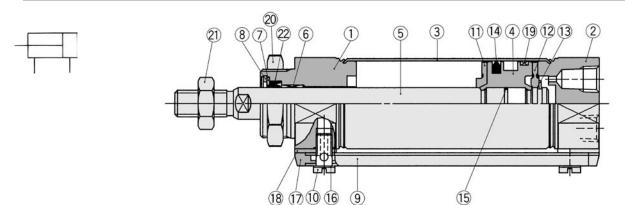
•					
Action		Double acting/Single rod			
Bore size		ø20, ø25, ø32, ø40			
Max. operating press	ure	1.0MPa			
Min. operating pressure		0.05MPa			
	ø20	50 to 700mm/s			
Piston speed	ø25	50 to 650mm/s			
i istori speed	ø32	50 to 590mm/s			
	ø40	50 to 420mm/s			
Mounting		Basic, Front flange, Front trunnion			

^{*} Auto switches can be mounted

1.4-85

Centralized Piping: Double Acting Single Rod $Series\ CM2\square P$

Construction



CJ1

CJP

CJ2

CM₂

C85

C76

CG₁

MB

MB₁

CP95

C95

C92

CA₁

CS₁

Component Parts

I	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	Hard chrome plated	
	6	Bushing	Oil impregnated sintered alloy		
	7	Seal retainer	Rolled steel	Nickel plated	
	8	Snap ring	Carbon steel	Nickel plated	
	9	Pipe	Aluminum alloy	White alumite	
	10	Stud	Brass	Electroless nickel plated	
	11)	Bumper A	Urethane		
	12	Bumper B	Urethane		

No.	Description	Material	Note
13	Snap ring	Stainless steel	
14)	Piston seal	NBR	
15	Piston gasket	NBR	
16	Gasket	Resin	
17	Pipe gasket	Urethane rubber	
18	Spacer gasket	Resin	Except for ø25
19	Wearing	Resin	
20	Mounting nut	Carbon steel	Nickel plated
21)	Rod end nut	Carbon steel	Nickel plated

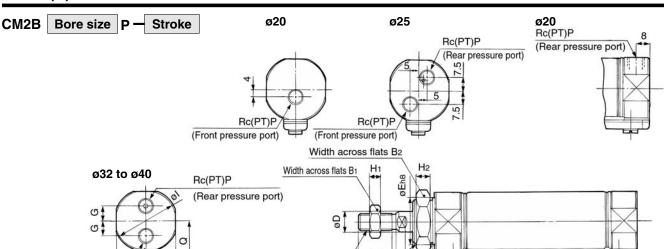
Replacement Parts

Nia	Description	Matarial	Вс	re size(mm	e size(mm)/Part No.		
INO.	Description	iviateriai	20	25	32	40	
22	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14Z	

S + Stroke

ZZ + Stroke

Basic (B)



MM

AL

																						(mm)
Bore size	Α	AL	B1	B ₂	D	Е	F	G	Н	H1	H2	- 1	K	MM	N	NA	NN	Р	Q	QY	S	ZZ
20	18	15.5	13	26	8	20 -0.033	13	_	41	5	8	28	5	M8 X 1.25	15	24	M20 X 1.5	1/8	19.8	14	62	103
25	22	19.5	17	32	10	26 -0.033	13	_	45	6	8	33.5	5.5	M10 X 1.25	15	30	M26 X 1.5	1/8	22	14	62	107
32	22	19.5	17	32	12	26 -0.033	13	9	45	6	8	37.5	5.5	M10 X 1.25	15	34.5	M26 X 1.5	1/8	25.8	16	64	109
40	24	21	22	41	14	32 -0.039	16	10.5	50	8	10	46.5	7	M14 X 1.5	21.5	42.5	M32 X 2	1/4	29.8	16	88	138

Auto Switch Position

Rc(PT)P

(Front pressure port)

Refer to the auto switch position (at stroke end) for standard style (double acting/single rod) on p.1.4-21.

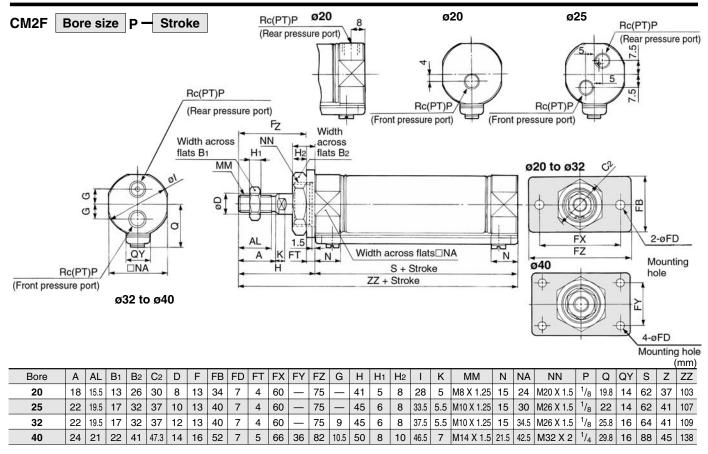
QY

□NA



Series CM2 P

Front Flange (F)



Front Trunnion (U)

