

SMC

Air Cylinder



Reduced weight by changing	Bore size (mm)	New CA2	Reduction rate	(kg) Existing model
the shape of the rod cover	40	0.93	12%	1.06
and head cover.	50	1.31	15%	1.54
	63	1.84	14%	2.15
	80	3.17	11%	3.56
	100	4.29	10%	4.76

* Compared to 50 stroke for each size

environment are u	used.		Creat Hills	an un an El				
Lead free bushing is us sliding material. Compliant with EU RoH directive.	County (0			- Si	es !		lers
		X°.	Pict	on rod lu	urching rea	buood		Air Cylinders
	0	(0) -)	PISL		urching rec	Juceu	Air passage notch	
	Viê			on lurching i			When starting	CJ2
Mounting dimer are the same as	nsions		mini	ne construct mizes resist	tance in)		air Operating	CM2
existing produc			the a	air passage	at startup.		direction	CG1
					Cushion ri	ng FA	Cushion seal	MB
Stroke Variations								CA2
Bore size (mm) 20 50 75	100 125 1	50 175 20		d stroke 00 350 4	400 450 500	600 700	Up to 1800	CQ2 CQS
40								Lube- retainer
50 63				5-5-	5 5 5			JA
80	- <u>-</u>	$\rightarrow \phi \rightarrow \phi$		<u>-</u>	<u>i i i</u>	44		MXH
100	(9-Q-	<u> </u>	-0-0		MXQ
Series Variations		B	ore size (mm)	Variat	ions		MGP
Series	Туре	40 50	63	, 80 100	With rod boot		Page	C
Standard CA	A2-Z Single rod		-	• •		•	Page 755	C⊡X CK⊡1
all and	P							C(L)K
all a	Double rod	9 9	-0-	9 9	-		Page 771	C(L)KU
Non-rotating rod CA	A2K Single rod	-			-	_	Page 779	CKQ
								CKZ2N
	Double rod	9 9			-		Page 783	WRF
With end lock	Single rod	• •		• •	•		Page 787	
Air-hydro CA	Single rod		•	• •	•		Page 793	
	Double rod	• •	•	• •	•	[Page 797	
Smooth Cylinder	A2Y-Z Single rod						CAT.ES20-235	

riction and

* For details about the clean series, refer to the WEB catalog.

Series CA 2

5

No substances hazardous to the

Bore size									Stan	dard st	roke						
(mm)	20	50	75	100	125	150	175	200	250	300	350	400	450	500	600	700	Up to 1800
40		-0-	-0-			-0-	-0-	-0-	-0-					-0-			
50	$ -\phi $	-0-														-	
63	$ -\phi $																
80	$ -\phi $																
100			-\$-	-\$-		-\$-	-\$-	-\$-	-\$-	- \$ -	-\$-	-\$-	-\$-		-\$-		

Series		Tumo		Boi	re size (r	Varia	Pa			
Series		Туре	40	50	63	80	100	With rod boot	Water resistant	Pa
Standard	CA2-Z	Single rod	•	•	•	•	•	-		Page
a fil		Double rod	•	•	•	•	•	•		Page
Non-rotating rod	CA2K	Single rod	•	•	•	_	-			Page
the star	4	Double rod	•	•	•	_	+	•		Page
With end lock	CBA2	Single rod	•	•	•	•	•	•		Page
Air-hydro	CA2⊟H	Single rod	•	•	•	•	•	•		Page
	4	Double rod	•	-	•	•	•	-		Page
Smooth Cylinder	CA2Y-Z	Single rod	•	•	•	•	•			CAT.ES
Low friction	CA2⊡Q							S CA2Y " to re CAT.ES20-235"	ealize both-direc catalog.)	ction low fr

INDEX

Series CA2

							· · · · · · · · · · · · · · · · · · ·
● : Standard		Series		A2 ard type)	(Non-rotati	2K Note 4) ng rod type)	
© : Made to Order		Action/		Double	acting		
 Special product (Ple Not available 	ease contact SMC for details.)	Туре	Single rod	Double rod	Single rod	Double rod	
		Page	Page 755	Page 771	Page 779	Page 783	
Symbol	Specifications	Applicable bore size		-	_		
Standard	Standard		•	•	•		
CDA2-□Z	Built-in magnet		•	•	•	•	
Long st	Long stroke	ø40 to ø100	•	•	0	0	
CA2□-□JZ	With rod boot (Nylon tarpaulin)		•	•	•	•	
CA2□-□KZ	With rod boot (Heat resistant tarpaulin)		•	•	•	•	
10-, 11-	Clean series Note 4)	ø40 to ø63	•	0	_	_	
25A-	Copper (Cu) and Zinc (Zn)-free Note 1)	- 10 1 100	•	0	_	_	
20-	Copper Note 2) and Fluorine-free	ø40 to ø100	•	•	•	•	
CA2⊡R	Water resistant (NBR seal)		•	0	_	_	
CA2⊡V	Water resistant (FKM seal)	ø40 to ø100	•	0	_	_	
CA2⊡M	Cylinder with stable lubrication function (Lube-retainer)		•	0	_	_	
XA	Change of rod end shape		0	0	0	0	
XB5	Oversized rod cylinder Note 4)		0	0	_	_	
XB6	Heat resistant cylinder (-10 to 150°C)		0	0	_	_	
XC3	Special port location Note 4)		0	0	0	0	
XC4	With heavy duty scraper		0	0	_	_	
XC5	Heat resistant cylinder (-10 to 110°C)		0	0	_	_	
XC6	Made of stainless steel Note 4)		_	_	_	_	
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel		0	0	0	O	
XC8	Adjustable stroke cylinder/Adjustable extension type		0	_	0	0	
XC9	Adjustable stroke cylinder/Adjustable retraction type		0	_	0	_	
XC10	Dual stroke cylinder/Double rod type		0	_	0	_	
XC11	Dual stroke cylinder/Single rod type	- 10 1 102	0	0	0	_	
XC12	Tandem cylinder	ø40 to ø100	0	0	0	_	
XC14	Change of trunnion bracket mounting position		0	0	0	0	
XC15	Change of tie-rod length		0	0	0	0	
XC22	Fluororubber seal		0	0	—	_	
XC27	Double clevis and double knuckle joint pins made of stainless steel		0	_	0	_	
XC28	Compact flange made of SS400		0	0	0	0	
XC29	Double knuckle joint with spring pin		0	0	0	0	
XC30	Rod trunnion		0	0	0	0	
XC35	With coil scraper		Õ	0	_	_	
XC65	Made of stainless steel (Combination of XC7 and XC68)		Õ	Õ	_	_	
XC68	Made of stainless steel (with hard chrome plated piston rod)		0	0	_	_	
XC85	Grease for food processing equipment		0	0	0	0	
X1184	Cylinder with heat resistant reed auto switch (-10 to 120°C)		Ō	Õ	_	_	

Note 1) For details, refer to the **WEB catalog.** Note 2) Copper-free for the externally exposed part Note 3) For details about the smooth cylinder, refer to the **WEB catalog** or "CAT.ES20-235" catalog.

Note 4) The cover shape is the same as the existing product.

realize b	oth-direction low	v friction and low og or "CAT.ES2	-speed operatio	n. 🔫	
CBA2 Note 4) (With end lock)	CA2□ (Air-hyd		CA2Y (Smooth Cylinder)	CA2 Q Note 4) (Low friction type)	
		Double acting	J		
Single rod	Single rod	Double rod	Single rod	Single rod	
Page 787	Page 793	Page 797	_	Page 801	
		_			Symbol
	•	•	•		Standard
•	•	•	•	•	CDA2-□Z
		•	0	0	Long st
•	•	•	0	0	CA2□-□JZ
•	•	•	0	0	CA2□-□KZ
Note 5)	_	—	_	—	10-, 11-
_	_	—	0	_	25A-
•	0	0	_	—	20-
Note 5)	0	0	_	_	CA2⊟R
Note 5)	0	0	_	_	CA2⊡V
_	_	_	_	_	CA2⊡M
0	0	0	0	0	XA
0	0	0	_	_	XB5
0	_	—	_	_	XB6
0	0	0	_	ONote 8)	XC3
ONote 5)	Note 7)	ONote 7)	_	_	XC4
0	_	_	_	_	XC5
ONote 5)	0	0	_	0	XC6
0	0	0	0	0	XC7
ONote 5)	0	_	0	0	XC8
ONote 6)	0	_	0	0	XC9
0	0	_	0	0	XC10
0	0	0	0	0	XC11
0	0	0	—	_	XC12
O	0	0	0	0	XC14
0	0	0	0	0	XC15
0	0	0	—	_	XC22
0	0	_	0	O	XC27
0	0	0	0	0	XC28
0	0	0	Õ	Õ	XC29
_	0	0	Ő	Ő	XC30
0	0	0	_	_	XC35
0	0	0	0	0	XC65
_	_	_	0	_	XC68
0	_	_	_	_	XC85
0	_	_	_	_	X1184
 				۸	

Use the new series "Smooth Cylinder Series CA2Y" to

Air Cylinders
CJ2
CM2
CG1
MB
CA2
CQ2 CQS
Lube- retainer
JA
MXH
MXQ
MGP
C□Y C□X
CK□1
C(L)K 🗆
C(L)KU
CKQ
CKZ2N

 Note 5)
 Available only for locking at head end.

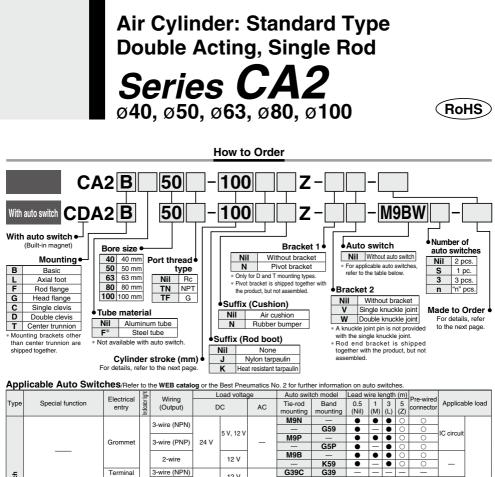
 Note 6)
 Available only for locking at rod end.

 Note 7)
 Standard for the air-hydro type

 Note 8)
 Series CA2⊡Q has no cushion. Only XC3BC, XC3CD and XC3DA are available.

INDEX

WRF



		entry	lg.	(Output)	L		AC	mounting	mounting	(Nil)	(M)	(L)	(Z)	connector		
				0				M9N	-	•	•	•	0	0		
				3-wire (NPN)		EV 10.1		—	G59	•	-	٠	0	0	IC circuit	
		<u> </u>			~ ~ ~ ~	5 V, 12 V		M9P	_	•	•	٠	0	0	IC circuit	
		Grommet		3-wire (PNP)	24 V		_	_	G5P	•	-	•	0	0		
				0		12 V		M9B	_	•	•	٠	0	0		1
				2-wire		12 V		—	K59	•	-	٠	0	0	_	
£		Terminal	1	3-wire (NPN)		12 V		G39C	G39	_	-	—	-	-		
Solid state auto switch		conduit		2-wire		12 V		K39C	K39	—	-	_	-	-		1
sv			1	0			1	M9NW	_	•	•	٠	0	0		
ę				3-wire (NPN)		5 V. 12 V		_	G59W	•	-	٠	0	0	IC circuit	
al	Diagnostic indication		Yes	O united (DNID)		5 V, 12 V		M9PW	_	•	٠	٠	0	0		Relay, PLC
ate	(2-color indication)			3-wire (PNP)				—	G5PW	•	-	٠	0	0		PLC
st				a		12 V	1	M9BW	_	•	•	•	0	0		1
Pilo I				2-wire	24 V	12 V	_	_	K59W	•	-	•	0	0		
ŭ		Grommet		3-wire (NPN)		5 V 40 V	1	M9NA**	_	0	0	٠	0	0		
	Water resistant			3-wire (PNP)		5 V, 12 V		M9PA**	_	0	0	•	0	0	_	
	(2-color indication)			0		12 V	1	M9BA**	_	0	0	٠	0	0		
				2-wire		12 V		—	G5BA**	_	-	٠	0	0		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V	1	F59F	G59F	•	-	•	0	0	IC circuit	1
	Magnetic field resistant			2-wire			1	P3DW	_	•	-	•	•	0		1
	(2-color indication)			(Non-polar)		-		P4DW	_	—	-	٠	•	0	_	
			Yes	3-wire (NPN equivalent)	_	5 V	_	A96	_	•	-	•	-	-	IC circuit	-
£			res				100 V	A93	_	•	-	٠	•	_	_	
j;		Grommet	No				100 V or less	A90	_	•	-	٠	—	_	IC circuit	Dalas
sv			Yes				100 V, 200 V	A54	B54	•	-	•	•	-		Relay, PLC
ę			No	0	04.14	12 V	200 V or less	A64	B64	•	-	•	—	-		
Reed auto switch		Terminal		2-wire	24 V		—	A33C	A33	—	1-	_	—	-		
eed		conduit					100 1/ 000 1/	A34C	A34	_	-	—	—	-	_	PLC
ŭ		DIN terminal	Yes				100 V, 200 V	A44C	A44	—	-	_	-	-		Relay,
	Diagnostic indication (2-color indication)	Grommet	1			_	_	A59W	B59W	•	-	•	—	_		PLC

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

A water-resistant type cylinder is recommended for use in an environment which requires water resistance. * Solid state auto switches marked with "O" are produced upon receipt of order.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW

- 1 m----- M (Example) M9NWM
 - 3 m······ L (Example) M9NWL

5 m······ Z (Example) M9NWZ

* Since there are other applicable auto switches than listed above, refer to page 808 for details

For details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2. For the D-P3DW□, refer to the WEB catalog or the Best Pneumatics No. 2.

* The D-A9□/M9□□□/P3DW□ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□□ before shipment.)

SMC



Symbol

Made to



der Made to Order

0jue.	(For details, refer to pages 811 to 828.)
Symbol	Specifications
-XA🗆	Change of rod end shape
-XB5	Oversized rod cylinder*
-XB6	Heat resistant cylinder (-10 to 150°C)
-XC3	Special port location*
-XC4	With heavy duty scraper
-XC5	Heat resistant cylinder (-10 to 110°C)
-XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC11	Dual stroke cylinder/Single rod type
-XC12	Tandem cylinder
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length
-XC22	Fluororubber seal
-XC27	Double clevis and double knuckle joint pins made of stainless steel
-XC28	Compact flange made of SS400
-XC29	Double knuckle joint with spring pin
-XC30	Rod trunnion
-XC35	With coil scraper
-XC65	Made of stainless steel (Combination of XC7 and XC68)
-XC68	Made of stainless steel (with hard chrome plated piston rod)
-XC85	Grease for food processing equipment
-X1184	Cylinder with heat resistant reed auto switch (-10 to 120°C)
For spec	al port location (-XC3), the mounting bracket

For special port location (-XC3), the mounting bracket and port location can be determined using the standard product corresponding to the operating conditions.

For made of stainless steel (-XC6), use made of stainless steel (with hard chrome plated piston rod) (-XC68) that the surface treatment is performed on the piston rod with the same specifications.

* The cover shape is the same as the existing product.

Refer to pages 802 to 808 for cylinders with auto switches

- · Auto switch proper mounting position (detection at stroke end) and its mounting height
- · Operating range
- · Minimum stroke for auto switch mounting
- · Auto switch mounting brackets/Part no.

Specifications

Fluid Action			50	63	80	100			
				Air					
			[Double actin	g				
Proof pressure				1.5 MPa					
Maximum operating	g pressure			1.0 MPa					
Ambient and fluid t	emperature	Without auto switch: -10 to 70°C*1 With auto switch :-10 to 60°C*1							
Minimum operating	pressure	0.05 MPa							
Piston speed		5	0 to 500 mm	i/s					
Cushion				on or Rubbe					
Stroke length tolera	ance	Up to 250 st: +1.	0 251 to 1000 st	: +1.4 0 1001 to 1	500 st: +1.8 150	1 to 1800 st: +2.2			
Lubrication			Not re	equired (Nor	n-lube)				
Mounting		c, Foot, Rod le clevis, Do		d flange Center trunni	on				
Allowable Air	When activated	ed 2.8 4.6 7.8 16 29							
kinetic cushion	When not activated	ated 0.33 0.56 0.91 1.5 2.68							
energy (J)*2 Rubb	er bumper	1.8	3.6	6.0	12.0	12.0			

*2 Activate the air cushion when operating the cylinder. If this is not done, the piston rod assembly or the tie-rods will be damaged when the allowable kinetic energy exceeds the values shown in the above table.

Standard Strokes

∕∆Ca	aution			C
	Minimum Stroke for Auto Swit	ch Mounting	3	C
Note 2) App Sele that Note 3) Plea	licable strokes should be confirmed according to the usage, ction ² on front matter pages of the Best Pneumatics No. 2 or exceed the stroker ange () might no the able to tullill the speed use consult with SMC for manufacturability and the part numt stroke range with rod boot is 20 to 1800 mm. Please consult w	. For details, refer to the WEB catalog. In cifications due to the d bers when exceeding	"Air Cylinders Model addition, the products leflection etc. the stroke range ②.	
Note 1) Inte	350, 400, 450, 500, 600, 700 prmediate strokes not listed above are produced up	on receipt of orde] r.	N
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300,	1		Ν
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	Up to 1800	Up to 2700	F
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500			
Bore size	Stroke range ①	Stroke range ②	stroke	J
_	Standard stroke Note 1)		(mm) Max. manufacturable	re

The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention. (For details, refer to pages 806 and 807.)

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature							
J	Nylon tarpaulin	70°C							
к	Heat resistant tarpaulin	110°C*							
K Heat resistant tarpaulin 110°C*									

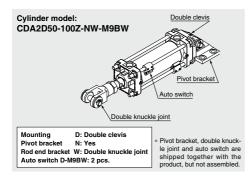
* Maximum ambient temperature for the rod boot

Accessories

	Mounting	Basic	Axial foot	Rod flange	Head flange	Single clevis	Double clevis	Center trunnion
Standard	Rod end nut	•	•	•	•	•	•	•
Stanuaru	Clevis pin	_	-	_	-	_	•	_
	Single knuckle joint	•	•	•	•	•	•	•
Option	Double knuckle joint (with pin)	•	•	•	•	•	•	•
	With rod boot	•	•	•	•	•	•	•
								756

AIr Cylinders J2 M2 G1 МB CA2 CQ2 čQS ıbetainer A /IXH ЛXQ /IGP]Y X K🗆 1 (L)K 🗆 (L)KU CKQ CKZ2N WRF

Ordering Example of Cylinder Assembly



Weights/Aluminum Tube (Steel Tube)

							(kg)
Bore	size (mm)		40	50	63	80	100
	Desis	Aluminum tube	0.73	1.06	1.53	2.73	3.71
	Basic	Steel tube	0.78	1.12	1.62	2.91	3.98
	Axial foot	Aluminum tube	0.91	1.25	1.83	3.40	4.64
	AXIAI 1001	Steel tube	0.96	1.31	1.92	3.58	4.91
	Flance	Aluminum tube	1.09	1.48	2.28	4.18	5.57
Dooio woight	Flange	Steel tube	1.14	1.54	2.37	4.36	5.84
Basic weight	Single	Aluminum tube	0.95	1.37	2.12	3.84	5.43
	clevis	Steel tube	1.00	1.43	2.21	4.02	5.70
	Double	Aluminum tube	0.99	1.46	2.28	4.13	5.95
	clevis	Steel tube	1.04	1.52	2.37	4.31	6.22
	Trunnion	Aluminum tube	1.08	1.51	2.29	4.28	5.93
	Trunnion	Steel tube	1.13	1.57	2.38	4.46	6.20
Additional weight	All mounting	Aluminum tube	0.20	0.25	0.31	0.46	0.58
per 50 mm of stroke	brackets	Steel tube	0.28	0.35	0.43	0.7	0.87
Accessories	Single knu	ickle	0.23	0.26	0.26	0.60	0.83
Accessories	Double knue	kle (with pin)	0.37	0.43	0.43	0.87	1.27
Calculation:		• Ba	sic we	ght	0.	91 kg	

Calculation: Example) CA2L40-100Z

(Axial foot, ø40, 100 stroke)

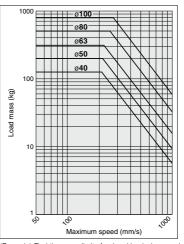
Mounting Brackets/Part No.

Bore size (mm)	40	50	63	80	100
Axial foot*	CA2-L04	CA2-L05	CA2-L06	CA2-L08	CA2-L10
Flange	CA2-F04	CA2-F05	CA2-F06	CA2-F08	CA2-F10
Single clevis	CA2-C04	CA2-C05	CA2-C06	CA2-C08	CA2-C10
Double clevis**	CA2-D04	CA2-D05	CA2-D06	CA2-D08	CA2-D10

* When axial foot brackets are used, order two pieces per cylinder.

** A clevis pin, flat washers and split pins are shipped together with double clevis.

Allowable Kinetic Energy

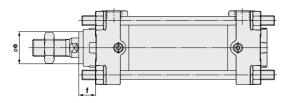


(Example) Find the upper limit of rod end load when an air cylinder of ø63 is operated at 500 mm/s. From a point indicating 500 mm/s on the axis of abscissas, extend a line upward and find a point where it intersects with a line for the 63 mm bore size. Extend a line from the intersection to the left and find a load mass 60 kg.

Basic weight
 Additional weight

Additional weight....0.20/50 stroke
 Cylinder stroke100 stroke
 0.91 + 0.20 x 100/50 = 1.31 kg

Water Resistant Suffix Z – M9 A(V)L -XC68 CDA2 Mounting style Bore size Port thread type Stroke R Air Cylinders With auto switch Water resistant Made to Order (Built-in magnet) 2-color indication Water resistant air cylinder solid state auto switch R NBR seal (Nitrile rubber) v FKM seal (Fluororubber) Dimensions Specifications Action Double acting, Single rod CJ2 * The dimensions are the same as the standard Bore size (mm) 40, 50, 63, 80, 100 Cushion Air cushion double acting, single rod type. Refer to page 760 CM2 Auto switch mounting Tie-rod mounting for details. XC68: Made of stainless steel Made to Order CG1 (with hard chrome plated piston rod) * Specifications other than the above are the same as the standard basic type. MB Note 1) Excluding the air-hydro type and the type with a rod boot of the CA2 series. Note 2) Combination of auto switches and steel tube is not available. CA2 For details, refer to the WEB catalog or the Best Pneumatics No. 2. CQ2 COS Cylinder with Stable Lubrication Function (Lube-retainer) Luberetaine CDA2 Mounting style Bore size M - Stroke Z Pivot bracket Rod end bracket Auto switch JA D: Available only for with auto switch. With auto switch Cylinder with Stable Lubrication Function (Lube-retainer) MXH (Built-in magnet) MXO MGP C Y C CK 1 Specifications Bore size (mm) 40, 50, 63, 80, 100 C(L)K Action Double acting, Single rod Minimum operating pressure 0.1 MPa C(L)KU Piston speed 50 to 500 mm/s Cushion Air cushion CKO * Specifications other than the above are the same as the standard type. CKZ2N Dimensions (Dimensions other than those shown below are the same as the standard type.) WRF

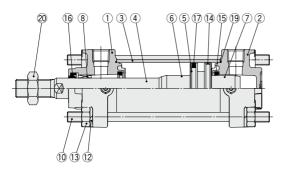


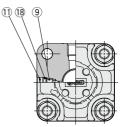
		(mm)
Bore size	øe	f
40	26	13.5
50	30	12.5
63	30	12.5
80	36	16.5
100	42	16

* The mounting dimensions of the mounting bracket are the same as the standard type.

For details, refer to the WEB catalog.

Construction





Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum die-casted	Trivalent chromated
2	Head cover	Aluminum die-casted	Trivalent chromated
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston rod	Carbon steel	Hard chrome plating
5	Piston	Aluminum alloy	
6	Cushion ring	Aluminum alloy	Anodized
7	Cushion ring B	Aluminum alloy	Anodized
8	Bushing	Bearing alloy	
9	Cushion valve	Steel wire	Trivalent zinc chromated
10	Tie-rod	Carbon steel	Trivalent zinc chromated
11	Retaining ring	Spring steel	Phosphate coating
12	Spring washer	Steel wire	Trivalent zinc chromated
13	Tie-rod nut	Rolled steel	Trivalent zinc chromated
14	Wear ring	Resin	
15	Cushion seal	Urethane	
16	Rod seal	NBR	
17	Piston seal	NBR	
18	Cushion valve seal	NBR	
19	Cylinder tube gasket	NBR	
20	Rod end nut	Rolled steel	Trivalent zinc chromated

Replacement Parts: Seal Kit

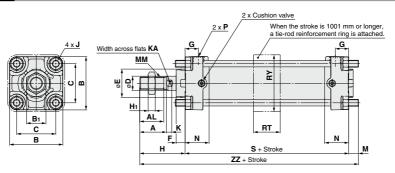
Kit no.	Contents
CA2-40Z-PS	
CA2-50Z-PS	
CA2-63Z-PS	Set of the nos. (15, (16, (17), (19)
CA2-80Z-PS	
CA2-100Z-PS	
	CA2-402-PS CA2-502-PS CA2-632-PS CA2-632-PS CA2-802-PS

* Seal kit includes (5, (6, (7), (9). Order the seal kit based on each bore size.

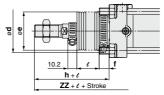
Do not disassemble the trunnion type. Refer to page 829.
Seal kit includes a grease pack (ø40, ø50: 10 g, ø63, ø80: 20 g, ø100: 30 g).

Seal kit includes a grease pack (ø40, ø50: 10 g, ø63, ø80: 20 g, ø100: 30 g).
 Order with the following part number when only the grease pack is needed.
 Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

Basic: CA2B



With rod boot



																	(11111)	
Bore size	Α	AL	в	Bı	с	D	Е	F	G	Hı			к	КА	I	Λ	ММ	C□Y C□X
(mm)	<u> </u>				v		-	•	u u		<u>ا</u> ۱	,	I.		Without reinforcement ring	With reinforcement ring	IVIIVI	
40	30	27	60	22	44	16	32	10	15	8	M8 x	1.25	6	14	11	11	M14 x 1.5	CK 🗆 1
50	35	32	70	27	52	20	40	10	17	11	M8 x	1.25	7	18	11	12	M18 x 1.5	
63	35	32	85	27	64	20	40	10	17	11	M10 >	< 1.25	7	18	14	15	M18 x 1.5	
80	40	37	102	32	78	25	52	14	21	13	M12 >	(1.75	10	22	17	19	M22 x 1.5	C(L)K□
100	40	37	116	41	92	30	52	14	21	16	M12 >	< 1.75	10	26	17	19	M26 x 1.5	A // 1///
																		1.1.1.1.1.1.1
							With	out rod	boot						With rod boot			C(L)KU
Bore size	N	Р	BT	BY	s		With	out rod Z	boot Z						With rod boot	z	Z	
Bore size (mm)	N	Р	RT	RY	s	н	Without reinfo	Z	Z	cement ring	d	е	f	h	With rod boot			CKQ
	N	P	RT 30	RY	S 84	H 51		Z rcement ring	Z With reinfor	rcement ring 46	d 56	e 43	f 11.2	h 59		Z		CKQ
(mm)							Without reinfo	Z rcement ring 16	Z With reinfor 14		-	-	f 11.2 11.2		l	Z Without reinforcement ring	With reinforcement ring	
(mm) 40	27	1/4	30	64	84	51	Without reinfo 14	Z rcement ring 16 59	Z With reinfor 14	46 60	56	43		59	l 1/4 stroke	Z Without reinforcement ring 154	With reinforcement ring 154	CKQ CKZ2N
(mm) 40 50	27 30	1/4 3/8	30 30	64 76	84 90	51 58	Without reinfo 14 15	Z rcement ring 16 19 70	Z With reinfor 14 16	46 60	56 64	43 52	11.2	59 66	l 1/4 stroke 1/4 stroke	Z Without reinforcement ring 154 167	With reinforcement ring 154 168	CKQ

Note 1) When a flange bracket is mounted on the head cover side of the basic type with bore size of ø50 to ø100 and stroke of 1001 mm or more, it is necessary to loosen the tie-rod to adjust the M dimension. When head flange type is ordered, adjustment is not necessary.

Note 2) For models with bore size of ø50 to ø100 and stroke of 1001 mm or more, do not mount a flange bracket on the rod cover side of the basic type since H dimension is different from those shown above. When rod flange type is used, order with the part number with bracket.

Air Cylinders

CJ2

CM2

CG1

MB

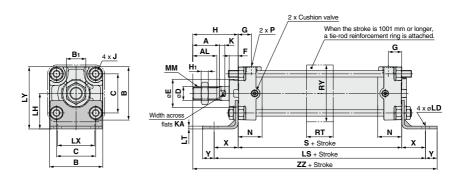
CA2 CQ2 CQS

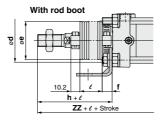
Luberetainer JA

MXH

MXQ (mm)

Axial Foot: CA2L



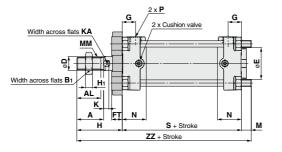


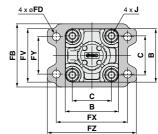
Bore size Α AL в B1 С D Е F G Ηı J κ KA LD LH LS LT LX LY (mm) M8 x 1.25 M8 x 1.25 3.2 M10 x 1.25 11.5 3.2 M12 x 1.75 13.5 4.5 M12 x 1.75 13.5 Bore size Without rod boot With rod boot RY MM Ν Р s Х Υ RT (mm) н ΖZ d е f h ΖZ l M14 x 1.5 1/4 11.2 1/4 stroke M18 x 1.5 3/8 11.2 1/4 stroke M18 x 1.5 3/8 11.2 1/4 stroke M22 x 1.5 1/2 12.5 1/4 stroke M26 x 1.5 14.0 1/4 stroke 1/2

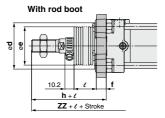
(mm)

Rod Flange: CA2F

Stroke of 1000 mm or less







												r							(mm)	C□Y C□X
Bore size (mm)	Α	AL	в	B1	С	D	Е	FB	FD	FT	FV	FX	FY	FZ	G	H1	J	к	KA	CK 🗆 1
40	30	27	60	22	44	16	32	71	9	12	60	80	42	100	15	8	M8 x 1.25	6	14	••••
50	35	32	70	27	52	20	40	81	9	12	70	90	50	110	17	11	M8 x 1.25	7	18	C(L)K□
63	35	32	85	27	64	20	40	101	11.5	15	86	105	59	130	17	11	M10 x 1.25	7	18	0(1)11
80	40	37	102	32	78	25	52	119	13.5	18	102	130	76	160	21	13	M12 x 1.75	10	22	0/11/11
100	40	37	116	41	92	30	52	133	13.5	18	116	150	92	180	21	16	M12 x 1.75	10	26	C(L)KU
Bore size					_	-	Without	rod boot	1		Wit	h rod b	oot			★F	or installing a	n air c	ylinder,	CKQ
(mm)	M	M	M	N	Р	S	Н	ZZ	*d	е	f	h		!	ZZ					UNŲ
40	11	M14	x 1.5	27	1/4	84	51	146	52	43	15	59	1/4 s	troke	154					CKZ2N
50	11	M18	x 1.5	30	3/8	90	58	159	58	52	15	66	1/4 s	troke	167				e outer	UNLLIN
63	14	M18	x 1.5	31	3/8	98	58	170	58	52	17.5	66	1/4 s	troke	178					WDE
80	17	M22	x 1.5	37	1/2	116	71	204	80	65	21.5	80	1/4 s	troke	213	b	racket ød.			WRF
100	17	M26	x 1.5	40	1/2	126	72	215	80	65	21.5	81	1/4 s	troke	224					·
	40 50 63 80 100 Bore size (mm) 40 50 63 80	(mm) A 40 30 50 35 63 35 80 40 100 40 Bore size (mm) M 40 11 50 11 63 14 80 17	(mm) A AL 40 30 27 50 35 32 63 35 32 80 40 37 100 40 37 Bore size (mm) M M 40 11 M14 50 11 M18 63 14 M18 80 17 M22	(mm) A AL B 40 30 27 60 50 35 32 70 63 35 32 85 80 40 37 102 100 40 37 116 Bore size (mm) M MM 40 11 M14 × 1.5 50 11 M18 × 1.5 63 14 M18 × 1.5 80 17 M22 × 1.5	(mm) A AL B B1 40 30 27 60 22 50 35 32 70 27 63 35 32 85 27 80 40 37 102 32 100 40 37 116 41 Bore size (mm) M MM N N 40 11 M14 × 1.5 27 50 11 M18 × 1.5 30 63 14 M18 × 1.5 37	(mm) A AL B B C 40 30 27 60 22 44 50 35 32 70 27 52 63 35 32 70 27 64 80 40 37 102 32 78 100 40 37 116 41 92 Bore size (mm) M MM N P 40 11 M14 x 1.5 27 1/4 50 11 M18 x 1.5 30 3/8 63 14 M18 x 1.5 31 3/8 80 17 M22 x 1.5 37 1/2	(mm) A AL B B1 C D 40 30 27 60 22 44 16 50 35 32 70 27 52 20 63 35 32 70 27 64 20 80 40 37 102 32 78 25 100 40 37 116 41 92 30 Bore size (mm) M MM N P S 40 11 M14 × 1.5 27 1/4 84 50 11 M18 × 1.5 30 3/8 90 63 14 M18 × 1.5 37 1/2 11	(mm) A AL B B1 C D E 40 30 27 60 22 44 16 32 50 35 32 70 27 52 20 40 63 35 32 70 27 64 20 40 80 40 37 102 32 78 25 52 100 40 37 116 41 92 30 52 Bore size (mm) M MM N P S Mithout H 40 11 M14 x 1.5 27 1/4 84 51 50 11 M18 x 1.5 30 3/8 90 58 63 14 M182 x 1.5 37 1/2 1/8 98	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	(mm) A AL B B1 C D E FB FD 40 30 27 60 22 44 16 32 71 9 50 35 32 70 27 52 20 40 81 9 63 35 32 70 27 64 20 40 101 11.5 80 40 37 102 32 78 25 52 119 13.5 100 40 37 102 32 78 25 52 113 13.5 Bore size (mm) M M P P Witture Witture 2 30 52 133 13.5 50 11 M14 × 1.5 27 1/4 84 51 146 52 50 11 M18 × 1.5 30 3/8 90 58 158 58 63	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	(mm) A AL B Bi C D E PB PI PI PV PX PY PZ G H1 J 40 30 27 60 22 44 16 32 71 9 12 60 80 42 100 15 8 M8x1.25 50 35 32 70 27 52 20 40 81 9 12 60 80 42 100 15 8 M8x1.25 63 35 32 70 27 64 20 40 101 11.5 15 86 105 59 130 17 11 M10x1.25 80 40 37 102 32 78 25 52 119 13.5 18 102 130 16 M12x1.75 100 40 37 116 41 92 30 52 <td< td=""><td>(mm) A AL B Bit C D E FB FD F1 FV FX FY FZ G H1 J K 40 30 27 60 22 44 16 32 71 9 12 60 80 42 100 15 8 M8 x1.25 6 50 35 32 70 27 52 20 40 81 9 12 70 90 50 101 17 11 M8 x1.25 7 63 35 32 76 64 20 40 101 11.5 15 86 105 59 130 17 11 M10.x1.25 7 80 40 37 102 32 78 25 52 119 13.5 18 16 150 92 180 21 16 M12 x1.75 10 M12 x1.75 10</td><td>Bore size (mm) A AL B Bi C D E FB FD FT FV FX FY FZ G Hi J K K K 40 30 27 60 22 44 16 32 71 9 12 60 80 42 100 15 8 M8 x1.25 6 14 50 35 32 70 27 52 20 40 81 9 12 70 90 50 110 17 11 M8 x1.25 7 18 63 35 32 85 27 64 20 40 101 11.5 15 86 105 59 130 17 11 M10 x1.25 7 18 80 40 37 116 41 9 30 52 133 13.5 18 116 150 92 180 <td< td=""></td<></td></td<>	(mm) A AL B Bit C D E FB FD F1 FV FX FY FZ G H1 J K 40 30 27 60 22 44 16 32 71 9 12 60 80 42 100 15 8 M8 x1.25 6 50 35 32 70 27 52 20 40 81 9 12 70 90 50 101 17 11 M8 x1.25 7 63 35 32 76 64 20 40 101 11.5 15 86 105 59 130 17 11 M10.x1.25 7 80 40 37 102 32 78 25 52 119 13.5 18 16 150 92 180 21 16 M12 x1.75 10 M12 x1.75 10	Bore size (mm) A AL B Bi C D E FB FD FT FV FX FY FZ G Hi J K K K 40 30 27 60 22 44 16 32 71 9 12 60 80 42 100 15 8 M8 x1.25 6 14 50 35 32 70 27 52 20 40 81 9 12 70 90 50 110 17 11 M8 x1.25 7 18 63 35 32 85 27 64 20 40 101 11.5 15 86 105 59 130 17 11 M10 x1.25 7 18 80 40 37 116 41 9 30 52 133 13.5 18 116 150 92 180 <td< td=""></td<>

Air Cylinders

CJ2

CM2

CG1

MB

CA2 CQ2 CQS

Luberetainer JA

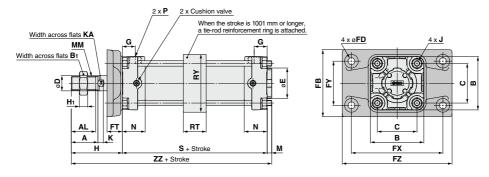
MXH

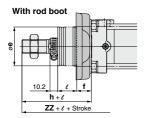
MXQ MGP

Series CA2

Rod Flange: CA2F

Stroke of 1001 mm or more





ММ

M14 x 1.5

M18 x 1.5

M18 x 1.5

M22 x 1.5

M26 x 1.5

(mm)

40

50

63

80

100

Ν Р RT RY s

27 1/4 30 64 84 51 146 52 19 66

30

31 3/8 40 92 98 71 179 52 19 66

37 1/2 45 112 116 87 215 65 21 80

40 1/2

																			(mm)
Bore size (mm)	A	AL	в	B1	с	D	Е	FB	FD	FT	FX	FY	FZ	G	H1	J	к	KA	м
40	30	27	60	22	44	16	32	71	9	12	80	42	100	15	8	M8 x 1.25	6	14	11
50	35	32	70	27	52	20	40	88	9	20	120	58	144	17	11	M8 x 1.25	7	18	6
63	35	32	85	27	64	20	40	105	11.5	23	140	64	170	17	11	M10 x 1.25	7	18	10
80	40	37	102	32	78	25	52	124	13.5	28	164	84	198	21	13	M12 x 1.75	10	22	12
100	40	37	116	41	92	30	52	140	13.5	29	180	100	220	21	16	M12 x 1.75	10	26	12
Bore size		N/1	N	в	рт	DV	e	Without	Vithout rod boot With rod boot							★For insta			

163

52 19 66

or installing an air cylinder. when a hole must be made to accommodate the rod portion, make sure to machine a hole that is larger than the outer diameter of the boot øe.

ZZ

162

162

174

208

219

l

1/4 stroke

1/4 stroke

1/4 stroke

1/4 stroke

1/4 stroke

50 Note 1) For flange type with bore size of ø40, the same flange bracket is used for all strokes

30 76 90 67

> 136 126 89 227 65 21 81

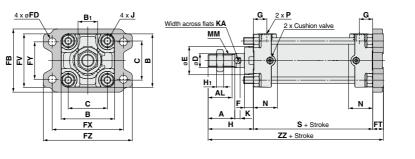
3/8

Note 2) For models with bore size of ø50 to ø100 and stroke of 1001 mm or more, do not mount a flange bracket on the rod cover side of the basic type since H dimension is different from those shown above. When rod flange type is used, order with the part number with bracket.

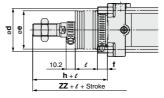
н ΖZ *e f h

Head Flange: CA2G

Stroke of 1000 mm or less







																		(mm)	MGP
Bore size (mm)	A	AL	в	B1	с	D	E	F	FB	FD	FT	FV	FX	FY	FZ	G	Hı	J	C□Y C□X
40	30	27	60	22	44	16	32	10	71	9	12	60	80	42	100	15	8	M8 x 1.25	
50	35	32	70	27	52	20	40	10	81	9	12	70	90	50	110	17	11	M8 x 1.25	CK🗆1
63	35	32	85	27	64	20	40	10	101	11.5	15	86	105	59	130	17	11	M10 x 1.25	
80	40	37	102	32	78	25	52	14	119	13.5	18	102	130	76	160	21	13	M12 x 1.75	C(L)K□
100	40	37	116	41	92	30	52	14	133	13.5	18	116	150	92	180	21	16	M12 x 1.75	•(-)=
																			0/11/11
Bore size	ĸ	KA	м	м	N	Р	s		rod boot			Wi	th rod b	oot					C(L)KU
(mm)						-	-	н	ZZ	d	е	f	h		!	ZZ			
	К 6	KA 14		M x 1.5	N 27	P 1/4	S 84			d 56	e 43	Wi f 11.2	th rod b h 59	oot 1/4 s	froke	ZZ 155			CKQ
(mm)			M14			-	-	н	ZZ			f	h						
(mm) 40	6	14	M14	x 1.5 x 1.5	27	1/4	84	H 51	ZZ 147	56	43	f 11.2	h 59	1/4 s	troke	155			CKQ
(mm) 40 50	6	14 18	M14 M18 M18	x 1.5 x 1.5	27 30	1/4 3/8	84 90	H 51 58	ZZ 147 160	56 64	43 52	f 11.2 11.2	h 59 66	1/4 s 1/4 s 1/4 s	troke	155 168			
(mm) 40 50 63	6 7 7	14 18 18	M14 M18 M18	x 1.5 x 1.5 x 1.5 x 1.5 x 1.5	27 30 31	1/4 3/8 3/8	84 90 98	H 51 58 58	ZZ 147 160 171	56 64 64	43 52 52	f 11.2 11.2 11.2	h 59 66 66	1/4 s 1/4 s 1/4 s 1/4 s	troke troke	155 168 179			CKQ

Air Cylinders

CJ2

CM2

CG1 MB

CA2 CQ2 CQS

Luberetainer JA

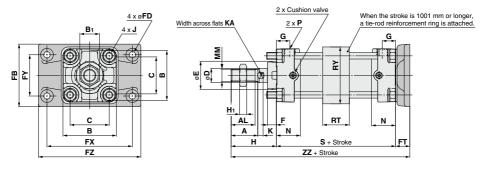
MXH

MXQ Mgp

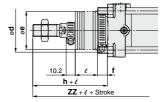
Series CA2

Head Flange: CA2G

Stroke of 1001 mm or more







(mm) Bore size Α AL в B1 С D Е FB FD FT FX FY FΖ G Hı J κ KA (mm) M8 x 1.25 M8 x 1.25 11.5 M10 x 1.25 13.5 M12 x 1.75 13.5 M12 x 1.75 Bore size Without rod boot With rod boot RY MM N Р s RT н ZZ d h (mm) е f l M14 x 1.5 1/411.2 1/4 stroke M18 x 1.5 3/8 11.2 1/4 stroke

> 12.5

 1/4 stroke

1/4 stroke

1/4 stroke

1/2 1/2 Note 1) For flange type with bore size of ø40, the same flange bracket is used for all strokes.

3/8 11.2

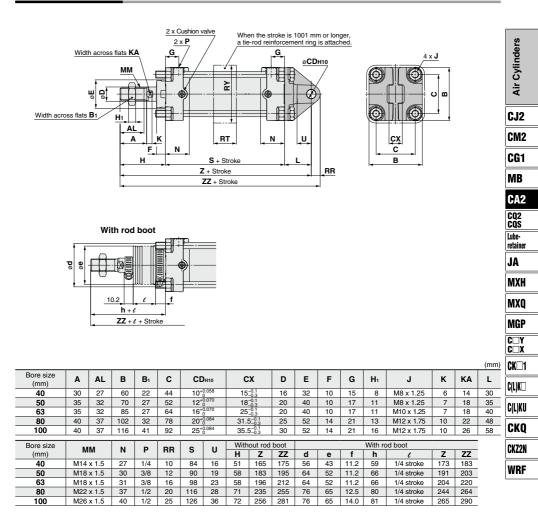
Note 2) When a flange bracket is mounted on the head cover side of the basic type with bore size of ø50 to ø100 and stroke of 1001 mm or more, it is necessary to loosen the tie-rod to adjust the M dimension. When head flange type is ordered, adjustment is not necessary.

M18 x 1.5

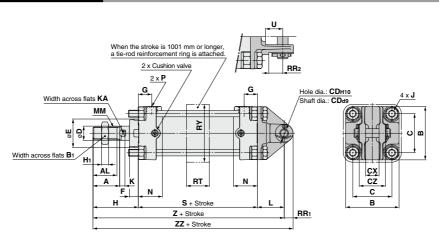
M22 x 1.5

M26 x 1.5

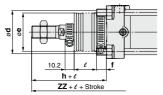
Single Clevis: CA2C



Double Clevis: CA2D



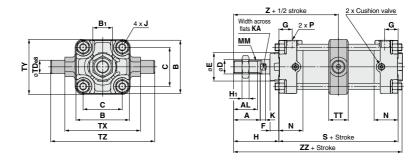
With rod boot



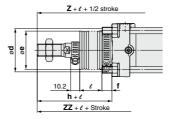
																			(mm)
Bore size (mm)	A	AL	в	B1	с	CDH	10	СХ	cz	D	E	F	G	H1		J	к	KA	L
40	30	27	60	22	44	10 ^{+0.0}		15 ^{+0.3}	29.5	16	32	10	15	8	M8 :	x 1.25	6	14	30
50	35	32	70	27	52	12 ^{+0.0}		18 ^{+0.3}	38	20	40	10	17	11	M8 :	x 1.25	7	18	35
63	35	32	85	27	64	16 ^{+0.0}		25+0.3 +0.1	49	20	40	10	17	11	M10	x 1.25	7	18	40
80	40	37	102	32	78	20 ^{+0.0}		1.5 ^{+0.3}	61	25	52	14	21	13	M12	x 1.75	10	22	48
100	40	37	116	41	92	25+0.0	84 3	5.5 ^{+0.3}	64	30	52	14	21	16	M12	x 1.75	10	26	58
Bore size			N	Р	-	RR ₂	s	U	With	out rod	boot				With r	od boot			
(mm)		М	IN	Р	RR1	RH2	3	U	н	Z	ZZ	d	е	f	h	l		Z	ZZ
40	M14	x 1.5	27	1/4	10	16	84	16	51	165	175	56	43	11.2	59	1/4 st	roke	173	183
50	M18	x 1.5	30	3/8	12	19	90	19	58	183	195	64	52	11.2	66	1/4 st	roke	191	203
63	M18	x 1.5	31	3/8	16	23	98	23	58	196	212	64	52	11.2	66	1/4 st	roke	204	220
80	M22	x 1.5	37	1/2	20	28	116	28	71	235	255	76	65	12.5	80	1/4 st	roke	244	264
100	M26	x 1.5	40	1/2	25	23.5	126	36	72	256	281	76	65	14.0	81	1/4 st	roke	265	290

* A clevis pin, flat washers and split pins are included.

Center Trunnion: CA2T







																			(mm)	
Bore size (mm)	A	AL	в	B1	с	D	Е	F	G	Hı		J	к	KA	м	М	Ν	Ρ	s	C(L)K□
40	30	27	60	22	44	16	32	10	15	8	M8 x	1.25	6	14	M14 x	x 1.5	27	1/4	84	
50	35	32	70	27	52	20	40	10	17	11	M8 x	1.25	7	18	M18 x	x 1.5	30	3/8	90	C(L)KU
63	35	32	85	27	64	20	40	10	17	11	M10 x	< 1.25	7	18	M18 x	x 1.5	31	3/8	98	•(-/•
80	40	37	102	32	78	25	52	14	21	13	M12 x	< 1.75	10	22	M22 3	x 1.5	37	1/2	116	CKQ
100	40	37	116	41	92	30	52	14	21	16	M12 x	< 1.75	10	26	M26 x	x 1.5	40	1/2	126	UNŲ
Bore size	т	Des	тт	тх	тү	TZ		out rod					With r	od boot	1					CKZ2N
(mm)							н	Z	ZZ	d	е	f	h		l	Z	ZZ			
40		0.032 0.059	22	85	62	117	51	93	140	56	43	11.2	59	1/4 s	stroke	101	148			WRF
50		0.032 0.059	22	95	74	127	58	103	154	64	52	11.2	66	1/4 s	stroke	111	162			
63	18_	0.032 0.059	28	110	90	148	58	107	162	64	52	11.2	66	1/4 s	stroke	115	170			
80	25		34	140	110	192	71	129	194	76	65	12.5	80	1/4 s	stroke	138	203			
100	25	0.040	40	162	130	214	72	135	206	76	65	14.0	81	1/4 4	stroke	144	215			

* Do not disassemble the trunnion type. Refer to page 829.

Air Cylinders

CJ2

CM2

CG1

MB Ca2

CQ2 CQS

Luberetainer

JA MXH

MXQ

MGP C Y C X (mm) CK 1

Trunnion and Double Clevis Pivot Bracket

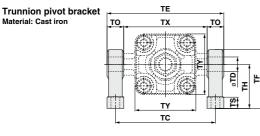
• Strength is the same as cylinder brackets.

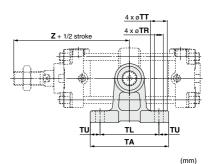
Applicable Series

Bracket type	Applicable series	B	ore size CA2□40	CA2□50	CA2□63	CA2⊟80	CA2
Trunnion pivot bracket	CA2	Trunnion pivot	bracket CA	2-S04	CA2-S06	MB-	S10
Double clevis pivot bracket	CA2	Double clevis piv	ot bracket CA2-B04	CA2-B05	CA2-B06	CA2-B08	CA2

* Please contact SMC at the time of mounting.

* Order 2 trunnion pivot brackets per cylinder.





в

DX

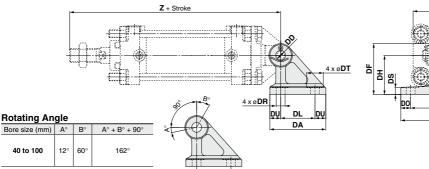
DC

DE

Part no.	Bore size (mm)	ТА	ΤL	τυ	тс	тх	TE	то	TR	тт	TS	тн	TF	тү	z	TD-H10 (Hole)
CA2-S04	40	80	60	10	102	85	119	17	9	17	12	45	60	62	93	15 +0.070
CA2-504	50	80	60	10	112	95	129	17	9	17	12	45	60	74	103	15 ^{+0.070}
CA2-S06	63	100	70	15	130	110	150	20	11	22	14	55	73	90	107	18 +0.070
MB-S10	80	120	90	15	166	140	192	26	13.5	24	17	75	100	110	129	25 +0.084
MB-210	100	120	90	15	188	162	214	26	13.5	24	17	75	100	130	135	25 ^{+0.084}

Double clevis pivot bracket

. Material: Cast iron

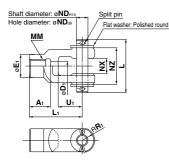


	(mm)															
Part no.	Bore size (mm)	DA	DL	DU	DC	DX	DE	DO	DR	DT	DS	DH	DF	в	z	DDH10 (Hole)
CA2-B04	40	57	35	11	65	15	85	10	9	17	8	40	52	60	165	10 ^{+0.058}
CA2-B05	50	57	35	11	65	18	85	10	9	17	8	40	52	70	183	12 +0.070
CA2-B06	63	67	40	13.5	80	25	105	12.5	11	22	10	50	66	85	196	16 +0.070 0
CA2-B08	80	93	60	16.5	100	31.5	130	15	13.5	24	12	65	90	102	235	20 +0.084
CA2-B10	100	93	60	16.5	100	35.5	130	15	13.5	24	12	65	90	116	256	25 +0.084

SMC

Series CA2 Dimensions of Accessories

Y Type Double Knuckle Joint



Part no.	Applicable bore size	A 1	E1	D1	Lı	мм	R1	U1	ND	NX	NZ	L	Split pin size	Flat washer size	linde
Y-04D	40	22	24	10	55	M14 x 1.5	13	25	12	16 ^{+0.3} +0.1	38	55.5	ø3 x 18 L	Polished round 12	Air Cvlinders
Y-05D	50, 63	27	28	14	60	M18 x 1.5	15	27	12	16 ^{+0.3} +0.1	38	55.5	ø3 x 18 L	Polished round 12	CJ
Y-08D	80	37	36	18	71	M22 x 1.5	19	28	18	28 ^{+0.3} +0.1	55	76.5	ø4 x 25 L	Polished round 18	CN
Y-10D	100	37	40	21	83	M26 x 1.5	21	38	20	30 ^{+0.3} +0.1	61	83	ø4 x 30 L	Polished round 20	CC

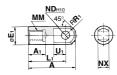
Clevis Pin/Knuckle Pin



Material: C	Material: Carbon steel (mm)														
Part no.	Applicable	e bore size	Dd9	Lı	L2	m	d	Included	Included						
i artiio.	Clevis Knuckle		Duş	L.	L2		Drill through	split pin	flat washer						
CDP-2A	40	—	10 -0.040 -0.076	46	38	4	3	ø3 x 18 L	Polished round 10						
CDP-3A	50	40, 50, 63	12 -0.050 -0.093	55.5	47.5	4	3	ø3 x 18 L	Polished round 12						
CDP-4A	63	—	16 ^{-0.050} -0.093	71	61	5	4	ø4 x 25 L	Polished round 16						
CDP-5A	—	80	18 ^{-0.050} -0.093	76.5	66.5	5	4	ø4 x 25 L	Polished round 18						
CDP-6A	80	100	20 ^{-0.065} -0.117	83	73	5	4	ø4 x 30 L	Polished round 20						
CDP-7A	100	_	25 ^{-0.065} -0.117	88	78	5	4	ø4 x 36 L	Polished round 24						

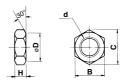
* Split pins and flat washers are included.

I Type Single Knuckle Joint



Material: Free cutting sulfur steel												
Part no.	Applicable bore size	Α	A 1	E1	L1	ММ	R1	U1	ND _{H10}	NX		
I-04A	40	69	22	24	55	M14 x 1.5	15.5		12 ^{+0.070}	16 ^{-0.1} -0.3		
I-05A	50, 63	74	27	28	60	M18 x 1.5	15.5		12 ^{+0.070}			
I-08A	80	91	37	36	71	M22 x 1.5	22.5		18 ^{+0.070}			
I-10A	100	105	37	40	83	M26 x 1.5	24.5	28	20 ^{+0.084}	30 -0.1		

Rod End Nut (Standard)



Material: Rolled steel (mn											
Part no.	Applicable bore size	d	н	в	с	D					
NT-04	40	M14 x 1.5	8	22	25.4	21					
NT-05	50, 63	M18 x 1.5	11	27	31.2	26					
NT-08	80	M22 x 1.5	13	32	37.0	31					
NT-10	100	M26 x 1.5	16	41	47.3	39					

CA2

CQ2 CQS Luberetainer

JA MXH

MXQ Mgp

C□Y C□X CK□1

C(L)K

C(L)KU

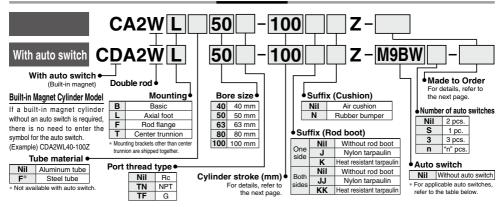
CKZ2N

WRF



RoHS

How to Order



Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

		Electrical	Indicator light	Wiring	L	oad volta.	ge		tch model	Lead w	vire le			Pre-wired		
Туре	Special function	entry	cator	(Output)	г	C	AC	Tie-rod	Band	0.5	1	3	5	connector	Applica	ble load
		0.11.7	þ	(ouput)			7.0	mounting	mounting	(Nil)	(M)	(L)	(Z)			
				3-wire (NPN)				M9N	_	•	•	•	0	0		
						5 V. 12 V			G59	•	-	•	0	0	IC circuit	
		Grommet		3-wire (PNP)	24 V	5 , 12 ,	_	M9P		•	•	•	0	0	io circuit	
		Gronnor		oo ()	2				G5P	•	-	•	0	0		
				2-wire		12 V		M9B		•	•	•	0	0	Į	
						12.4			K59	•	-	•	0	0	-	
ء		Terminal		3-wire (NPN)		12 V		G39C	G39	—	-	-	-	-		
jţ		conduit		2-wire				K39C	K39		-	-	-		Į	
SV				3-wire (NPN)				M9NW		•	•	•	0	0		
율				. ,		5 V, 12 V			G59W	•	-	•	0	0	IC circuit	Polov
6 8	Diagnostic indication		Yes	3-wire (PNP)		5 , 12 ,		M9PW		•	•	•	0	0	Į	Relay, PLC
tat	(2-color indication)			0 1110 (1 111)					G5PW	•	-	•	0	0		
Solid state auto switch				2-wire		12 V		M9BW	_	•	•	•	0	0		
ilo i					24 V	12 V	-		K59W	•	-	•	0	0	Į	
•,		Grommet		3-wire (NPN)		5 V, 12 V		M9NA**	-	0	0	•	0	0	_	
	Water resistant			3-wire (PNP)		5 V, 12 V		M9PA**	_	0	0	•	0	0		
	(2-color indication)			2-wire		12 V		M9BA**		0	0	•	0	0	Į	
						12.4			G5BA**	—	-	•	0	0		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		F59F	G59F	•	-	•	0	0	IC circuit	
	Magnetic field resistant			2-wire		_		P3DW		•	-	•	•	0	_	
	(2-color indication)			(Non-polar)				P4DW	-	—	-	•	•	0		
			Yes	3-wire (NPN equiv.)	_	5 V	-	A96	_	•	-	•	-		IC circuit	_
£							100 V	A93		•	-	•	•		_	
vito		Grommet	No				100 V or less	A90	-	•	-	•	-	_	IC circuit	Relay.
S			Yes				100 V, 200 V	A54	B54	•	-	•	•		l	PLC
uto			No	2-wire	24 V	12 V	200 V or less	A64	B64	•	-	٠	-		Į	
Reed auto switch		Terminal		2 1110	24 V		-	A33C	A33	-	-	-	-	-	_	
See		conduit	Yes				100 V, 200 V	A34C	A34	_	-	-	-	_		PLC
<u>1</u> 2		DIN terminal	1.63				100 4, 200 4	A44C	A44	-	-	-	-		Į	Relay,
	Diagnostic indication (2-color indication)	Grommet				_	-	A59W	B59W	•	- 1	•	- 1	_		PLC

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance

A water-resistant type cylinder is recommended for use in an environment which requires water resistance.

* Lead wire length symbols: 0.5 m-----Nil (Example) M9NW 3 m.....I (Example) M9NWI

1 m······ M (Example) M9NWM 5 m···· Z (Example) M9NWZ

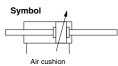
* Solid state auto switches marked with "O" are produced upon receipt of order.

* Since there are other applicable auto switches than listed above, refer to page 808 for details.

* For details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2.

For the D-P3DWD, refer to the WEB catalog or the Best Pneumatics No. 2. * The D-A9DM9DD/P3DWD auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9DM9DD before shipment.) SMC

Specifications



Made to Order	Made to Order (For details, refer to pages 811 to 828.)
Symbol	Specifications
-XA🗆	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C)
-XC3	Special port location*
-XC4	With heavy duty scraper
-XC5	Heat resistant cylinder (-10 to 110°C)
-XC7	Tie-rod, cushion valve,
-701	tie-rod nut, etc. made of stainless steel
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length
-XC22	Fluororubber seal
-XC28	Compact flange made of SS400
-XC35	With coil scraper
-XC58	Water resistant/ Built-in hard plastic magnet*
-XC59	Fluororubber seal/ Built-in hard plastic magnet*
-XC65	Made of stainless steel (Combination of XC7 and XC68)
-XC68	Made of stainless steel (with hard chrome plated piston rod)
-XC85	Grease for food processing equipment
For spec	sial port location (-XC3), the mounting bracket

and port location can be determined using the standard product corresponding to the operating conditions.

For made of stainless steel (-XC6), use made of stainless steel (with hard chrome plated piston rod) (-XC68) that the surface treatment is performed on the piston rod with the same specifications.

* The cover shape is the same as the existing product.

Refer to pages 802 to 808 for cylinders with auto switches.

- · Auto switch proper mounting position (detection at stroke end) and its mounting height
- · Operating range
- · Minimum stroke for auto switch mounting
- · Auto switch mounting brackets/Part no.

Bore size (mm)	40	50	63	80	100	
Fluid		· ·	Air	· · ·		
Action			Double actin	g		
Proof pressure			1.5 MPa			
Maximum operating pressure			1.0 MPa			
Minimum operating pressure			0.08 MPa			I
Piston speed		5	0 to 500 mm	ı/s		I
Ambient and		Without au	to switch: -	10 to 70°C*		I
fluid temperature		With auto	switch : -	10 to 60°C*		I
Cushion		Air cushi	on or Rubbe	er bumper		I
Stroke length tolerance		Up to 250 st	^{+1.0} 251 to	1000 st: +1.4		Ī
Lubrication		Not re	equired (Nor	n-lube)		
Mounting	Bas	sic, Axial foot	, Rod flange	, Center trunni	on	ř
No freezing						

* No freezina

Standard Strokes

			(mm)	
Bore size	Standard stroke Note 1)		Max. manufacturable	MB
Dure size	Stroke range ①	Stroke range 2	stroke	
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	Up to 1000		CA2
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	Up to 1200	Up to 1800	CQ2 CQS
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700	Up to 1500		Lube-
				retainer

CG1

JA

MXH

MXQ

MGP

C□Y C□X

CK 1

C(L)K

C(L)KU CKO

CKZ2N

WRF

INDEX

Note 1) Intermediate strokes not listed above are produced upon receipt of order.

Note 2) Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages of the Best Pneumatics No. 2 or the WEB catalog. In addition, the products that exceed the stroke range 1 might not be able to fulfill the specifications due to the deflection etc.

Note 3) Please consult with SMC for manufacturability and the part numbers when exceeding the stroke range 2). Note 4) The stroke range with rod boot is 20 to 1400 mm. Please consult with SMC when exceeding 1400 mm strokes.

Minimum Stroke for Auto Switch Mounting

▲ Caution

The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention. (For details, refer to pages 806 and 807.)

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C*

* Maximum ambient temperature for the rod boot

Accessories

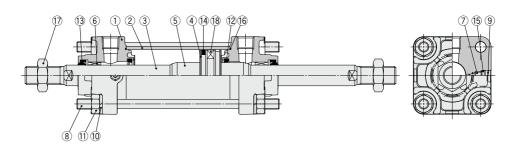
	Mounting	Basic	Foot	Flange	Center trunnion
Standard	Rod end nut	•	•	•	•
	Single knuckle joint	•	•	•	•
Option	Double knuckle joint (with pin)	•	•	•	•
	With rod boot	•	•	•	•

Weights/Aluminum Tube (Steel Tube)

							(kg)	
B	ore size	(mm)	40	50	63	80	100	
	Basic	Aluminum tube	0.92	1.38	1.86	3.32	4.55	
	Dasic	Steel tube	0.97	1.44	1.96	3.5	4.83	
	Axial	Aluminum tube	1.11	1.6	2.19	3.99	5.54	Calculation:
Basic	foot	Steel tube	1.16	1.66	2.29	4.17	5.82	(Example) CA2WL40-100
weight	Flange	Aluminum tube	1.29	1.83	2.65	4.77	6.47	(Axial foot, ø40, 100 stroke)
	Flange	Steel tube	1.34	1.89	2.75	4.95	6.75	Basic weight
	Trunnion	Aluminum tube	1.28	1.86	2.66	4.87	6.83	1.18 (Axial foot, ø40)
	Turinon	Steel tube	1.33	1.92	2.76	5.05	7.11	 Additional weight
Additional weight per	All mounting	Aluminum tube	0.28	0.37	0.44	0.66	0.86	0.28/50 stroke
50 mm of stroke	brackets	Steel tube	0.35	0.47	0.55	0.89	1.15	 Cylinder stroke
Accessories	Single k	nuckle	0.23	0.26	0.26	0.60	0.83	
Accessories	Double kn	uckle (with pin)	0.37	0.43	0.43	0.87	1.27	1.18 + 0.28 x 100/50 = 1.74 kg
								772



Construction



Component Parts

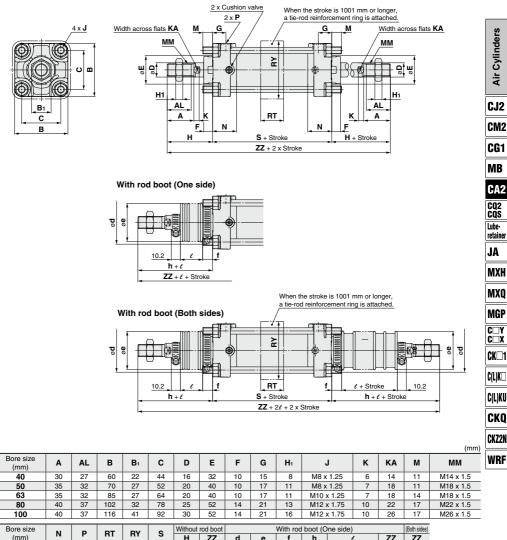
No.	Description	Material	Q'ty	Note
1	Rod cover	Aluminum die-casted	2	Trivalent chromated
2	Cylinder tube	Aluminum alloy	1	Hard anodized
3	Piston rod	Carbon steel	1	Hard chrome plating
4	Piston	Aluminum alloy	1	
5	Cushion ring	Aluminum alloy	2	Anodized
6	Bushing	Bearing alloy	1	
7	Cushion valve	Steel wire	2	Trivalent zinc chromated
8	Tie-rod	Carbon steel	4	Trivalent zinc chromated
9	Retaining ring	Spring steel	2	Phosphate coating
10	Spring washer	Steel wire	8	Trivalent zinc chromated
11	Tie-rod nut	Rolled steel	8	Trivalent zinc chromated
12	Cushion seal	Urethane	2	
13	Rod seal	NBR	2	
14	Piston seal	NBR	1	
15	Cushion valve seal	NBR	2	
16	Cylinder tube gasket	NBR	2	
17	Rod end nut	Rolled steel	2	Trivalent zinc chromated
18	Magnet	_	(1)	

Replacement Parts: Seal Kit

Bore size	Kit no.	Contents
(mm)	Pneumatic type	Contents
40	CA2W40Z-PS	
50	CA2W50Z-PS	
63	CA2W63Z-PS	Set of the nos. (12, (13, (14, (16)
80	CA2W80Z-PS	w, w, W, W
100	CA2W100Z-PS	

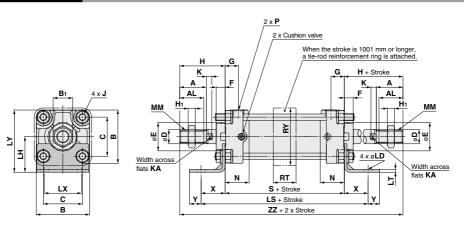
 To not disassemble the trunnion type. Refer to page 829.
 Seal kit includes ⑦, ③, ④, ⑥. Order the seal kit based on each bore size.
 Seal kit includes a grease pack (ø40, ø50: 10 g, ø63, ø80: 20 g, ø100: 30 g). Order with the following part number when only the grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

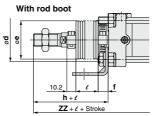
Basic: CA2WB



Bore size	N	ь	BT	BY	s	Without	rod boot			With rod	boot (C	ne side)		(Both sides)
(mm)	N	Р	RI	RT	5	н	ZZ	d	е	f	h	l	ZZ	ZZ
40	27	1/4	30	64	84	51	186	56	43	11.2	59	1/4 stroke	194	202
50	30	3/8	30	76	90	58	206	64	52	11.2	66	1/4 stroke	214	222
63	31	3/8	40	92	98	58	214	64	52	11.2	66	1/4 stroke	222	230
80	37	1/2	45	112	116	71	258	76	65	12.5	80	1/4 stroke	267	276
100	40	1/2	50	136	126	72	270	76	65	14.0	81	1/4 stroke	279	288

Axial Foot: CA2WL

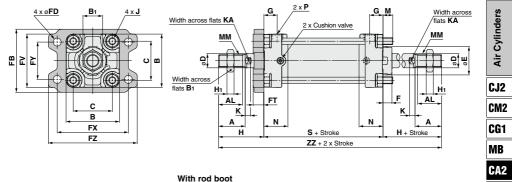


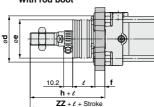


																				(mm)
Bore size (mm)	A	AL	в	B1	с	D	Е	F	G	Hı		J	к	KA	LD	LH	LS	LT	LX	LY
40	30	27	60	22	44	16	32	10	15	8	M8 x	1.25	6	14	9	40	138	3.2	42	70
50	35	32	70	27	52	20	40	10	17	11	M8 x	1.25	7	18	9	45	144	3.2	50	80
63	35	32	85	27	64	20	40	10	17	11	M10 >	< 1.25	7	18	11.5	50	166	3.2	59	93
80	40	37	102	32	78	25	52	14	21	13	M12 >	< 1.75	10	22	13.5	65	204	4.5	76	116
100	40	37	116	41	92	30	52	14	21	16	M12 >	(1.75	10	26	13.5	75	212	6	92	133
Bore size			1				1			Without	rod boot		M	/ith rod	hoot (C)no sid	(ما		(Both sides)	
(mm)	M	М	N	P	RT	RY	s	X	Y	H	ZZ	d	e	f	h		l	ZZ	ZZ	
40	M14	x 1.5	27	1/4	30	64	84	27	13	51	186	56	43	11.2	59	1/4 s	stroke	194	202	
50	M18	x 1.5	30	3/8	30	76	90	27	13	58	206	64	52	11.2	66	1/4 s	stroke	214	222	
63	M18	x 1.5	31	3/8	40	92	98	34	16	58	214	64	52	11.2	66	1/4 s	troke	222	230	
80	M22	x 1.5	37	1/2	45	112	116	44	16	71	258	76	65	12.5	80	1/4 s	stroke	267	276	
100	M26	x 1.5	40	1/2	50	136	126	43	17	72	270	76	65	14.0	81	1/4 s	stroke	279	288	

Rod Flange: CA2WF

Stroke of 1000 mm or less





																				(mm)	C□Y C□X
Bore size (mm)	A	AL	в	B1	с	D	E	FB	FD	FT	FV	FX	FY	FZ	G	H1	J	к	KA	м	CK□1
40	30	27	60	22	44	16	32	71	9	12	60	80	42	100	15	8	M8 x 1.25	6	14	11	A // 14/
50	35	32	70	27	52	20	40	81	9	12	70	90	50	110	17	11	M8 x 1.25	7	18	11	C(L)K□
63	35	32	85	27	64	20	40	101	11.5	15	86	105	59	130	17	11	M10 x 1.25	7	18	14	
80	40	37	102	32	78	25	52	119	13.5	18	102	130	76	160	21	13	M12 x 1.75	10	22	17	C(L)KU
100	40	37	116	41	92	30	52	133	13.5	18	116	150	92	180	21	16	M12 x 1.75	10	26	17	-17-
Bore size	M	м	N	Р	s	Without	rod boot		W	ith rod	boot (0	One sic	le)		(Both sides)		or installing a				CKQ
(mm)	IV	IVI	IN IN	F	3	н	ZZ	*d	е	f	h		ŧ.	ZZ	ZZ		nole must be m he rod porti				
40	M14	x 1.5	27	1/4	84	51	186	52	43	15	59	1/4 s	troke	194	202		nachine a hol				
50	M18	x 1.5	30	3/8	90	58	206	58	52	15	66	1/4 s	troke	214	222		he outer dia				<u> </u>
63	M18	x 1.5	31	3/8	98	58	214	58	52	17.5	66	1/4 s	troke	222	230	r	nounting brack	et ød.			WRF
80	M22	x 1.5	37	1/2	116	71	258	80	65	21.5	80	1/4 s	troke	267	276						
100	M26	x 1.5	40	1/2	126	72	270	80	65	21.5	81	1/4 s	troke	279	288						

CQ2 CQS Luberetainer

JA MXH

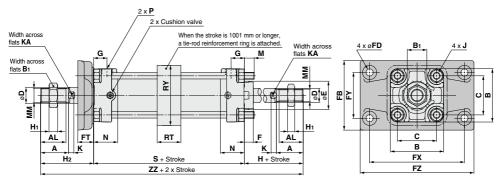
MXQ

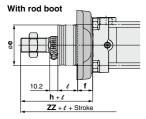
MGP

Series CA2W

Rod Flange: CA2WF

Stroke of 1001 mm or more



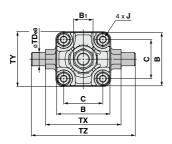


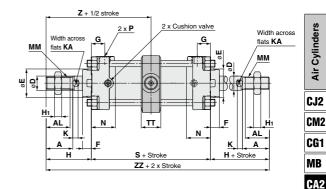
Bore size (mm)	A	AL	в	B1	С	D	Е	FB	FD	FT	FX	FY	FZ	G	H1	J		к	KA	м
40	30	27	60	22	44	16	32	71	9	12	80	42	100	15	8	M8 x 1	.25	6	14	11
50	35	32	70	27	52	20	40	88	9	20	120	58	144	17	11	M8 x 1	.25	7	18	6
63	35	32	85	27	64	20	40	105	11.5	23	140	64	170	17	11	M10 x 1	1.25	7	18	10
80	40	37	102	32	78	25	52	124	13.5	28	164	84	198	21	13	M12 x 1	1.75	10	22	12
100	40	37	116	41	92	30	52	140	13.5	29	180	100	220	21	16	M12 x 1	1.75	10	26	12
Bore size	N		N	ь	рт	BV	c	With	out rod	boot		W	/ith rod	boot (C	One sid	e)		(Both sid	des)	
Bore size (mm)	M	IM	N	Р	RT	RY	s	With H	out rod	boot ZZ	d	0 0	/ith rod	boot (C	One sid	-/	ZZ	(Both sid		
		IM x 1.5	N 27	P	RT 30	RY 76	S 84				d 52		/ith rod f 15			i			,	
(mm)	M14						-	Н	H ₂	ZZ		е	f	h	1/4 s	troke	ZZ	ZZ	-	
(mm) 40	M14 M18	x 1.5	27	1/4	30	76	84	H 51	H ₂ 51	ZZ 186	52	e 43	f 15	h 59	1/4 s	troke	ZZ 194	202		
(mm) 40 50	M14 M18 M18	x 1.5 x 1.5	27 30	1/4 3/8	30 30	76 76	84 90	H 51 58	H ₂ 51 67	ZZ 186 215	52 58	e 43 52	f 15 19	h 59 66	1/4 s 1/4 s 1/4 s	troke troke troke	ZZ 194 214	202 222		

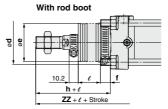
(mm)

Note 1) For flange type with bore size of ø40, the same bracket is used for all strokes. Note 2) For models with bore size of ø50 to e100 and stroke of 1001 mm or more, do not mount a flange bracket on basic cylinders since H dimension is different from those shown above. When rod flange type is used, order with the part number with bracket.

Center Trunnion: CA2WT







																				(mm)	C□Y C□X
Bore size (mm)	A	AL	в	B1	с	D	Е	F	G	H1		J	к	KA	м	м	N	Р	s	TD _{e8}	CK□1
40	30	27	60	22	44	16	32	10	15	8	M8 x	1.25	6	14	M14	x 1.5	27	1/4	84	15_0.032	A // 14/
50	35	32	70	27	52	20	40	10	17	11	M8 x	1.25	7	18	M18	x 1.5	30	3/8	90	15-0.032	C(L)K□
63	35	32	85	27	64	20	40	10	17	11	M10:	x 1.25	7	18	M18	x 1.5	31	3/8	98	18-0.032	
80	40	37	102	32	78	25	52	14	21	13	M12	x 1.75	10	22	M22	x 1.5	37	1/2	116	25-0.040	C(L)KU
100	40	37	116	41	92	30	52	14	21	16	M12 :	x 1.75	10	26	M26	x 1.5	40	1/2	126	25-0.040	-1-1
			r					r							·						CKO
Bore size	TT	тх	ΤΥ	TZ		out rod				With	rod boo	ot (One	side)			(Both					UNŲ
(mm)					н	Z	ZZ	d	е	f	h	6	!	Z	ZZ	Z	ZZ				0//701
40	22	85	62	117	51	93	186	56	43	11.2	59	1/4 s	troke	101	194	101	202				CKZ2N
50	22	95	74	127	58	103	206	64	52	11.2	66	1/4 s	troke	111	214	111	222				<u> </u>
63	28	110	90	148	58	107	214	64	52	11.2	66	1/4 s	troke	115	222	115	230				WRF
80	34	140	110	192	71	129	258	76	65	12.5	80	1/4 s	troke	138	267	138	276				
100	40	162	130	214	72	135	270	76	65	14.0	81	1/4 s	troke	144	279	144	288				

* Do not disassemble the trunnion type. Refer to page 829.

CQ2 CQS

Luberetainer

JA MXH

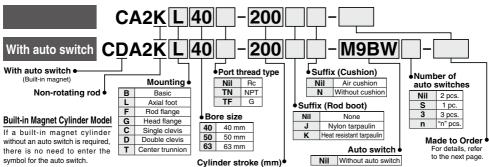
MXQ

MGP

Air Cylinder: Non-rotating Rod Type **Double Acting, Single Rod**

Series CA2K ø40, ø50, ø63





For details, refer to the next page

Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

-		Electrical	fight	Wiring		Load vo	Itage	Auto swit	ch model	Lead	wire I	ength	(m)	Pre-wired	Annlin	
Type	Special function	entry	Indicator light	(Output)	C	DC	AC	Tie-rod mounting	Band mounting	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	connector	Applic loa	
				3-wire				M9N	—	٠	•	•	0	0		
				(NPN)		5 V,		_	G59	٠	-	•	0	0	IC circuit	
		Grommet		3-wire	24 V	12 V		M9P	—	•	•	•	0	0		
		Cironnier		(PNP)	24 V			_	G5P	٠	—	•	0	0		
				2-wire		12 V		M9B	_	•	•	•	0	0		
						12.0			K59	•		•	0	0	-	
£		Terminal		3-wire (NPN)		12 V		G39C	G39	-	-	_	-	_		Į.
Solid state auto switch		conduit		2-wire				K39C	K39	-	_	_	-	-		
s				3-wire				M9NW	-	•	•	•	0	0		
웈				(NPN)		5 V,			G59W	٠	_	•	0		IC circuit	Relay,
еa	Diagnostic indication		Yes	3-wire		12 V		M9PW	-	•	•	•	0	0		PLC
stat	(2-color indication)			(PNP)				_	G5PW	•	_	•	0	0		
ğ				2-wire		12 V		M9BW	_	•	•	•	0	0		
20					24 V		-		K59W	٠	_	•	0	0		
		Grommet		3-wire (NPN)		5 V,		M9NA**	-	0	0	•	0	0	_	
	Water resistant			3-wire (PNP)		12 V		M9PA**		0	0	•	0	0		
	(2-color indication)			2-wire		12 V		M9BA**	-	0	0	•	0	0		
									G5BA**	-	-	•	0	0		4
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		F59F	G59F	•	-	•	0	0	IC circuit	
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)		-		P3DW P4DW	-	•	-	•	•	0	_	
	(2-color Indication)							P4DW		_		•	•	0		
			Yes	3-wire (NPN equiv.)	-	5 V	-	A96	-	٠	-	•	-	-	IC circuit	—
Reed auto switch		Grommet					100 V	A93	_	•	_	•	•			
ŝ		Grommer	No				100 V or less	A90		•	_	•	-		IC circuit	Relay.
ĝ			Yes				100 V, 200 V	A54	B54	•	—	•	•	_		PLC
au			No	2-wire	24 V	12 V	200 V or less	A64	B64	•	—	•	—	_		
š		Terminal		2.000				A33C	A33	_	-	<u> </u>	-	_	_	
č		conduit	Yes				100 V. 200 V	A34C	A34	—	-	<u> — </u>	-	-		PLC
		DIN terminal						A44C	A44	-	-	-	-	-		Relay,
	Diagnostic indication (2-color indication)	Grommet				-	_	A59W	B59W	•			-	_		PLC

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW * Solid state auto switches marked with "O" are produced upon receipt of order.

* For applicable auto switches, refer to the table below.

1 m..... M (Example) M9NWM

- 3 m----- L (Example) M9NWL
- 5 m······Z (Example) M9NWZ

* Since there are other applicable auto switches than listed above, refer to page 808 for details.

Short details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2. For the D-P3DW□, refer to the WEB catalog or the Best Pneumatics No. 2.

* The D-A9_/M9____/P3DW_ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9_/M9____ before shipment.)

(Example) CDA2KL40-100

SMC

Non-rotating accuracy: ±0.8° Same mounting dimensions as those of standard cylinder



Bore size (mm)	40	50	63	
Fluid		Air		
Proof pressure		1.5 MPa		S
Maximum operating pressure		1.0 MPa		ဗ
Minimum operating pressure		0.05 MPa		
Ambient and fluid temperature		t auto switch: -10 to to switch :-10 to		Air Cylinders
Piston speed		50 to 500 mm/s		_ ◄
Cushion		Air cushion		1=
Stroke length tolerance	Up to 2	50 st: ⁺ ^{1.0} , 251 to 600	st: ^{+ 1.4}	
Rod non-rotating accuracy		±0.8°		
Allowable rotational torque		0.44 N·m or less		CM
Lubrication	N	ot required (Non-lube	e)	
Mounting	Basic, Axia	I foot, Rod flange, He	ead flange	CG
Mounting	Single clevis	, Double clevis, Cen	ter trunnion	
No freezing				- MB

In case of a type with auto switch, also refer to the table of minimum Standard Strokes/strokes for auto switch mounting on pages 806 and 807.

	(mm)
Bore size	Standard stroke
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500*
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600*

Intermediate strokes not listed above are also available.

Please consult with SMC for longer strokes than the strokes marked with "*".

Weights

Specifications

				(kg)
B	ore size (mm)	40	50	63
	Basic	0.88	1.32	1.91
	Axial foot	1.07	1.54	2.25
Basic weight	Flange	1.25	1.77	2.70
Dasic weight	Single clevis	1.11	1.66	2.54
	Double clevis	1.15	1.75	2.70
	Trunnion	1.24	1.80	2.71
Additional wei	ght per 50 mm of stroke	0.20	0.25	0.30
Accessories	Single knuckle	0.23	0.26	0.26
Accessories	Double knuckle (with pin)	0.37	0.43	0.43
0 I I I / / F				

Calculation: (Example) CA2KL40-100

 Basic weight… 1.07 (Axial foot, ø40)

Additional weight ---- 0.20/50 stroke

 Cylinder stroke 100 stroke 1.07 + 0.20 x 100/50 = **1.47 kg**

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature									
J	Nylon tarpaulin 70°C										
K	Heat resistant tarpaulin	110°C*									
· · · · · · · · · · · · · · · · · · ·	Manufacture and bit with the second section of the second bit with the set										

* Maximum ambient temperature for the rod boot itself.

Minimum Stroke for Auto Switch Mounting

ACaution

1. The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention. (For details, refer to pages 806 and 807.)

INDEX

CA2

CO2 čõs Luberetaine

JA

MXH

MXO

MGP

C Y C

CK 1 C(L)K C(L)KU CKO

CKZ2N

WRF

Symbol





Made to Order (For details, refer to pages 811 to 828.)

Symbol	Specifications
-XA🗆	Change of rod end shape
-XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC11	Dual stroke cylinder/Single rod type
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length
-XC27	Double clevis and double knuckle joint pins made of stainless steel
-XC28	Compact flange made of SS400

Refer to pages 802 to 808 for cylinders with auto switches

- · Auto switch proper mounting position (detection at stroke end) and its mounting height
- · Operating range
- · Minimum stroke for auto switch mounting
- · Auto switch mounting brackets/Part no.

▲ Precautions

Be sure to read this before handling. Refer to page 1574 for Safety Instructions. For Actuator and Auto Switch Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http:// www.smcworld.com

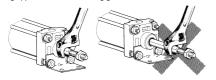
Handling

≜Caution

1. Avoid applications in which rotational torque is applied to the piston rod.

If rotational torque is applied, the non-rotating guide will be deformed, resulting in a loss of non-rotating accuracy. Also, to screw a bracket or a nut onto the threaded portion at the end of the piston rod, make sure that the piston rod is fully retracted, and place a wrench on the parallel section of the rod that protrudes.

To tighten, take precautions to prevent the tightening torque from being applied to the non-rotating guide.



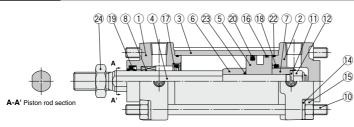
Disassembly/Replacement

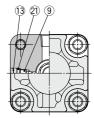
A Caution

- Please consult with SMC when the rod seal is to be replaced. A rod seal may allow air leakage depending on the position where it is installed. Therefore, please consult with SMC when a rod seal is to be replaced.
- 2. Do not replace the non-rotating guide.

Since the non-rotating guide is press fitted, the entire cover assembly needs be replaced instead of a single part.

Construction





Component Parts

inponent i arta		
Description	Material	Note
Rod cover	Aluminum alloy	Metallic painted
Head cover	Aluminum die-casted	Metallic painted
Cylinder tube	Aluminum alloy	Hard anodized
Piston rod	Carbon steel	Hard chrome plating
Piston	Aluminum alloy	Chromated
Cushion ring A	Rolled steel	Zinc chromated
Cushion ring B	Rolled steel	Zinc chromated
Non-rotating guide	Oil-impregnated sintered alloy	
Cushion valve	Steel wire	Trivalent zinc chromated
Tie-rod	Carbon steel	Trivalent zinc chromated
Spring washer	Steel wire	Trivalent zinc chromated
Piston nut	Rolled steel	Trivalent zinc chromated
Retaining ring	Spring steel	Phosphate coating
Spring washer	Steel wire	Trivalent zinc chromated
Tie-rod nut	Rolled steel	Trivalent zinc chromated
Wear ring	Resin	
	Description Rod cover Head cover Cylinder tube Piston rod Piston Cushion ring B Non-rotating guide Cushion valve Tie-rod Spring washer Piston nut Retaining ring Spring washer Tie-rod nut	Description Material Rod cover Aluminum alloy Head cover Aluminum die-casted Cylinder tube Aluminum die-casted Piston rod Carbon steel Piston rod Carbon steel Piston ring A Rolled steel Cushion ring B Rolled steel Non-rotating guide Oli-mpregnated sinterd alloy Cushion valve Steel wire Tie-rod Carbon steel Spring washer Steel wire Piston nut Rolled steel Retaining ring Spring steel Spring washer Steel wire Tie-rod nut Rolled steel

No.	Description	Material	Note
17	Cushion seal holder	Aluminum alloy	
18	Cushion seal	Urethane	
19	Rod seal	NBR	
20	Piston seal	NBR	
21	Cushion valve seal	NBR	
22	Cylinder tube gasket	NBR	
23	Piston gasket	NBR	O-ring
24	Rod end nut	Rolled steel	Trivalent zinc chromated

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
40	CA2K40-PS	
50	CA2K50-PS	Set of the nos. 18, 19, 20, 22.
63	CA2K63-PS	

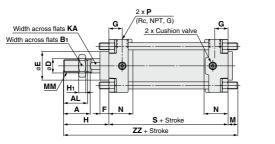
* Seal kit includes (18, (19, 20 and 22. Order the seal kit based on each bore size.

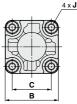
* Do not disassemble the trunnion type. Refer to page 829.

Seal kit includes a grease pack (ø⁴0, ø50: 10 g, over ø63: 20 g).
 Order with the following part number when only the grease pack is needed.
 Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

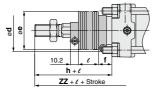
Air Cylinder: Non-rotating Rod Type Double Acting, Single Rod Series CA2K

Basic: CA2KB





With rod boot



Bore size	Stroke ra	nge (mm)	^	AL	в	Bı	<u> </u>	D	E	E	G	Hı		КА	м	мм
(mm)	Without rod boot	With rod boot	~	AL	Р	D1	C	U	E	Г	G	- 11	J	RA.	IVI	IVIIVI
40	Up to 500	20 to 500	30	27	60	22	44	16	32	10	15	8	M8 x 1.25	14	11	M14 x 1.5
50	Up to 600	20 to 600	35	32	70	27	52	20	40	10	17	11	M8 x 1.25	18	11	M18 x 1.5
63	Up to 600	20 to 600	35	32	85	27	64	20	40	10	17	11	M10 x 1.25	18	14	M18 x 1.5

Bore size	N	Р	s	Without	rod boot			Wit	h rod b	oot	
(mm)			В Н	н	ZZ	d	е	f	h	l	ZZ
40	27	1/4	84	51	146	56	43	11.2	59	1/4 stroke	154
50	30	3/8	90	58	159	64	52	11.2	66	1/4 stroke	167
63	31	3/8	98	58	170	64	52	11.2	66	1/4 stroke	178

The dimensions for each mounting type are the same as those for the standard double acting single rod model. Refer to pages 761 to 769.

Air Cylinders
CJ2
CM2
CG1
CM2 CG1 MB CA2
CA2
CQ2 CQS
CQ2 CQS Lube- retainer
JA
MXH
JA MXH MXQ MGP C_Y CK_1
MGP
C□Y C□X
CK🗆1
C(L)K 🗆
C(L)KU
CKQ
CKQ CKZ2N
WRF

(mm)

Air Cylinder: Non-rotating Rod Type **Double Acting, Double Rod** Series CA2KW ø40, ø50, ø63

For details, refer to the next page.

How to Order CA2KW L 40 200 CDA2KW M9BW With auto switch 40 200 With auto switch Made to Order (Built-in magnet) Port thread Mounting Auto switch For details, refer to the Non-rotating rod type next page. в Nil Without auto switch Basic Nil Rc L F Axial foot For applicable auto switches Number of Double rod type TN NPT refer to the table below Rod flange auto switches TF G G Head flange Suffix (Cushion) 2 pcs. Nil т Center trunnion Built-in Magnet Cylinder Model Nil Air cushion S Bore size 1 pc. Ν Without cushion 3 3 pcs. 40 40 mm If a built-in magnet cylinder without an auto switch is required, n "n" pcs. 50 50 mm there is no need to enter the symbol for the auto switch. Cylinder stroke (mm) (Example) CDA2KWL40-100 63 63 mm

Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches

	incable Auto Switches/Rei		_			Load volt		Auto swit				length	_			
Туре	Special function	Electrical entry	Indicator light	Wiring (Output)		DC AC		Tie-rod mounting	Band mounting	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applio Ioa	
				3-wire				M9N	—	٠	٠	٠	0	0		
				(NPN)		5 V,		_	G59	•	—	٠	0	0	IC circuit	
				3-wire	24 V	12 V		M9P	_	•	٠	٠	0	0		
		Grommet		(PNP)	24 0		_	_	G5P	٠	—	٠	0	0		
						12 V		M9B	_	٠	•	٠	0	0		
				2-wire		12 0		_	K59	٠	—	٠	0	0		
					_		100 V, 200 V	J51	_	٠	—	٠	0	_	ļ	
c h		Terminal		3-wire (NPN)		12 V		G39C	G39	—	—	-	—	-		
Ň		conduit		2-wire				K39C	K39	—	—	-	—	_		
ő				3-wire				M9NW	_	٠	•	٠	0	0		
au			Yes	(NPN)		5 V, 12 V		_	G59W	•	—	٠	0	0	IC circuit R	
ate	Diagnostic indication			3-wire (PNP)				M9PW	—	•	٠	٠	0	0		PLC
st	Diagnostic indication (2-color indication)			(PNP)				—	G5PW	٠	-	٠	0	0		
bio				2-wire		12 V		M9BW		•	٠	٠	0	0		
Ň							-	—	K59W	٠	-	•	0	0		
		Grommet		3-wire (NPN)		5 V,	-	M9NA**	_	0	0	•	0	0		
	Water resistant			3-wire (PNP)		12 V		M9PA**	-	0	0	•	0	0		
	(2-color indication)			2-wire		12 V		M9BA**	-	0	0	•	0	0		
				4		514 40 14		-	G5BA**	-	-	•	0	0	10	
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		F59F P3DW	G59F	•	-		0	0	IC circuit	
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)		-		P3DW P4DW		•	-	•	•	0	-	
	(2-color Indication)			,				P4DW		_	-	•	•	0		
			Yes	3-wire (NPN equiv.)	-	5 V	-	A96	-	٠	-	•	-	-	IC circuit	-
ъ		Grommet					100 V	A93	_	٠	—	٠	٠	_	-	
Ň		Giommer	No				100 V or less	A90	-	•	—	٠	-	_	IC circuit	Relay,
ő	o		Yes				100 V, 200 V	A54	B54	•		•	٠	—		PLC
aut			No	2-wire	24 V	12 V	200 V or less	A64	B64	٠	-	٠	—	—]	
Reed auto switch		Terminal		∠-wire	24 V		_	A33C	A33	_	—	—	_	—		
Å		conduit	Yes				100 V, 200 V	A34C	A34	—	—	-	—	_] —	PLC
		DIN terminal	res				100 v, 200 v	A44C	A44	—	-	-	—	—		Relay,
	Diagnostic indication (2-color indication)	Grommet				-	-	A59W	B59W	٠	-	٠	_	_	1	PLC

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

(Example) M9NW (Example) M9NWM (Example) M9NWL * Lead wire length symbols: 0.5 m Nil * Solid state auto switches marked with "O" are produced upon receipt of order.

1 m..... M

3 m..... L 5 m..... Z (Example) M9NWZ

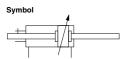
 Since there are other applicable auto switches than listed above, refer to page 808 for details.
 For details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2.
 For the D-P3DW□, refer to the WEB catalog or the Best Pneumatics No. 2.
 The D-A9UMO□_UP3DW□ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□□□ before shipment.) SMC

Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod Series CA2KW

Non-rotating accuracy: ±0.8°

Same mounting dimensions as those of standard cylinder





Made to Order	Made to Order (For details, refer to pages 811 to 828.)
Symbol	Specifications
-XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length
-XC28	Compact flange made of SS400

Refer to pages 802 to 808 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Operating range
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.

Specifications

Bore size (mm)	40	50	63	
Fluid	Air			
Proof pressure	1.5 MPa			S
Maximum operating pressure	1.0 MPa			de
Minimum operating pressure	0.08 MPa			ii
Ambient and fluid temperature	Without auto switch: -10 to 70°C* With auto switch :-10 to 60°C*			Air Cylinders
Piston speed	50 to 500 mm/s			_ ◄
Cushion	Air cushion			
Stroke length tolerance	Up to 250 st: ^{+1.0} , 251 to 600 st: ^{+1.4}			CJ2
Rod non-rotating accuracy	±0.8°			
Allowable rotational torque	0.44 N·m or less			CM2
Lubrication	Not required (Non-lube)			
M Al	Basic, Axial foot, Rod flange,			CG1
Mounting	Head flange, Center trunnion			
No freezing				- MB

In case of a type with auto switch, also refer to the table of minimum Standard Strokes/strokes for auto switch mounting on pages 806 and 807.

	(mm)	CQ2 COS
Bore size	Standard stroke	Lube-
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500*	retainer
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600*	Totaliloi
* Intermediate strokes not listed above are also available.		

Please consult with SMC for longer strokes than the strokes marked with "*".

Weights/Aluminum Tube

Во	re size (mm)	40	50	(kg)
1	Basic	1.01	1.54	2.17
Desis weight	Axial foot	1.20	1.76	2.50
Basic weight	Flange	1.38	1.99	2.96
-	Trunnion	1.37	2.02	2.97
Additional weig	ght per 50 mm of stroke	0.27	0.36	0.42
Accessories	Single knuckle	0.23	0.26	0.26
Accessories	Double knuckle (with pin)	0.37	0.43	0.43
Calculation: (Ex	ample) CA2KWL40-10	D		
Basic weight				
• Cylinder stroke 100 stroke 1.20 + 0.27 x 100/50 = 1.74 kg				

Production of Types with Rod Boot

Series CA2KW is also available with rod boot. Please consult with SMC for more information.

Minimum Stroke for Auto Switch Mounting

Caution

1. The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention. (For details, refer to pages 806 and 807.)

CA2

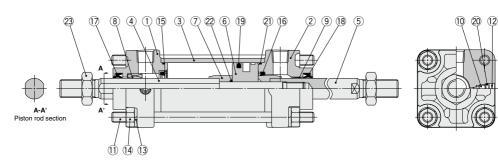
MXH

MXQ

WRF

Series CA2KW

Construction



Component Parts

No.	Description	Material	Note
1	Rod cover A	Aluminum alloy	Metallic painted
2	Rod cover B	Aluminum die-casted	Metallic painted
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston rod A	Carbon steel	Hard chrome plating
5	Piston rod B	Carbon steel	Hard chrome plating
6	Piston	Aluminum alloy	Chromated
7	Cushion ring	Rolled steel	Zinc chromated
8	Non-rotating guide	Oil-impregnated sintered alloy	
9	Bushing	Bearing alloy	
10	Cushion valve	Steel wire	Trivalent zinc chromated
11	Tie-rod	Carbon steel	Trivalent zinc chromated
12	Retaining ring	Spring steel	Phosphate coating
13	Spring washer	Steel wire	Trivalent zinc chromated
14	Tie-rod nut	Rolled steel	Trivalent zinc chromated
15	Cushion seal holder	Aluminum alloy	
16	Cushion seal	Urethane	
17	Rod seal A	NBR	
18	Rod seal B	NBR	
19	Piston seal	NBR	
20	Cushion valve seal	NBR	
21	Cylinder tube gasket	NBR	
22	Piston gasket	NBR	O-ring
23	Rod end nut	Rolled steel	Trivalent zinc chromated

Replacement Parts: Seal Kit

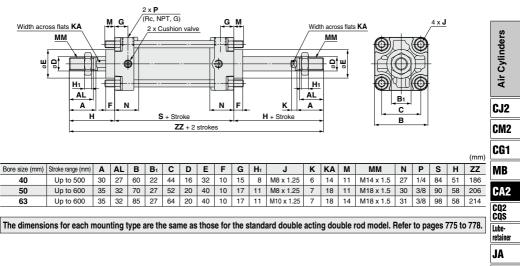
Bore size (mm)	Kit no.	Contents		
40	CA2KW40-PS			
50	CA2KW50-PS	Set of the nos. 16, 17, 18, 19, 21.		
63	CA2KW63-PS			

* Seal kit includes (6, (7), (8, (9, and 2). Order the seal kit based on each bore size.

Society and the second s

Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod Series CA2KW

Basic: CA2KWB

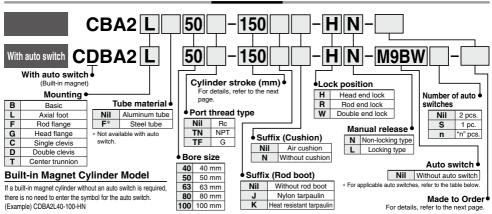


CA2 CQ2 CQS Luberetainer JA MXH MXQ MGP CCY CCX CKL1 C(L)KU C(L)KU CK22N WRF

INDEX

Air Cylinder: With End Lock Series CBA2 ø40, ø50, ø63, ø80, ø100

How to Order



Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

			ight			Load vo	oltage	Auto swit	ch model	Lead	wire l	ength	(m)				
Type	Special function	Electrical	ator	Wiring				Tie-rod	Band	0.5	1	3	5	Pre-wired	Applic		
E.	·	entry	Indicator light	(Output)		DC	AC	mounting	mounting	(Nil)	(M)	(L)	(Z)	connector	loa	ia	
				3-wire (NPN)				M9N	_	•	•	•	0	0			
				3-wire (INPIN)		5 V,		-	G59	٠	-	٠	0	0	IC circuit		
		Grommet		3-wire (PNP) 24 V	12 V		M9P	—	٠	•	•	0	0	IC circuit			
		Giominei		3-WIE (FINF)	24 V		_	—	G5P	•	-		0	0			
				2-wire		12 V		M9B	—	•	•		0	0			
						12 V		—	K59	•	—	٠	0	0	-		
÷		Terminal		3-wire (NPN)		12 V		G39C	G39	-	-	—	—	-			
auto switch		conduit		2-wire		12 V		K39C	K39	_	-	—	—	_			
1S (3-wire (NPN)				M9NW		•	•	•	0	0			
Ĕ				0 1110 (11111)		5 V,			G59W	•	-	•	0	0	IC circuit	Relay,	
ea	Diagnostic indication		Yes	3-wire (PNP)		12 V		M9PW		•	•	•	0	0		PLC	
tat	(2-color indication)			0 1110 (1 111)					G5PW	•	-	•	0	0		1 10	
Solid state				2-wire		12 V		M9BW			•	•	0	0			
1				-	24 V		—		K59W	•	-	•	0	0			
S		Grommet		3-wire (NPN)		5 V,		M9NA**	_	0	0	•	0	0	_		
	Water resistant			3-wire (PNP)	3-wire (PNP)		12 V		M9PA**	_	0	0	•	0	0		
	(2-color indication)			2-wire		12 V		M9BA**		0	0	•	0	0			
					1				G5BA**	_	-	•	0	0	10 1 1		
	With diagnostic output (2-color indication)			4-wire (NPN)	4	5 V, 12 V		F59F	G59F	•	-	•	0	0	IC circuit		
	Magnetic field resistant			2-wire (Non-polar)		_		P3DW	-	٠	-	•	•	0	_		
	(2-color indication)			,		5.14		P4DW	_	-	-	•	•	0	10		
			Yes	3-wire (NPN equiv.)	-	5 V	-	A96 A93		•	-	•	_	-	IC circuit	_	
5 F		0	No				100 V 100 V or less			•	-		•	_	IC circuit		
Ň		Grommet	Yes				100 V or less 100 V, 200 V	A90 A54	 B54	•	-	•	_	_	IC circuit	Relay,	
os						10.1		A54 A64	B54 B64	•			•	_		PLC	
auto switch		Terminal	No	2-wire	24 V	12 V	200 V or less	A64 A33C	A33	-			-				
8		l erminal conduit						A33C A34C	A33 A34				-		-	PLC	
Reed		DIN terminal	Yes				100 V, 200 V	A34C A44C	A34 A44	_	-	-	-			Relay,	
-	Diagnostic indication (2-color indication)	Grommet	{					A440		-			_	_		PLC	
	Diagnostic indication (2-color indication)	Gioinmet			1		_	ASSA	D09W				-			110	

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW * Solid state auto switches marked with "O" are produced upon receipt of order.

1 m..... M (Example) M9NWM

- 3 m..... L (Example) M9NWL
- 5 m.....Z (Example) M9NWZ

* Since there are other applicable auto switches than listed above, refer to page 808 for details.

Short details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2. For the D-P3DW□, refer to the WEB catalog or the Best Pneumatics No. 2.

^{*} The D-A9□/M9□□□/P3DW□ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□□□ before shipment.) SMC

Maintains the cylinder's original position even if the air supply is interrupted.

When air is discharged at the stroke end position, the lock engages to maintain the rod in that position

Same dimensions as those of the standard cylinder (Series CA2)

Non-locking and locking types are standard for manual release.



Symbol Air cushion

Order



Made to Order (For details, refer to pages 811 to 828.)

Symbol Specifications -XA Change of rod end shape -XB6 Heat resistant cylinder (-10 to 150°C) -XC3 Special port location -XC4 *1 With heavy duty scraper -XC6 *1 Made of stainless steel Tie-rod cushion valve tie-rod nut etc. -XC7 made of stainless steel Adjustable stroke cylinder/Adjustable -XC8 *1 extension type Adjustable stroke cylinder/Adjustable -XC9*2 retraction type -XC10 Dual stroke cylinder/Double rod type -XC14 Change of trunnion bracket mounting position -XC15 Change of tie-rod length -XC22 Eluororubber seal Double clevis and double knuckle joint -XC27 pins made of stainless steel -XC28 Compact flange made of SS400 -XC29 Double knuckle joint with spring pin -XC35 *1 With coil scraper *1 For head end lock only

*2 For rod end lock only

Refer to pages 802 to 808 for cylinders with auto switches

- · Auto switch proper mounting position (detection at stroke end) and its mounting height
- Operating range
- Minimum stroke for auto switch mounting
- · Auto switch mounting brackets/Part no.

Specifications

40	50	63	80	100							
		Air									
		1.5 MPa									
		1.0 MPa									
		0.15 MPa*1									
e Without auto switch: -10 to 70°C*2 With auto switch : -10 to 60°C*2											
50 to 500 mm/s											
		Air cushion									
Up to 2	50 st: ^{+ 1.0} 251	to 1000 st: * 0	4 1001 to 150	00 st: ^{+ 1.8}							
	Not r	equired (Non	-lube)								
	Up to 2	Without au With auto 5 Up to 250 st: * ¹⁰ 251 Not r Basic, Axial fo	Air 1.5 MPa 1.0 MPa 0.15 MPa*1 Without auto switch: -1 With auto switch: -1 50 to 500 mm. Air cushion Up to 250 st: *10 251 to 1000 st: *2 Not required (Non Basic, Axial foot, Rod flange	Air 1.5 MPa 1.0 MPa 0.15 MPa*1 Without auto switch: -10 to 70°C*2 With auto switch: -10 to 60°C*2 50 to 500 mm/s							

*2 No freezing

Lock Specifications

Lock position		Head end	d, Rod end, D	ouble end								
	ø 40	ø50	ø 63	ø 80	ø100	CQS						
Holding force (Max.) (N)	860	1340	2140	3450	5390	Lube-						
Backlash			retain									
Manual release	Non-locking type, Locking type											

Accessories/For details, refer to page 770.

5					Option		MXQ
Accessories		Standa	rd				
Mounting	Rod end nut	Clevis pin	Lock release bolt (N type only)	Single knuckle joint	Double knuckle joint (with pin)	Rod boot	MGP
	nut	pin	(in type only)	joint	joint (with pin)		C
Basic	•	—	•	•	•		C□X
Axial foot	•	_	•	•	•	•	
Rod flange	•	_	•	•	•	•	CK🗆 1
Head flange	٠	_	•	•	•	•	
Single clevis	•	_	•	•	•	•	C(L)K□
Double clevis*	•	•	•	•	•	•	
Center trunnion	•	—	•	•	•		C(L)KU
* Double clevis and	double knu	ckle joint tu	nes are nacked	with nin enlit	nin and flat was	hor	

le joint types are packed with pin, split pin and flat was

(mm

Standard Strokes

	(1111)
Bore size	Standard stroke
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700
* Types wi	th auto switch have different minimum

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature	WRF
J	Nylon tarpaulin	70°C	
к	Heat resistant tarpaulin	110°C*	

* Maximum ambient temperature for the rod boot itself

strokes. Refer to pages 806 and 807.

Minimum Stroke for Auto Switch Mounting

▲ Caution

1. The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention. (For details, refer to pages 806 and 807.)

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MB

CA2

MXH

CKO

CKZ2N



Series CBA2

Weights/Aluminum Tube (Steel Tube)

						(kg)
Bore	size (mm)	40	50	63	80	100
	Basic	0.89 (0.94)	1.36 (1.40)	2.00 (2.04)	3.48 (3.63)	4.87 (5.07)
	Axial foot	1.08 (1.13)	1.58 (1.62)	2.34 (2.38)	4.15 (4.30)	5.86 (6.06)
Desis weight	Flange	1.26 (1.30)	1.81 (1.86)	2.79 (2.84)	4.93 (5.08)	6.79 (6.99)
Basic weight	Single clevis	1.12 (1.17)	1.70 (1.74)	2.63 (2.67)	4.59 (4.74)	6.65 (6.86)
	Double clevis	1.16 (1.21)	1.79 (1.84)	2.79 (2.83)	4.88 (5.03)	7.17 (7.38)
	Trunnion	1.25 (1.35)	1.84 (1.94)	2.80 (3.00)	5.03 (5.32)	7.15 (7.54)
Additional weight per 50 mm of	All mounting brackets (Except steel tube trunnion)	0.22 (0.28)	0.28 (0.35)	0.37 (0.43)	0.52 (0.70)	0.65 (0.87)
stroke	Steel tube trunnion	(0.36)	(0.46)	(0.65)	(0.86)	(1.07)
Accessories	Single knuckle	0.23	0.26	0.26	0.60	0.83
Accessolies	Double knuckle (with pin)	0.37	0.43	0.43	0.87	1.27

* Values inside the parentheses are those for the steel tube type.

Lock Unit Additional Weights

						(kg)
Bore	size (mm)	40	50	63	80	100
	Head end lock (H)	0.02	0.03	0.03	0.10	0.12
Non-locking type manual release (N)	Rod end lock (R)	0.02	0.02	0.02	0.07	0.06
	Double end lock (W)	0.04	0.05	0.05	0.17	0.18
	Head end lock (H)	0.04	0.05	0.05	0.13	0.15
Locking type manual release (L)	Rod end lock (R)	0.04	0.04	0.04	0.10	0.09
Inanual release (L)	Double end lock (W)	0.08	0.09	0.09	0.23	0.24

Calculation: (Example) CBA2L40-100-HN

Basic weight 1.08 kg (ø40, Axial foot)

Additional weight ···· 0.22/50 stroke

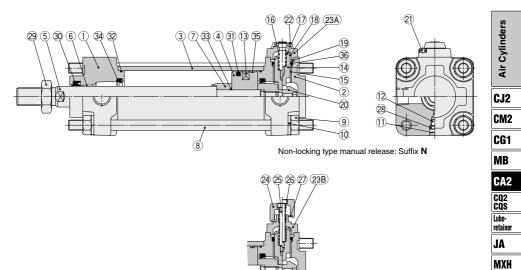
Cylinder stroke ----- 100 stroke

Lock unit weight ···· 0.02 kg

(Head end lock, Non-locking type manual release) 1.08 + 0.22 x 100/50 + 0.02 = 1.54 kg

Construction

Head end lock



Locking type manual release: Suffix L

Component Parts

No.	Description	Material	Note
	Description		
_1	Rod cover	Aluminum die-casted	Metallic painted
2	Head cover	Aluminum die-casted	Metallic painted
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston	Aluminum alloy	Chromated
5	Piston rod	Carbon steel	Hard chrome plating
6	Bushing	Bearing alloy	
7	Cushion ring A	Rolled steel	Electroless nickel plating
8	Tie-rod	Carbon steel	Zinc chromated
9	Tie-rod nut	Rolled steel	Trivalent zinc chromated
10	Spring washer	Steel wire	Trivalent zinc chromated
11	Retaining ring	Spring steel	Phosphate coating
12	Cushion valve	Steel wire	Trivalent zinc chromated
13	Magnet*	—	* With auto switch
14	Lock piston	Carbon steel	Quench hard chrome plating
15	Lock bushing	Lead-bronze casted	
16	Lock spring	Stainless steel	
17	Bumper	Urethane	
18	C-ring	Steel wire	Zinc chromated
19	Seal retainer	Rolled steel	Zinc chromated
20	Cushion ring nut	Chromium molybdenum steel	Quench, Electroless nickel plating
21	Hexagon socket head cap screw	Chromium molybdenum steel	Black zinc chromated
22	Rubber cap	Chloroprene rubber	
23A	Cap A	Aluminum casted	Black coated
23B	Cap B	Carbon steel	Oxide film treated
		·	-

			C Y
Description	Material	Note	C
M/O knob	Zinc die-casted	Black coated	CK□1
M/O bolt	Chromium molybdenum steel	Black zinc chromated, Red painted	
M/O spring	Steel wire	Zinc chromated	C(I)K
Stopper ring	Carbon steel	Zinc chromated	
Cushion valve seal	NBR		C(L)KU
Rod end nut	Rolled steel	Trivalent zinc chromated	•(=)•
Rod seal	NBR		CKQ
Piston seal	NBR		
Cylinder tube gasket	NBR		CKZ2N
Piston gasket	NBR		
Cushion seal	NBR		WRF
Wear ring	Resin		
Lock piston seal	NBR		
	M/O knob M/O bolt M/O spring Stopper ring Cushion valve seal Rod end nut Rod seal Piston seal Cylinder tube gasket Piston gasket Cushion seal Wear ring	M/O knob Zinc die-casted M/O bolt Chromium molybdenum steel M/O spring Steel wire Stopper ring Carbon steel Cushion valve seal NBR Rod end nut Rolled steel Rod seal NBR Piston seal NBR Cylinder tube gasket NBR Cushion seal NBR Wear ring Resin	M/O knob Zinc die-casted Black coated M/O bolt Chromium molybdenum steel Black zinc chromated, Red painted M/O spring Steel wire Zinc chromated Stopper ring Carbon steel Zinc chromated Cushion valve seal NBR Rod end nut Rolled steel Trivalent zinc chromated Rod seal NBR Piston seal NBR

Replacement Parts: Seal Kit

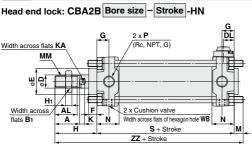
Bore size	Kit	no.	Contents
(mm)	One end lock	Contents	
40	MBB40-PS	MBB40-PS-W	
50	MBB50-PS	MBB50-PS-W	
63	MBB63-PS	MBB63-PS-W	Set of the nos. 30, 31, 32, 34, 36.
80	MBB80-PS	MBB80-PS-W	· · · · · · · · · · · · · · · · · · ·
100	MBB100-PS	MBB100-PS-W	

* Seal kit includes 30, 31, 32, 34 and 36. Order the seal kit based on each bore size

size. Do not disassemble the trunnion type. Refer to page 829. Seal kit includes a grease pack (q40, q50: 10 q, q63, q60: 20 g, q100: 30 g). Order with the following part number when only the grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

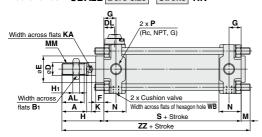
MXQ MGP

Series CBA2



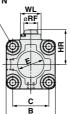
Basic (Dimensions are common to head end lock, rod end lock and double end lock types.)





Non-locking type manual release: Suffix N

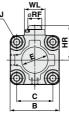
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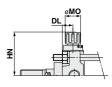
Locking type manual release: Suffix L



Non-locking type manual release: Suffix N



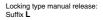
Locking type manual release: Suffix L



Non-locking type manual release: Suffix N W øRF

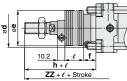
с

в



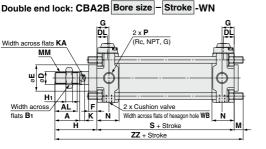


With rod boot



1 t				T	٦Ĺ	t								Wit	th F	Rod B	oot										(1	mm)
8 8									Bore	e size	e (mm)	Stroke	e ranç	ge (m	im) d	е		f	h		l	1	ZZ					
											40)	2	0 to 5	500	56	43	1	1.2	59	1/4	strok	te 1	54				
												50 20 to 600 64					52	1	1.2	66	1/4	strok	ie 1	67				
											63 20 to 600			64	52	1	1.2	66	1/4	strok	te 1	78						
$\frac{\mathbf{h} + \ell}{\mathbf{ZZ} + \ell + \text{Stroke}}$											80 20 to 750			750	76	65	1	2.5	80	1/4	strok	ie 2	213					
											10	0	2	0 to 7	750	76	65	1	4	81	1/4	strok	ie 2	224				
														<u> </u>	1	r		1										
Bore size (mm)	Stroke range	A	AL	в	B₁	с	D	DL	Е	F	G	н	Hı	HR	HN (Max.)	J	ĸ	KA	м	ММ	мо	Ν	Р	RF	s	wв	WL	zz
40	Up to 500	30	27	60	22	44	16	13	32	10	15	51	8	42.3	56	M8 x 1.2	5 6	14	11	M14 x 1.5	19	27	1/4	17	84	2.5	25	146
50	Up to 600	35	32	70	27	52	20	13	40	12	17	58	11	47.3	61	M8 x 1.2	5 7	18	11	M18 x 1.5	19	30	3/8	17	90	2.5	25	159
63	Up to 600	35	32	85	27	64	20	15.5	40	10	17	58	11	54.8	68.5	M10 x 1.2	5 7	18	14	M18 x 1.5	19	31	3/8	17	98	4	25	170
80	Up to 750	40	37	102	32	78	25	18.5	52	14	21	71	13	65.8	80.5	M12 x 1.7	5 11	22	17	M22 x 1.5	23	37	1/2	21	116	4	40	204
100	Up to 750	40	37	116	41	92	30	20	52	14	21	72	16	72.8	87.5	M12 x 1.7	5 11	26	17	M26 x 1.5	23	40	1/2	21	126	4	40	215

The dimensions for each mounting type are the same as those for the standard double acting single rod model. Refer to pages 761 to 769. **SMC**





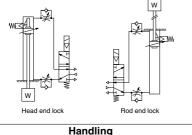
Series CBA2 **Specific Product Precautions**

Be sure to read this before handling. Refer to page 1574 for Safety Instructions. For Actuator and Auto Switch Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website. http://www.smcworld.com

Use the Recommended Pneumatic Circuit

A Caution

This is necessary for proper operation and release of the lock.



∧ Caution

1. Do not use a 3 position solenoid valve.

- Avoid using this cylinder in combination with a 3 position solenoid valve (particularly the closed center metal seal type). If air pressure becomes sealed inside the port on the lock mechanism side, the cylinder cannot be locked. Even if the lock is released at first, the air that leaks from the solenoid valve could enter the cylinder and cause the lock to release as time elapses.
- 2. Back pressure is required to release end lock. Be sure air is supplied to the side of the cylinder without a lock mechanism (side of the piston rod without lock for double end lock), before starting up, as in the above figures. Otherwise, the lock may not be released. (Refer to "Releasing the Lock".)
- 3. Release the lock when mounting or adjusting the cylinder.

If mounting or other work is performed when the cylinder is locked, the lock unit may be damaged.

- 4. Operate with a load ratio of 50% or less. If the load ratio exceeds 50%, this may cause problems such as failure of the lock to release, or damage to the lock unit.
- 5. Do not operate multiple synchronized cylinders. Avoid applications in which two or more cylinders with end lock are synchronized to move one workpiece, as one of the cylinder locks may not be able to release when required.
- 6. Use a speed controller with meter-out control. If operated under meter-in control, the lock may not be released.
- 7. Be sure to operate completely to the cylinder stroke end on the side with the lock. The lock may not be engaged or released if the piston in the

cylinder has not reached the stroke end.

Operating Pressure

1. Supply air pressure of 0.15 MPa or higher to the port on the lock mechanism side, as it is necessary for releasing the lock.

Exhaust Speed

▲ Caution

1. When the pressure on the lock mechanism side drops to 0.05 MPa or below, the lock engages automatically. If the piping on the lock mechanism side is thin and long, or if the speed controller is away from the cylinder port, the lock engagement may take some due to decline of the exhaust speed. The same result will be caused by clogging of the silencer installed at the EXH port of the solenoid valve.

Relation to Cushion

A Caution

1. When the cushion valve on the lock mechanism side is fully closed or almost closed, the piston rod may not be able to reach the stroke end, resulting in lock engagement failure. Furthermore, if the lock becomes engaged while the cushion valve is almost fully closed, it may become impossible to be released. Therefore, the cushion valve must be adjusted properly.

Releasing the Lock

A Caution

1. To release the lock, make sure to supply air pressure to the port on the side without a lock mechanism, thus preventing the load from being applied to the lock mechanism. (Refer to the recommended pneumatic circuits.) If the lock is released, while the port on the side without a lock mechanism is in the exhausted state and the load is being applied to the lock mechanism, undue force may be applied to the lock mechanism, causing the lock mechanism to be damaged. Also, it could be extremely dangerous, because the piston rod could move suddenly.

Manual Release

A Caution

1. Non-locking type manual release

Insert the bolt, which is provided as an accessory, through the rubber cap (it is not necessary to remove the rubber cap). Screw the bolt into the lock piston and pull the bolt to release the lock. Releasing the bolt will re-engage the lock.

The bolt size, pulling force, and the stroke are listed below.

,				INIUL
Bore size (mm)	Thread size	Pulling force	Stroke (mm)	
Dore 3ize (mm)	Thread Size	T uning force	Slicke (IIIII)	O W
40, 50, 63	M3 x 0.5 x 30 L or more	10 N	3	C□Y C□X
80, 100	M5 x 0.8 x 40 L or more	24.5 N	3	
* Remove the bolt	for normal operation.			CK 1

* Remove the bolt for normal operation. * It can cause lock malfunction or faulty release.



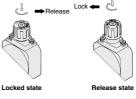
2. Locking type manual release

SMC

Push the M/O knob and turn it 90° counterclockwise. The lock is released when the ▲ mark on the cap is aligned with the ▼ OFF mark on the M/O knob (and the lock will remain released).

To engage the lock, push the M/O knob all the way in and turn it 90° clockwise to align the ▲ mark on the cap with the ▼ ON mark on the M/O knob. At this time, make sure that the knob stops by clicking into place.

Failure to click it into place properly can cause the lock to release.





INDEX

C(L)K🗆

C(L)KU

CKQ

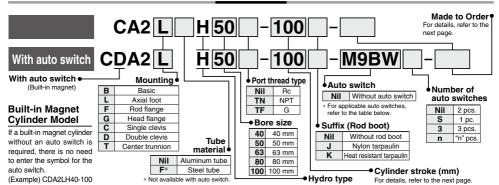
CKZ2N

WRF

Air Cylinders

Air Cylinder: Air-hydro Type **Double Acting, Single Rod** Series CA2 ø40, ø50, ø63, ø80, ø100

How to Order



Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

	Ĺ			D catalog of al		Load vo			ch model		wire le	ength	(m)								
Type	Special function	Electrical	ator	Wiring				Tie-rod	Band	0.5	1	3	5	Pre-wired	Applie loa						
۴÷.		entry	Indicator light	(Output)		DC	AC	mounting	mounting	(Nil)	(M)	(L)	(Z)	connector	108	ad					
				0 (NDN)				M9N	_	٠	•	٠	0	0							
				3-wire (NPN)		5 V.		_	G59	٠	—	•	0	0	IC circuit						
		Grommet		3-wire (PNP)	24 V	12 V		M9P	—	٠	٠	٠	0	0	IC circuit						
		Grommet		3-wire (PNP)	24 V		-	—	G5P	٠	—	•	0	0	1						
				2-wire]	12 V]	M9B	_	٠	•	•	0	0							
				2-wire		12 V		—	K59	٠	-	٠	0	0	1 —						
-		Terminal		3-wire (NPN)		12 V		G39C	G39	—	-	-	-	-]						
텵		conduit		2-wire]	12 V		K39C	K39	_	—	-	—	-							
SV			1	3-wire (NPN)	1		1	M9NW	—	٠	٠	٠	0	0	1						
욭				3-wire (INPIN)		5 V,		—	G59W	٠	—	•	0	0	IC circuit						
al	Diagnostic indication		Yes	3-wire (PNP)]	12 V		M9PW	—	•	•	•	0	0		Relay, PLC					
tate	(2-color indication)			3-wire (PNP)				—	G5PW	٠	-	٠	0	0	1	FLO					
Solid state auto switch				2-wire	1	12 V	1	M9BW	—	٠	•	•	0	0		1					
				2-wire	24 V	12 V	-	—	K59W	•	-	•	0	0]						
0		Grommet		3-wire (NPN)]	5 V,		M9NA***	—	0	0	•	0	0							
	Water resistant			3-wire (PNP)]	12 V		M9PA***	—	0	0	•	0	0							
	(2-color indication)			2-wire	12 \	10.1/		M9BA***	—	0	0	•	0	0							
				2-wire		12 V		—	G5BA***	—	-	•	0	0							
	With diagnostic output (2-color indication)			4-wire (NPN)]	5 V, 12 V		F59F	G59F	•	—	•	0	0	IC circuit						
	Magnetic field resistant			2-wire]]	P3DW	—	•	-	•	•	0							
	(2-color indication)			(Non-polar)		_		P4DW	—	—	-	•	•	0	_						
			Yes	3-wire (NPN equiv.)	-	5 V	—	A96**	—	•	—	•	—	—	IC circuit	-					
ء			163				100 V	A93**	—	٠	—	•	•	-	-						
Ę		Grommet	No				100 V or less	A90**	—	•	—	•	—	—	IC circuit	Relay.					
s			Yes				100 V, 200 V	A54	B54	•	—	•	•	—		PLC					
L 율			No	2-wire	24 V	12 V	200 V or less	A64	B64	٠	—	•	—	-	1 '	PLC					
q		Terminal		2-wile	24 V			A33C	A33	_	_	-	-	_							
Reed auto switch		conduit	Vac									100 V, 200 V	A34C	A34	—	—	-	-	—		PLC
-		DIN terminal	Yes	es				100 0, 200 0	A44C	A44	—	_	-	-	_		Relay,				
	Diagnostic indication (2-color indication) Grommet		_	_	A59W	B59W	٠		•	_			PLC								

*** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW

1 m..... M (Example) M9NWM

3 m----- L

* Solid state auto switches marked with "○" are produced upon receipt of order.
**D-A9□ and D-A9□V types cannot be mounted on ø50. Use D-Z7□ and D-Z80 instead. (Example) M9NWL

5 m.....Z (Example) M9NWZ

* Since there are other applicable auto switches than listed above, refer to page 808 for details.

For details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2. For the D-P3DWD, refer to the WEB catalog or the Best Pneumatics No. 2.

* The D-A9□/M9□□□/P3DW□ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□□□ before shipment.) SMC



Air Cylinder: Air-hydro Type Double Acting, Single Rod Series CA2



Symbol

Double acting, without cushion



Made to Order

(For details, refer to pages 811 to 828.)

Symbol	Specifications
-XA🗆	Change of rod end shape
-XC6	Made of stainless steel
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length

Note) Since a heavy duty scraper (-XC4) is installed as standard, there is no need to specify it.

A Precautions

Setting

▲ Caution

1. Do not use the cylinder near fire or on equipment or machinery whose ambient temperature exceeds 60°C. Since the air-hydro cylinder uses flammable hydraulic fluid, there is danger of potential fire.

Selection

Caution

1. Keep the air-hydro cylinder load at 50% or less than the theoretical output. For the air-hydro cylinder to achieve per-

formance that is close to that of the hydraulic cylinder in constant-speed operation and stopping accuracy, the load must be kept at 50% or less than theoretical output

Minimum Stroke for Auto Switch Mounting

A Caution

1. The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention.

(For details, refer to pages 806 and 807.)

Refer to pages 802 to 808 for cylinders with auto switches

- · Auto switch proper mounting position (detection at stroke end) and its mounting height
- Operating range
- · Minimum stroke for auto switch mounting
- · Auto switch mounting brackets/Part no.

Specifications

Bore size (mm)	40	50	63	80	100						
Туре			Air-hydro								
Fluid			Turbine oil			Air Cylinders					
Action			Double acting	3		p					
Proof pressure			1.5 MPa			, iž					
Maximum operating pressure			1.0 MPa			ုပ္					
Ambient and fluid temperature		5 to 60°C									
Minimum operating pressure			0.1 MPa								
Piston speed		0	.5 to 300 mm	/s		CJ2					
Cushion			None								
Stroke length tolerance	Up to 2	50 st: ^{+ 1.0} 251	to 1000 st: +1	⁴ 1001 to 15	00 st: ^{+ 1.8}	CM					
Mounting	Si		Rod flange, l ouble clevis,		ion	CG					
			-			MB					

In case of a type with auto switch, also refer to the table of minimum Standard Strokes/strokes for auto switch mounting on pages 806 and 807.

		(mm)	
Bore size	Standard stroke Note)	(mm) Long stroke	CQ2 CQS
2010 0120		(L and F only)	Lube-
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400,	800	retainer
40	450, 500	000	JA
	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400,		UN.
50, 63	450, 500, 600	1200	MXH
	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400,	ø80: 1400	
80, 100	450, 500, 600, 700	ø100: 1500	MXQ

Note) Intermediate strokes not listed above are produced upon receipt of order.

Accessories

M	ounting	Basic	Axial foot	Rod flange			Double clevis	Center trunnion
Standard	Rod end nut	•	•	•	٠	•	•	٠
Januaru	Clevis pin	_	-	-	_	_	•	-
	Single knuckle joint	٠	٠	٠	٠	٠	•	٠
	Double knuckle joint (with pin)	•	•	•	•	•	•	•
	With rod boot	٠	٠	٠	٠	٠	٠	٠

Rod boot Max. ambient Symbol material temperature Nylon J 70°C tarpaulin Heat resistant 110°C* к

tarpaulin * Maximum ambient temperature for the

rod boot itself.

Rod Boot Material

Weights/Aluminum Tube (Steel Tube)

						(kg)	
Bore	size (mm)	40	50	63	80	100	
	Basic	0.89	1.36	2.00	3.48	4.87	
		(0.94)	(1.40)	(2.04)	(3.63) 4.15	(5.07) 5.86	Calculation:
	Axial foot	(1.13)	(1.62)	(2.34	(4.30)	5.00 (6.06)	(Example)
	Flange	1.26	1.81	2.79	4.93	6.79	CA2LH40-100 (Axial foot, ø40
Basic weight		(1.30)	(1.86)	(2.84)	(5.08) 4.59	(6.99) 6.65	stroke)
weigin	Single clevis	(1.12)	(1.74)	(2.67)	(4.74)	(6.86)	 Basic weight 1.08 kg
	Double clevis	1.16	1.79	2.79	4.88	7.17	 Additional we
		(1.21)	(1.83)	(2.83)	(5.03)	(7.38)	0.22/50
	Trunnion	1.25	1.84	2.80	5.03	7.15	 Cylinder strol 100 strol
	All as a set in a hard shade	(1.35)	(1.94) 0.28	(3.00)	(5.32) 0.52	(7.54) 0.65	1.08 + 0.22 x
Additional weight per 50	All mounting brackets (Except steel tube trunnion)	(0.22)	(0.35)	(0.43)	(0.70)	(0.87)	100/50 = 1.5 2
mm of stroke	Steel tube trunnion	(0.36)	(0.46)	(0.65)	(0.86)	(1.07)	 Values inside parentheses a
Accessories	Single knuckle	0.23	0.26	0.26	0.60	0.83	those for the
, 10000001100	Double knuckle (with pin)	0.37	0.43	0.43	0.87	1.27	tube type.



INDEX

CA2

MGP

CK 1

C(L)K□

C(L)KU

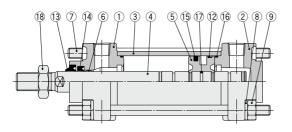
CKO

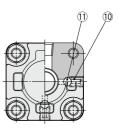
CKZ2N

WRF

Series CA2 \Box H

Construction





Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Metallic painted
2	Head cover	Aluminum alloy	Metallic painted
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston rod	Carbon steel	Hard chrome plating
5	Piston	Aluminum alloy	Chromated
6	Bushing	Bearing alloy	
7	Tie-rod	Carbon steel	Trivalent zinc chromated
8	Spring washer	Rolled steel	Trivalent zinc chromated
9	Tie-rod nut	Rolled steel	Trivalent zinc chromated
10	Air release valve	Chromium molybdenum steel	Black zinc chromated
11	Check ball	Bearing steel	
12	Wear ring	Resin	
13	Scraper	NBR	
14	Rod seal	NBR	
15	Piston seal	NBR	
16	Cylinder tube gasket	NBR	
17	Piston gasket	NBR	
18	Rod end nut	Rolled steel	Trivalent zinc chromated

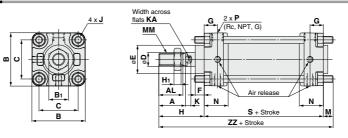
Replacement Parts: Seal Kit

Bore size	Kit no.	Contents
(mm)	Air-hydro type	Contents
40	CA2H40A-PS	
50	CA2H50A-PS	
63	CA2H63A-PS	Set of the nos. (14), (15), (16).
80	CA2H80A-PS	
100	CA2H100A-PS]

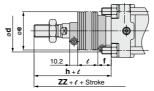
For an ideasasemble the trunnion type. Refer to page 829.
 Seal kit includes ④, ⑤ and ⑥. Order the seal kit based on each bore size.
 Seal kit includes a grease pack (e40, e50: 10 g, e63 or more: 20 g).
 Order with the following part number when only the grease pack is needed.
 Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

Air Cylinder: Air-hydro Type Double Acting, Single Rod Series CA2 \Box H

Basic: CA2BH



With rod boot



																			(mm)		MXH
Bore size (mm)		ange (mm) t With rod boot	A	AL	в	B1	с	D	E	F	G	Hı	J	к	KA	М	мм	N	Р		MXQ
40	Up to 500	20 to 500	30	27	60	22	44	16	32	10	15	8	M8 x 1.25	6	14	11	M14 x 1.5	27	1/4	[MGP
50	Up to 600	20 to 600	35	32	70	27	52	20	40	10	17	11	M8 x 1.25	7	18	11	M18 x 1.5	30	3/8	l	-
63	Up to 600	20 to 600	35	32	85	27	64	20	40	10	17	11	M10 x 1.25	7	18	14	M18 x 1.5	31	3/8		C□Y
80	Up to 750	20 to 750	40	37	102	32	78	25	52	14	21	13	M12 x 1.75	10	22	17	M22 x 1.5	37	1/2	l	C□X
100	Up to 750	20 to 750	40	37	116	41	92	30	52	14	21	16	M12 x 1.75	10	26	17	M26 x 1.5	40	1/2		CK□1
																				ļ	
Bore size	s ^w	Vithout rod bo	oot		١	Nith ro	d boot														C(L)K□
(mm)	3	LI 77				- L			77	7											

(mm)	0	н	ZZ	d	е	f	h	l	ZZ
40	84	51	146	56	43	11.2	59	1/4 stroke	154
50	90	58	159	64	52	11.2	66	1/4 stroke	167
63	98	58	170	64	52	11.2	66	1/4 stroke	178
80	116	71	204	76	65	12.5	80	1/4 stroke	213
100	126	72	215	76	65	14	81	1/4 stroke	224

The dimensions for each mounting type are the same as those for the standard double acting single rod model. Refer to pages 761 to 769.

INDEX

Air Cylinders

CJ2

CM2 CG1

MB

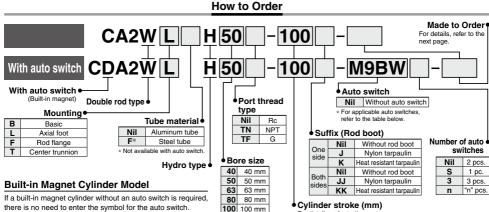
CA2 CQ2 CQS

Lube-

retainer JA

C(L)KU CKQ CKZ2N





there is no need to enter the symbol for the auto switch. (Example) CDA2WLH40-100

Cylinder stroke (mm) For details, refer to the next page.

* Solid state auto switches marked with "O" are produced upon receipt of order. **D-A9 and D-A9 V types cannot be mounted on ø50. Use D-Z7 and D-Z80 instead.

Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

0		FILLING	ight	140 1		Load vo	oltage	Auto swit	ch model	Lead	wire l	ength	(m)	D						
Type	Special function	Electrical entry	Indicator light	Wiring (Output)		DC	AC	Tie-rod mounting	Band mounting	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applio loa					
			_			[]		M9N	_	•	•	•	0	0		1				
				3-wire (NPN)		5 V.		_	G59	•	_	•	Ō	0						
		o		Quint (DND)	24 V	12 V		M9P	_	•	٠	•	0	0	IC circuit					
		Grommet		3-wire (PNP)	24 V		_	—	G5P	٠	—	•	0	0	1					
				2-wire]	12 V		M9B	—	•	•	•	0	0						
				2-wire		12 V		—	K59	٠	—	•	0	0						
÷		Terminal		3-wire (NPN)		12 V		G39C	G39	—	-	—	—	-						
switch		conduit		2-wire		12 V		K39C	K39	—	—	—	—	_						
IS (3-wire (NPN)				M9NW		•	٠	•	0	0						
auto				0 1110 (11111)		5 V,			G59W	•	—	•	0	0	IC circuit	Relay,				
ea	Diagnostic indication		Yes	3-wire (PNP)		12 V		M9PW		•	٠	•	0	0		PLC				
Solid state	(2-color indication)			0 1110 (1 111)					G5PW	•	—	•	0	0		PLC				
				2-wire		12 V		M9BW	-	•	•	•	0	0						
		-		-	24 V		—		K59W	•	-	•	0	0						
0		Grommet		3-wire (NPN)		5 V,		M9NA***	_	0	0	•	0	0	_					
	Water resistant			3-wire (PNP)				ĺ		12 V		M9PA***	-	0	0	•	0	0		
	(2-color indication)			2-wire				12 V		M9BA***		0	0	•	0	0				
				4		514 4014		-	G5BA***	-	-	•	0	0	10	-				
	With diagnostic output (2-color indication)			4-wire (NPN)	{	5 V, 12 V		F59F P3DW	G59F		-	•	0	0	IC circuit	4				
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)		-		P3DW P4DW		•	-		•	0	_					
	(2-color indication)			3-wire (NPN equiv.)		5 V		A96**	_	•	_	•	•	-	IC circuit					
			Yes	3-wire (NPN equiv.)	_	5 V	100 V	A96 A93**	_		_		_	_	IC CIrcuit	-				
switch		Grommet	No				100 V or less	A93*** -		-	_		•		IC circuit	-				
Ň		Grommer	Yes				100 V 01 less	A90 A54	B54	-	_	-	•	_		Relay,				
ő			No			12 V	200 V or less	A64	B64	-	_	-	•			PLC				
Reed auto		Terminal	140	2-wire	24 V	12 1		A33C	A33	_	-	-	_	_						
eq		conduit						A34C	A33	_	_	_	_		-	PLC				
å		DIN terminal	Yes					100 V, 200 V	A44C	A44	_	_	_	_	_		Relay,			
	Diagnostic indication (2-color indication)	Grommet				-	_	A59W		•	_	•	_	_		PLC				

*** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW

1 m..... M (Example) M9NWM

- 3 m..... L (Example) M9NWL
- 5 m------ Z (Example) M9NWZ

* Since there are other applicable auto switches than listed above, refer to page 808 for details.

For details about auto switches with pre-wired connector, refer to the WEB catalog or the Best Pneumatics No. 2. For the D-P3DWD, refer to the WEB catalog or the Best Pneumatics No. 2.

* The D-A9_/M9____/P3DW_ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9_/M9____ before shipment.)

SMC

Air Cylinder: Air-hydro Type Double Acting, Double Rod Series CA2W

Specifications

Bore size (mm)	40	50	63	80	100	1
Туре			Air-hydro			1n
Fluid			Turbine oil			1
Action			Double actin	g		11
Proof pressure			1.5 MPa			11
Maximum operating pressure			1.0 MPa			11
Minimum operating pressure			0.16 MPa			11
Piston speed			0.5 to 300 mn	n/s		14
Ambient and fluid temperature			5 to 60°C] (
Cushion			None			16
Stroke length tolerance		Up to 25	0 st: ^{+1.0} , 251 to	o 750 st: ^{+1.4}		
Mounting	Ba	isic, Axial fo	ot, Rod flange	, Center trun	nion	16

In case of a type with auto switch, also refer to the table of minimum Standard Strokes/strokes for auto switch mounting on pages 806 and 807.

	(mm)	0.10
Bore size	Standard stroke	GAZ
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	CQ2
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	CQS
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700	Lube- retainer
* Intermediate :	strokes not listed above are produced upon receipt of order.	Totamor

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C*

* Maximum ambient temperature for the rod boot itself.

Accessories

Mou	nting	Basic	Foot	Flange	Center trunnion
Standard	Rod end nut	٠	•	•	•
	Single knuckle joint	٠	•	•	•
Option	Double knuckle joint (with pin)	•	•	•	٠
	With rod boot	٠	•	•	•

Weights/Aluminum Tube (Steel Tube)

						(kg)
Bo	re size (mm)	40	50	63	80	100
	Basic	1.03	1.59	2.26	3.94	5.57
	Dasic	(1.08)	(1.64)	(2.30)	(4.09)	(5.78)
	Axial foot	1.22	1.81	2.59	4.61	6.65
Pooio woight	Axiai ioot	(1.27)	(1.86)	(2.63)	(4.76)	(6.77)
Basic weight Additional weight per 50 mm of stroke	Flance	1.40	2.05	3.05	5.39	7.49
	Flange	(1.45)	(2.09)	(3.09)	(5.55)	(7.70)
	Trunnion	1.39	2.07	3.06	5.49	7.85
	Trunnion	(1.49)	(2.18)	(3.25)	(5.78)	(8.24)
Additional	All mounting brackets	0.30	0.40	0.50	0.71	0.92
weight per 50	(Except steel tube trunnion)	(0.35)	(0.47)	(0.55)	(0.89)	(1.15)
	Steel tube trunnion	(0.44)	(0.58)	(0.77)	(1.06)	(1.35)
Accessories	Single knuckle	0.23	0.26	0.26	0.60	0.83
Accessories	Double knuckle (with pin)	0.37	0.43	0.43	0.87	1.27

Calculation: (Example) CA2WLH40-100 (Axial foot, ø40, 100 stroke)

Basic weight 1.22 (Axial foot, ø40)

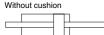
- Additional weight---- 0.30/50 stroke
- Cylinder stroke ----- 100 stroke

1.22 + 0.30 x 100/50 = 1.82 kg

* Values inside the parentheses are those for the steel tube type.



Symbol



Made to Order Made to Order

(For details, refer to pages 811 to 828.)

Symbol	Specifications									
-XC6	Made of stainless steel									
-XC14	Change of trunnion bracket mounting position									
-XC15	Change of tie-rod length									
Note) Sir	Note) Since a heavy duty scraper (-XC4) is installed									

as standard, there is no need to specify it.

Minimum Stroke for Auto Switch Mounting

Caution

1. The minimum stroke for mounting varies with the auto switch type and cylinder mounting type.

In particular, the center trunnion type needs careful attention. (For details, refer to pages 806 and 807.)

Refer to pages 802 to 808 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Operating range
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.

MB

JA

MXH MXO

MGP

C Y C X

CK 1

C(L)K

C(L)KU

CKO

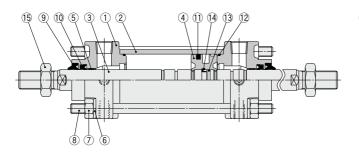
CKZ2N

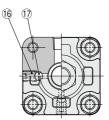
WRF



Series CA2W UH

Construction





Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Metallic painted
2	Cylinder tube	Aluminum alloy	Hard anodized
3	Piston rod	Carbon steel	Hard chrome plating
4	Piston	Aluminum alloy	Chromated
5	Bushing	Bearing alloy	
6	Spring washer	Rolled steel	Chromated
7	Tie-rod nut	Rolled steel	Nickel plating
8	Tie-rod	Carbon steel	Zinc chromated
9	Scraper	NBR	
10	Rod seal	NBR	
11	Piston seal	NBR	
12	Cylinder tube gasket	NBR	
13	Piston gasket	NBR	
14	Piston holder	Urethane	
15	Rod end nut	Rolled steel	Nickel plating
16	Air release valve	Chromium molybdenum steel	Black zinc chromated
17	Check ball	Bearing steel	

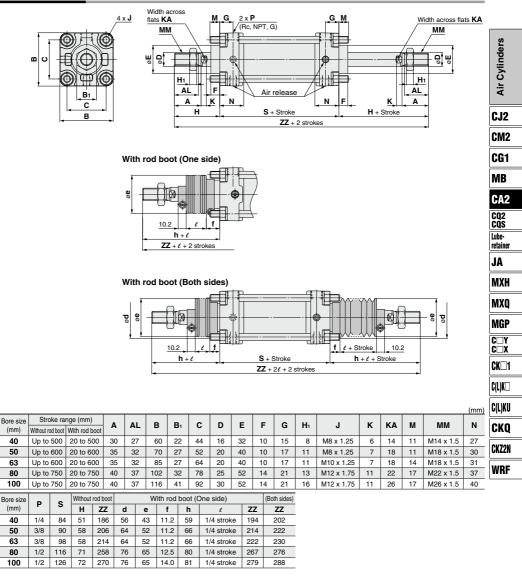
Replacement Parts: Seal Kit

Bore size	Kit no.	Contents
(mm)	Air-hydro type	Contents
40	CA2WH40A-PS	
50	CA2WH50A-PS	Set of the nos.
63	CA2WH63A-PS	(10, (1), (12).
80	CA2WH80A-PS	(0, 11, 12.
100	CA2WH100A-PS	

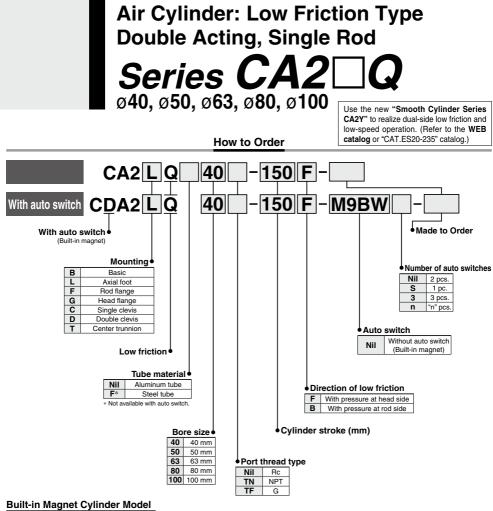
To not disassemble the trunnion type. Refer to page 829.
 Seal kit includes (0, (1) and (2). Order the seal kit based on each bore size.
 Seal kit includes a grease pack (ø40, o50: 10 g, ø63 or more: 20 g).
 Order with the following part number when only the grease pack is needed.
 Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

Air Cylinder: Air-hydro Type Double Acting, Double Rod Series CA2W

Basic: CA2WBH



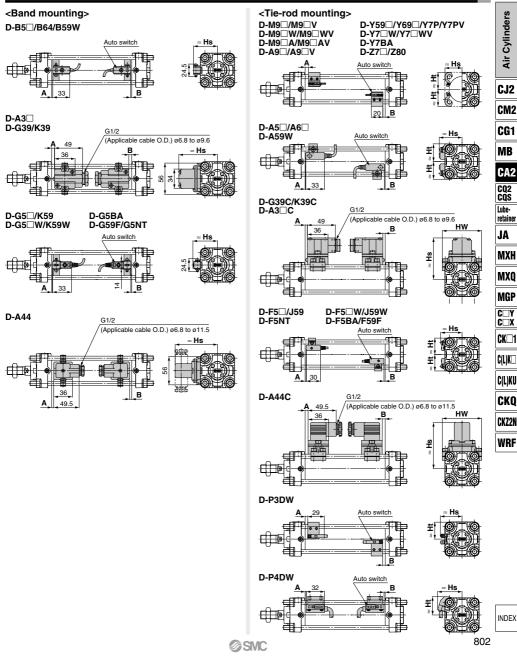
The dimensions for each mounting type are the same as those for the standard double acting double rod model. Refer to pages 775 to 778.



If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDA2BQ40-100

Series CA2 Auto Switch Mounting

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height



Series CA2

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

(mm)

(mm)

Auto Switch Proper Mounting Position (Standard type)

Auto S Auto switch model Bore		□ □V □W □WV	D-AS	90	D-Y5 D-Y6 D-Y7 D-Y7 D-Y7 D-Y7 D-Y7 D-Z7 D-Z8 D-B5	9 9 P PV W W BA BA	D-P3	3DW	D-P4	4DW	D-F5 D-J5 D-F5 D-F5 D-J5 D-F5	9 9F ⊡W 9W	D-F	5NT	D-A	59W	D-G; D-K; D-K; D-A; D-A; D-A; D-A; D-A;	39C 39 39C 50 50 50 50 50 30 30 30 30 C 44	D-G8 D-K8 D-G8 D-G8 D-G8 D-G8	59 5NT 5⊡W 59W 5BA	D-B D-B	
size \	A	в	Α	в	A	в	Α	в	A	в	Α	в	Α	в	A	в	Α	в	Α	B	A	в
40	9	9	5	5	2.5	2.5	4.5	4.5	2	2	5.5	5.5	10.5	10.5	3	3	0	0	1	1	0	0
50	9.5	8.5	5.5	4.5	3	2	5	4	2.5	1.5	6	5	11	10	3.5	2.5	0	0	1.5	0.5	0	0
63	12.5	11.5	8.5	7.5	6	5	3	2.5	5.5	4.5	9	8	14	13	6.5	5.5	2.5	1.5	4.5	3.5	3	2
80	16.5	13.5	12.5	9.5	10	7	7.5	4	9.5	6.5	13	10	18	15	10.5	7.5	6.5	3.5	8.5	5.5	7	4
100	18	16	14	12	11.5	9.5	9	6.5	11	9	14.5	12.5	19.5	17.5	12	10	8	6	10	8	8.5	6.5
Note) Adju	ust the a	uto sw	itch afte	er confi	rming tl	ne oper	ating c	onditior	ns in the	e actua	setting	J.										

Auto Switch Proper Mounting Height (Standard type)

Auto switch model	D-M D-M	9⊡W 9⊡A	D-M9 D-M9 D-M9	□WV	D-A	9□V	D-Y D-Y D-Y D-Y D-Z D-Z	7P 7BA 7□W 7□	D-Y(D-Y) D-Y7	7PV	D-P3	3DW	D-P4	1DW	D-G5 D-K59 D-G5NT D-G5 W D-K59W D-G5BA D-G59F D-B5 D-B5 D-B64 D-B59W	D-G39 D-K39 D-A3□	D-A44	D-F D-J D-F D-F D-F D-F D-F D-F	59 5⊡W 59W 58A 59F	D-A		D-G; D-K; D-A;	39C	D-A	44C
size	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Hs	Hs	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
40	30	30	34	30	31	30	30	30	30	30	38	30	42.5	33	37	71.5	81.5	38	31.5	38.5	31.5	73	69	81	69
50	34	34	38	34	35	34	34	34	34	34	42	34	46.5	37.5	42	76.5	86.5	42	35.5	42	35.5	78.5	77	86.5	77
63	41	41	44	41	41.5	41	41	41	41	41	49	41	52	43	49	83.5	93.5	47	43	46.5	43	85.5	91	93.5	91
80	49.5	49	52.5	49	50	49	49.5	49	49.5	49	56	49	58.5	51.5	57.5	92	102	53.5	51	53.5	51	94	107	102	107
100	56.5	56	61	56	58.5	56	56.5	55.5	57.5	55.5	65	56	66	58.5	68	102.5	112.5	61	57.5	61.5	57.5	104	121	112	121

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

	v		⊐v	D-Y7	80	v	D-P3[DW		P4D\	w	D-A3 D-A3 D-A3 D-A3 D-A3 D-A4 D-A4	6□ 3□ 3□C 44	D-0 D-0 D-1 D-0	(59 35NT 35□W (59W 35BA 359F	D-B(D- D- D-	J59 F59 F50 J59 F5E	IF ⊒W W BA	D-I	F5NT	D)-A59		Air Cylinders
	_	_	B	Α	B	_	_	В	A	_		Α	B	Α	B	Α	В	A		B	A	B			B	CJ2
					1	6 5 5.4		3					0		0	1	0	7	5	4.5		9.5				
	_		4 7.5	6	5 1.5	5 5.: 3	_	3.5	-	-	_	2.5	1.5	4.5	3.5	3	2	9	5	4.5 8	11.5	9.5	_		2	CM2
14	12	2	10	9.5	5 7.5	5 6	;	4.5	9	7	7	6	4	8	6	6.5	4.5	12.	-	10.5	17.5	15.5	5 10	D	8	-
			12.5		10	8		6.5				7.5	6.5	9.5	8.5	8	7	14	•	13	19	18	11	1.5	10.5	CG1
N9□ N9□W	D-M9 D-M90	9□V □WV	D-A9	9 - V - C	D-Y59 D-Y7F D-Y7E D-Y7B D-Z7E	9 P D W D BA D	D-Y6 D-Y7	690 7PV [4DW	D-G5 D-K59 D-G5 D-K59 D-G59 D-G59 D-G58))W)W)F 3A NT	D-G39 D-K39		44	D-J59 D-F50 D-J59 D-F59) ⊐W 9W 9F	D-A	6□	D-K3	9C		(mm) 44C	MB CA2 CQ2 CQS Lube- retainer JA
					D-280	'							D-B64	ı												MXH
Ht	Hs	Ht											Hs		Hs					Hs					Ht	MYO
30	34	30	31								42.5		37		71.5							73	69 77	81	69 77	MXQ
41	38 44										46.5 52	43	42	-	76.5 83.5							78.5 85.5	91	86.5 93.5		MGP
	52.5		50							_				;	92				-				-		107	_
5 56	61	56	58.5	56 5	58.5 5	5.5 5	ا 7.5	55.5	65	56	66	58.5	68		102.5	112	.5 (61 8	57.5	61.5	57.5	104	121	112	121	C□Y C□X
																										CK 1
																										C(L)K□
																										C(L)KU
																										CKQ
																										CKZ2N
																										WRF
	88 85 51 11 55 66 80 80 80 80 80 80 80 80 80 80 80 80 80	8 6 8 6 5 11.5 8 5 11.5 8 14 12 16.5 11 5 16.5 11 8 9 Ch Prope D-MS 9 9 19 W D-MS 9 9 9 A D-MS 9 9 19 W D-MS 9 9 10 30 34 38 4 44 44 44 52.5 52.5	8 6 8 6 5 11.5 8.5 14 12 5 5 16.5 13.5 e auto switch after Ch Proper M M9 D-M9 V M9 A M9 I Ht Hs Ht 30 34 30 34 38 34 41 44 44 41 44 44 41 44 44 44 52.5 49	8 6 4 8 6 4 5 11.5 8.5 7.5 14 12 10 5 16.5 13.5 12.5 e auto switch after confir Ch Proper Moun 0 0 0 0 19 W D-M9 V D-A9 0 A9 0 A9 0 A9 1 Ht Hs Ht Hs 30 31 34 30 34 30 31 34 35 41 44 41 41.5 44 41.45	8 6 4 4 8 6 4 3.5 5 11.5 8.5 7.5 6 14 12 10 9.5 5 5 16.5 13.5 12.5 11 e auto switch after confirming D-M9=W D-A9=V D-A9=V 19 D-M9=AV D-A9=V 1 19 D-M9=AV D-A9=V 1 30 34 30 31 30 34 38 34 35 34 41 44 14 15 41 44 14 15 41 52.5 49 50 49	8 6 4 4 1 8 6 4 3.5 1.5 5 11.5 8.5 7.5 6 5 14 12 10 9.5 7.5 5 16.5 13.5 12.5 11 10 e auto switch after confirming the op D-Y75 19::: D-M9:: D-M9:: D-Y76 D-Y77 D-Y77 19::: D-M9:: D-M9:: D-X9:: D-Y76 D-Y77 19::: D-M9:: D-M9:: D-Z80:: D-Z70:: D-Z70:: 30::: 34::: 30::: 31::: 30::: 32::: 33::: 33::: 33::: 33::: 34:: 34:: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 34::: 35::: 34::: 34::: 34:: 34::: 34:::	8 6 4 4 1 6 8 6 4 3.5 1.5 5.5 5 11.5 8.5 7.5 6 5 3 14 12 10 9.5 7.5 6 5 3 14 12 10 9.5 7.5 6 5 3 5 16.5 13.5 12.5 11 10 8 e auto switch after confirming the operatin D-M9.V D-M9.V D-Y79 D-Y79 0-W9.V D-M9.VV D-A9.V D-Y78.0 D-Y79.V D-77.0 D 0-M9.A D-M9.AV D-A9.V D-Y78.0 D D-Z30 D 14	8 6 4 4 1 6 8 6 4 3.5 1.5 5.5 5 11.5 8.5 7.5 6 5 3 14 12 10 9.5 7.5 6 5 3 5 16.5 13.5 12.5 11 10 8 e auto switch after confirming the operating corr Ch Proper Mounting Height (Nc M9 D-M9=V D-Y59 D-Y7P D-Y7P D-Y7P D-Y7P D-Y7P D-M9=V D-M9=V D-Y7P D-Y7D D-Y7P D-Y7P D-Y7P D-Y7P D-M9=V D-M9=V D-Y7P D-Y7P D-Y7P D-Z30 D-Y7P D-Y7P 0-30 34 30 31 30 30 30 34 36 34 34 34 34 34 34 34 34 34 34 34 34 34	8 6 4 4 1 6 3 8 6 4 3.5 1.5 5.5 3.5 5 11.5 8.5 7.5 6 5 3.5 1.5 14 12 10 9.5 7.5 6 4.5 5 16.5 13.5 12.5 11 10 8 6.5 e auto switch after confirming the operating condition Ch Proper Mounting Height (Non-rr D-Y59 D-Y70 D-Y69 M9 D-M9 V D-Y70 D-Y70 D-Y70 D-Y70 M9 D-M9 A D-M9 V D-Y70 D-Y70 D-Y70 D-M9 A D-M9 A D-Y70 D-Y70 D-Y70 D-M9 A D-M9 A D-Y70 D-Y70 D-Y70 B-Z80 D-Y70 D-Y70 D-Y70 D-Y70 D-Y70 30 34 30 31 30 30	8 6 4 4 1 6 3 3,5 8 6 4 3.5 1.5 5.5 3.5 3 5 11.5 8.5 7.5 6 5 3 1.5 5.5 3.5 14 12 10 9.5 7.5 6 4.5 9 5 16.5 13.5 12.5 11 10 8 6.5 10.5 e auto switch after confirming the operating conditions in th Ch Proper Mounting Height (Non-rotati D-M9=W D-M9=W D-A9=V D-Y59= D-Y7P D-Y69= D-Y7PW D-P3E 19: M Hs Ht Hs Ht Hs Ht Hs I Hs I Hs I Hs I Hs I Hs I I I I I I I I I I I I I I I I I I	8 6 4 4 1 6 3 3.5 0 8 6 4 3.5 1.5 5.5 3.5 3 1 5 11.5 8.5 7.5 6 5 3 1.5 5.5 4 14 12 10 9.5 7.5 6 4.5 9 7 5 16.5 13.5 12.5 11 10 8 6.5 10.5 9 e auto switch after confirming the operating conditions in the action of the perating condition of the perating condition of the perating condition of the perating conditions in the action of the perating condition of the perating condition of the perating condition of the perating condition of the perating conditis condition of th	8 6 4 4 1 6 3 3.5 0.5 8 6 4 3.5 1.5 5.5 3.5 3 1 5 11.5 8.5 7.5 6 5 3 1.5 5.5 3.5 3 1 5 11.5 15.5 3.5 3 1.5 5.5 3.5 3 1 5 16.5 13.5 12.5 11 10 8 6.5 10.5 9.5 e auto switch after confirming the operating conditions in the actual stress of the operating conditistress of the operating conditions t	8 6 4 4 1 6 3 3.5 0.5 0.5 8 6 4 3.5 1.5 5.5 3.5 3 1 0 5 11.5 8.5 7.5 6 5 3 1.5 5.5 3.5 4.5 9.7 14 12 10 9.5 7.5 6 4.5 9 7 6 5 16.5 13.5 12.5 11 10 8 6.5 10.5 9.5 7.5 e auto switch after confirming the operating conditions in the actual setting D-M9 V D-M9 V D-Y7P D-Y7P D-Y7P D-Y7PW D-P3DW D-P4DW D-P4DW D-P4DW D-P4DW D-P3DW D-P4DW D-P3DW D-P4DW D-P3DW	8 6 4 4 1 6 3 3.5 0.5 0.5 0 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 0 5 11.5 8.5 3.5 6 5 3.5 3.5 4.5 2.5 1.5 14 12 10 9.5 7.5 6 4.5 9 7 6 4 5 16.5 13.5 12.5 11 10 8 6.5 10.5 9.5 7.5 6.5 e auto switch after confirming the operating conditions in the actual setting. D-M9 V D-Y2P D-Y7P D-Y280'' D-Y29''' D-Y30''' D-P40''' D-S5'''' D-S5'''' D-S5''''''''''''''''''''''''''''''''''''	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 2 5 11.5 8.5 7.5 6 5 3 1.5 5.5 4.5 2.5 1.5 5 4.5 1.5 5.5 4.5 1.5 5.5 1.5 5.5 4.5 1.5 5 1.5 5 1.5	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 5 5 11.5 8.5 3.5 1.5 5.5 4.5 2.5 1.5 4.5 2.5 1.5 4.5 2.5 1.5 4.5 3 1.5 5.5 4.5 2.5 1.5 4.5 3.5 9.5 7.5 6.5 9.5 8.5 9.5	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2.5 0 1 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2.6 0 0.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 5 16.5 13.5 12.5 11 10 8 6.5 10.5 9.5 7.5 6.5 9.5 8.5 8 e auto switch after confirming the operating conditions in the actual setting. - <t< td=""><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 2.5 0 1.0 0 0 2 0 0.5 0 5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 1.5 5 1.5 <</td><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 3.5 2.5 1.5 4.5 3.5 3.5 2.5 1.5 4.5 3.5 3.5 2.5 1.5 4.5 3.5 3.5 3 2 9 14 12 10 9.5 7.5 6 4 8 6 6.5 4.5 1</td><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 5 11.5 8.5 3.5 3 1 0 0 2 0 0.5 0 6.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 4.5 12.5 1.</td><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 4.5 15.5 1.5 1.5 4.5 2.5 1.5 4.5 3.5 3 2 9 8 6 6.5 4.5 10.5 1.5</td><td>8 6 4 4 1 6 3 3.5 0.5 0.2 0 1 0 7 4 12 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2.5 0 1 0 7 4 12 11.5 8.5 7.5 6 5 3 1.5 5.5 4.5 2.5 1.5 4.5 3.5 3.5 3 2 9 8 14 14 12 10 9.5 7.5 6 4.5 9 7.5 6.5 9.5 8.5 8 7 14 13 19 e auto switch after confirming the operating conditions in the actual setting. D-M9 V D-YP D-YP</td><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 1 0 7 4 12 9 5 11.5 8.5 7.5 6 5 3 1.5 5.5 4.5 2.5 1.5 4.5 3 2 9 8 14 13 14 12 0 9.5 7.5 6 9.5 8.5 8 7 14 13 19 18 e auto switch after confirming the operating conditions in the actual setting. 9.5 7.5 6.5 9.5 8.5 8 7 14 13 19 18 0-M9_V D-M9_V D-M9_V D-Y59 D-Y7P D-Y79V D-Y79V D-Y79V D-Y79V</td><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 4 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 1.5</td><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 4.5 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2.5 0 1 0 7 4 12 9 4.5 5 11.5 8.5 7.5 6 5 3.5 3.5 1.5 4.5 1.5 4.5 3.5 3 2.9 8 14 13 6.5 14 12 10 9.5 7.5 6.5 9.5 8.5 8 7 14 13 19 18 11.5 18 11.5 10 18 11.5 10 18 11.5 10 18 10.5 9.5 7.5 6.5 9.5 8.5 8 7 14 13 19 18 11.5 10 18 11.5 10 18 11.5 10 10 10 10 10</td><td>8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 4.5 1.5 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 1.5 5.5 1.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 4.5 12.5 10.5 17.5 10.8 8 14 13 15.5 10.</td></t<>	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 2.5 0 1.0 0 0 2 0 0.5 0 5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 1.5 5 1.5 <	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 3.5 2.5 1.5 4.5 3.5 3.5 2.5 1.5 4.5 3.5 3.5 2.5 1.5 4.5 3.5 3.5 3 2 9 14 12 10 9.5 7.5 6 4 8 6 6.5 4.5 1	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 5 11.5 8.5 3.5 3 1 0 0 2 0 0.5 0 6.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 4.5 12.5 1.	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 4.5 15.5 1.5 1.5 4.5 2.5 1.5 4.5 3.5 3 2 9 8 6 6.5 4.5 10.5 1.5	8 6 4 4 1 6 3 3.5 0.5 0.2 0 1 0 7 4 12 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2.5 0 1 0 7 4 12 11.5 8.5 7.5 6 5 3 1.5 5.5 4.5 2.5 1.5 4.5 3.5 3.5 3 2 9 8 14 14 12 10 9.5 7.5 6 4.5 9 7.5 6.5 9.5 8.5 8 7 14 13 19 e auto switch after confirming the operating conditions in the actual setting. D-M9 V D-YP D-YP	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 1 0 7 4 12 9 5 11.5 8.5 7.5 6 5 3 1.5 5.5 4.5 2.5 1.5 4.5 3 2 9 8 14 13 14 12 0 9.5 7.5 6 9.5 8.5 8 7 14 13 19 18 e auto switch after confirming the operating conditions in the actual setting. 9.5 7.5 6.5 9.5 8.5 8 7 14 13 19 18 0-M9_V D-M9_V D-M9_V D-Y59 D-Y7P D-Y79V D-Y79V D-Y79V D-Y79V	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 4 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 1.5	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 4.5 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2.5 0 1 0 7 4 12 9 4.5 5 11.5 8.5 7.5 6 5 3.5 3.5 1.5 4.5 1.5 4.5 3.5 3 2.9 8 14 13 6.5 14 12 10 9.5 7.5 6.5 9.5 8.5 8 7 14 13 19 18 11.5 18 11.5 10 18 11.5 10 18 11.5 10 18 10.5 9.5 7.5 6.5 9.5 8.5 8 7 14 13 19 18 11.5 10 18 11.5 10 18 11.5 10 10 10 10 10	8 6 4 4 1 6 3 3.5 0.5 0.5 0 2.5 0 1 0 7 4 12 9 4.5 1.5 8 6 4 3.5 1.5 5.5 3.5 3 1 0 0 2 0 0.5 0 6.5 4.5 1.5 5.5 1.5 5 11.5 8.5 7.5 6 4.5 9 7 6 4 8 6 6.5 4.5 12.5 10.5 17.5 10.8 8 14 13 15.5 10.

Series CA2

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

Auto Switch Proper Mounting Position (Air-hydro type)

								•			'											(mm)
Auto switch model Bore	D-M9 D-M9 D-M9	□V □W □WV □A	D-A9 D-A9		D-Y5 D-Y6 D-Y7 D-Y7 D-Y7 D-Y7 D-Y7 D-Y7 D-85 D-Z7 D-Z8	90 PV DV WV BA 9W	D-P:	3DW	D-P4	łDW	D-G D-G D-K D-K D-A D-A D-A D-A D-A	39C 39 39C 50 50 50 50 50 50 50 50 50 50 50 50 50	D-G D-K D-G D-G D-K D-G D-G	59 5NT 5⊡W 59W 5BA	D-B D-B		D-F5 D-J5 D-F5 D-F5 D-J5 D-F5	i9 i9F i⊡W i9W	D-F	5NT	D-A5	i9W
size \	Α	В	A	в	A	в	Α	в	A	в	Α	в	Α	в	A	В	Α	в	A	в	A	B
40	9.5	8.5	5.5	4.5	3.5	1.5	5.5	3.5	3	1	0	0	2	0	0.5	0	6.5	4.5	11.5	9.5	4	2
50	10	8	—	—	3.5	1.5	5.5	3.5	3	1	0	0	2	0	0.5	0	6.5	4.5	11.5	9.5	4	2
63	12.5	11.5	8.5	7.5	6	5	3	1.5	5.5	4	2.5	1.5	4.5	3.5	3	2	9	8	14	13	6.5	5.5
80	16	14	12	10	9.5	7.5	6	4.5	9	7	6	4	8	6	6.5	4.5	4.5	12.5	17.5	15.5	10	8
100	17.5	16.5	13.5	12.5	11	10	8	6.5	10.5	9	7.5	6.5	9.5	8.5	8	7	14	13	19	18	11.5	10.5

* D-A9□ and D-A9□V types cannot be mounted on ø50.

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

Auto Switch Proper Mounting Height (Air-hydro type)

Auto D-G5 switch D-K59 D-F5 model D-Y59 D-G5NT D-J59 D-M9 D-M9 D-M9 D-M9 D-M9 D-M9 D-A9 D-A9 V D-Y7P D-G5□W D-G39 D-F5 W D-A5 D-Y69□ D-G39C D-Y7BA D-K59W D-Y7PV D-P3DW D-P4DW D-K39 D-A44 D-J59W D-A6 D-K39C D-A44C D-Y7□W D-G5BA D-F5BA D-A59W D-A3□C D-Y7 WV D-A3 D-A9□ D-Z7 D-G59F D-F59F D-Z80 D-B5 D-F5NT D-B64 D-B59W Bore size Hs Ht Hs Hs Hs Hs Ht Hs Ht Hs Ht Hs Ht 30 30 35 30 32 30 30 30 30.5 30 38 30 43 33.5 38 72.5 82.5 38.5 31 40 31 73 69 81 69 40 50 77 77 34 34 39 34 34 34 35 34 42 34 47 38 43.5 78 88 42.5 35 43.5 35 78.5 86.5 53 44 63 41 41 46 41 43.5 41 41 41 42.5 41 49 41 50.5 85 95 48 42 49 42 85.5 91 93.5 91 55.5 50 107 80 49.5 49 54 49 51.5 49 49.5 48.5 51 48.5 56 49 60 52 59 93.5 103.5 54 50 94 107 102 56 59.5 56 58.5 56 104 114 57.5 63 100 57 56 62.5 59 56 65 56 67 59 69.5 62 57.5 104 121 112 121

(mm)

* D-A9□ and D-A9□V types cannot be mounted on ø50.

Operating Range

											(mm)
Auto switch model	Bore size						Bore size				
Auto switch model	40	50	63	80	100	100 Auto switch model		50	63	80	100
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	4.5	5	5.5	5	6	D-Y59□/Y69□ D-Y7P/Y7□V D-Y7□W/Y7□WV D-Y7BA	8	7	5.5	6.5	6.5
D-A9□/A9□V	7.5 (7)	8.5 (—)	9.5 (9)	9.5 (9)	10.5 (9)	D-F5□/J59/F5□W D-J59W/F5BA	4	4	4.5	4.5	4.5
D-Z7□/Z80	8.5	7.5	9.5	9.5	10.5	D-F5NT/F59F					
D-A3□/A44 D-A3□C/A44C	9	10	11	11	11	D-G5□/K59/G5□W D-K59W/G5BA D-G5NT/G59F	5	6	6.5	6.5	7
D-A5□/A6□	3		''		''	D-G5NBL	35	35	40	40	40
D-B5□/B64						D-G39/K39 D-G39C/K39C	9	9	10	10	11
D-A59W	13	13	14	14	15	D-P3DW	4.5	5	6	5.5	6
D-B59W	14	14	17	16	18	D-P4DW	4	4	4.5	4	4.5

* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment. Note 1) (): For Series CDA2□H and CDA2W□H.

Note 2) D-A9 and D-A9 V types cannot be mounted on ø50 of the CDA2 H and CDA2W H series.

Minimum Stroke for Auto Switch Mounting

				n: Number of auto switches (mm)						
Auto switch model		Number of auto switches	Brackets other than center trunnion	ø 40	ø 50	Center trunnion Ø63	ø 80	ø100		
D-M9□	2 (I	Different surfaces d same surface) 1	15	Ø 4 0	80	85	90	95	ers	
D-M9⊟ D-M9⊟W		n	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)		+ 40 (n - 4) 2, 12, 16) Note 2)	85 + 40 (n - 4) (n = 4, 8, 12, 16···) Note 2)	90 + 40 (n - 4) (n = 4, 8, 12, 16···) Note 2)	95 + 40 (n - 4) (n = 4, 8, 12, 16) Note 2)	Air Cylinders	
D-M9⊡V	2 (Different surfaces and same surface) 1		10		55	60	65	70	Air C	
D-M9⊡WV		n	$10 + 30 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)		+ 30 (n - 4) 2, 12, 16) Note 2)	$60 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	$65 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	$70 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	CJ2	
D-M9□A		Different surfaces d same surface) 1	15		80	85	95	100	CM2	
D-M9		n	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) ^{Note 1)}		+ 40 (n - 4) 2, 12, 16) ^{Note 2)}	85 + 40 (n - 4) (n = 4, 8, 12, 16) ^{Note 2)}	$95 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	$100 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	CG1	
D-M9□AV		Different surfaces d same surface) 1	10		60	65	70	75	MB	
D-MI3EAV		n	$10 + 30 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)		+ 30 (n - 4) 2, 12, 16) Note 2)	$65 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	$70 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	$75 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	CA2	
D-A9□		Different surfaces d same surface) 1	15		75	80	85	90	CQ2 CQS	
		n	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)	75 (n = 4, 8	+ 40 (n - 4) 2, 12, 16) Note 2)	$80 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	85 + 40 (n - 4) (n = 4, 8, 12, 16) Note 2)	90 + 40 (n = 4, 8, 12, 16) Note 2)	Lube- retainer	
D-A9⊡V		Different surfaces d same surface) 1	10		50 (n - 4)	55	60 (n - 4)	65 (n - 4)	JA	
		n	$10 + 30 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)		+ 30 (<u>n - 4)</u> 8, 12, 16…) ^{Note 2)}	$55 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) ^{Note 2)}	$60 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	$65 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	MXH	
D-F5□/J59 D-F5□W/J59W		Different surfaces d same surface) 1	15		90	100	110	120	MXQ	
D-F5BA/F59F D-A5□/A6		(Same surface)	$15 + 55 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)		+ 55 (n - 4) 3, 12, 16) Note 2)		$110 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	$120 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	MGP	
D-F5NT		Different surfaces d same surface) 1	25		110	120	130	140	C□Y C□X	
		(Same surface)	$25 + 55 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)) + 55 (<u>n - 4)</u> 3, 12, 16…) ^{Note 2)}	$120 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) ^{Note 2)}	$130 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) ^{Note 2)}	$140 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	CK□1	
		Different surfaces d same surface) 1	20		90	100	110	120	C(L)K□	
D-A59W	n	(Same surface)	$\begin{array}{c} 20 + 55 \frac{(n-2)}{2} \\ (n=2,4,6,8 \cdots)^{ Note 1)} \end{array}$		+ 55 (<u>n - 4)</u> 8, 12, 16) ^{Note 2)}	(n = 4, 8, 12, 16) Note 2)	$110 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)		C(L)KU	
		1 Different surfr	15		90	100	110	120	CKQ	
D-G5□/K59 D-G5□W	2	Different surfaces Same surface	15 75		90	100		10	CKZ2N	
D-K59W D-G5BA D-G59F	n	Different surfaces	$15 + 50 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8) Note 1)	(n = 4, 8	+ 50 (n - 4) 2, 12, 16) Note 2)	$100 + 50 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16) Note 2)	(n = 4, 8, 12	50 (<u>n - 4)</u> 2, 16) ^{Note 2)}	WRF	
D-G59F D-G5NT D-B5□/B64		Same surface	75 + 50 (n - 2) (n = 2, 3, 4···)		+ 50 (n - 2) 4, 6, 8) Note 1)	100 + 50 (n - 2) (n = 2, 4, 6, 8) Note 1)	(n = 2, 4, 6	0 (n - 2) 5, 8) Note 1)		
	\vdash	1 Different surfaces	10 20		90	100		10		
	2	Same surface	$\frac{20}{75}$ 20 + 50 $\frac{(n-2)}{2}$		90 + $50 \frac{(n-4)}{2}$	100 $100 + 50 \frac{(n-4)}{2}$		$10 \frac{(n-4)}{2}$		
D-B59W	n	Different surfaces	$\frac{20 + 50}{(n = 2, 4, 6, 8)^{\text{Note 1}}}$ $\frac{(n = 2, 4, 6, 8)^{\text{Note 1}}}{75 + 50 (n - 2)}$	(n = 4, 8	+ 50 2 3, 12, 16) Note 2) + 50 (n - 2)	(n = 4, 8, 12, 16) Note 2)	(n = 4, 8, 12	2, 16) Note 2)		
		Same surface	75 + 50 (n - 2) (n = 2, 3, 4) 15		+ 50 (n - 2) 4, 6, 8) Note 1) 90	100 + 50 (n - 2) (n = 2, 4, 6, 8) ^{Note 1)} 100	(n = 2, 4, 6	0 (n - 2) 5, 8) ^{Note 1)} 10		
	·		· · · · ·							

Note 1) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.

Note 2) When "n" is an odd number, a multiple of 4 that is larger than this odd number is used for the calculation.

Minimum Stroke for Auto Switch Mounting

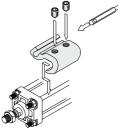
							n: Number o	f auto switches (mm)
Auto switch		Number of	Brackets other than			Center trunnion		
model		auto switches	center trunnion	ø 40	ø50	ø 63	ø 80	ø100
	2	Different surfaces	35		75	80		90
	2	Same surface	100	1	00	100	1	00
D-G39		Different surfaces	35 + 30 (n - 2)	75 + 30) (n – 2)	80 + 30 (n - 2)	90 + 30 (n - 2)	
D-K39		Different surfaces	(n = 2, 3, 4…)	(n = 2, 4, 6, 8) Note 1) (n =		(n = 2, 4, 6, 8) Note 1)	(n = 2, 4, 6	, 8) Note 1)
D-A3	n	Same surface	100 + 100 (n - 2)			100 + 100 (n - 2)		
		Same surface	(n = 2, 3, 4…)			(n = 2, 4, 6, 8) Note 1)	
	1		10	75		80		90
	2	Different surfaces	35		75	80		90
	Ľ	Same surface	55					
		Different surfaces	35 + 30 (n - 2)	75 + 30		80 + 30 (n - 2)	90 + 30	
D-A44	l n		(n = 2, 3, 4…)		6, 8) Note 1)	(n = 2, 4, 6, 8) Note 1)		, 8…) ^{Note 1)}
		Same surface	55 + 50 (n - 2)) (n – 2)	80 + 50 (n - 2)	90 + 50	
			(n = 2, 3, 4)		i, 8) Note 1)	(n = 2, 4, 6, 8) Note 1)		, 8) Note 1)
		1	10		75	80		90
	2	Different surfaces Same surface	20		75 00	80		90 00
D-G39C	-	Same sunace						
D-K39C		Different surfaces	20 + 35 (n - 2) (n = 2, 3, 4···)	75 + 35	5 (n – 2) 5, 8) ^{Note 1)}	80 + 35 (n - 2) (n = 2, 4, 6, 8) Note 1)	90 + 35 (n = 2, 4, 6	(n – 2) , 8) ^{Note 1)}
D-A3□C	n		100 + 100 (n - 2)	(11 = 2, 4, 0	, 0)	100 + 100 (n - 2)	(11 – 2, 4, 0	, 0)
	Same surface		(n = 2, 3, 4, 5···)			n = 2, 4, 6, 8···) ^{Note 1}		
	1 10 75			80		90		
		Different surfaces	20	75				
	2	Same surface	55	75		80	90	
		D.11	20 + 35 (n - 2)	75 + 35	5 (n – 2)	80 + 35 (n - 2)	90 + 35	i (n – 2)
D-A44C		Different surfaces	(n = 2, 3, 4···)	(n = 2, 4, 6	6, 8) Note 1)	(n = 2, 4, 6, 8) Note 1)		, 8) Note 1)
	n	Same surface	55 + 50 (n - 2)	75 + 50) (n – 2)	80 + 50 (n - 2)	90 + 50	(n – 2)
		Same surface	(n = 2, 3, 4…)			(n = 2, 4, 6, 8) Note 1)		
		1	10	75		80	90	
D-Y59□/Y7P		(Different surfaces d same surface) 1	15	80	85	90	95	105
D-Y7□W		,	$15 + 40 \frac{(n-2)}{2}$	$80 + 40 \frac{(n-4)}{2}$	$85 \pm 40 \frac{(n-4)}{2}$	$90 \pm 40 \frac{(n-4)}{2}$	$95 + 40 \frac{(n-4)}{2}$	$105 \pm 40 \frac{(n-4)}{2}$
D-Z7□/Z80		n	(n - 2 4 6 8) Note 1)		(n = 4, 8, 12, 16) Note 2)			
	21	(Different surfaces					(1 = 4, 0, 12, 10 ^m)	(1 = 4, 0, 12, 10 ^m)
D-Y69□/Y7PV		d same surface) 1	10		65	75	80	90
D-Y7□WV		n	$10 + 30 \frac{(n-2)}{2}$	65 + 3	$0 \frac{(n-4)}{2}$		$80 + 30 \frac{(n-4)}{2}$	
			(n = 2, 4, 6, 8) Note 1)	(n = 4, 8, 12	, 16…) Note 2)	(n = 4, 8, 12, 16) Note 2)	(n = 4, 8, 12, 16) Note 2)	(n = 4, 8, 12, 16) Note 2)
		(Different surfaces d same surface) 1	20		95	100	105	110
D-Y7BA		,	$20 + 45 \frac{(n-2)}{2}$	95 + 4	5 (n - 4)	100 + 45 (n - 4)	105 45 (n - 4)	110 + 45 (n - 4)
		n	(n = 2, 4, 6, 8) Note 1)	(n = 4, 8, 12		(n = 4, 8, 12, 16) Note 2)	105 + 45 (n - 4) (n = 4, 8, 12, 16) Note 2)	(n = 4, 8, 12, 16) Note 2)
	21	(Different surfaces	(11 = 2, 4, 0, 0)	(11 = 4, 0, 12	, 10)	(1=4,0,12,10)	(1 = 4, 0, 12, 10)	(1= 4, 0, 12, 10)
		d same surface) 1	15			85		
D-P3DW			$15 + 50 \frac{(n-2)}{2}$			$85 + 50 \frac{(n-4)}{2}$		
		n	(n = 2, 4, 6, 8) Note 1)			(n = 4, 8, 12, 16…)		
	21	(Different surfaces						
		d same surface) 1	15	1:	20	130	1	40
D-P4DW			$15 + 65 \frac{(n-2)}{2}$	120 + 6	$5\frac{(n-4)}{2}$	$130 + 65 \frac{(n-4)}{2}$	140 + 6	5 (n - 4)
		n	(n = 2, 4, 6, 8) Note 1)		2, 16) Note 2)	(n = 4, 8, 12, 16) Note 2)	(n = 4, 8, 12	
			(11 = 2, 4, 0, 0) (1010 1)	(11 = 4, 8, 12	., 10)	(11 = 4, 0, 12, 10) (1000 2)	(11 = 4, 8, 12	, 10)

Note 1) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation. Note 2) When "n" is an odd number, a multiple of 4 that is larger than this odd number is used for the calculation.

Auto Switch Mounting Brackets/Part No.

<Tie-rod mounting>

Auto switch	Bore size (mm)						
model	40	50	63	80	100		
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V	BA7-040	BA7-040	BA7-063	BA7-080	BA7-080		
D-F5□/J59 D-F5□W/J59W D-F59F/F5NT D-A5□/A6□ D-A59W	BT-04	BT-04	BT-06	BT-08	BT-08		
D-G39C/K39C D-A3□C/A44C	BA3-040	BA3-050	BA3-063	BA3-080	BA3-100		
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV D-Y7BA D-Z7□/Z80	BA4-040	BA4-040	BA4-063	BA4-080	BA4-080		
D-P3DW	BMB9-050S	BMB9-050S	BA9T-063S	BA9T-080S	BA9T-080S		
D-P4DW	BAP2-040	BAP2-040	BAP2-063	BAP2-080	BAP2-080		



 The figure shows the mounting example for the D-M9□(V)/M9□W(V)/ M9□A(V)/A9□(V) types.

50

BD1-05M

BA-05

Bore size (mm)

63

BD1-06M

BA-06

80

BD1-08M

BA-08

<Band mounting>

Except air-hydro type

Auto switch		Bore size (mm)						
model	40	50	63	80	100			
D-G39/K39 D-A3□/A44	BDS-04M	BDS-05M	BMB1-063	BMB1-080	BMB1-100			
D-G5□/K59 D-G5□W/K59W D-G59F D-G5NT D-G5NB D-B5□/B64 D-B59W	BH2-040	BA5-050	BAF-06	BAF-08	BAF-10			

Note 1) Auto switch brackets are included in the D-A3 C/A44C/G39C/K39C types. Specify the part number as follows depending on the cylinder size when ordering. (Example) ø40: D-A3 C-4, ø50: D-A3 C-5, ø63: D-A3 C-6, ø80: D-A3 C-8, ø100: D-A3 C-10

Air-hydro type

Auto switch

model

D-G39/K39

D-A3□/A44

D-G5□/K59 D-G5□W/K59W

D-G59F D-G5NT

D-G5NB

D-B5⊡/B64 D-B59W 40

BD1-04M

BA-04

[Stainless Steel Mounting Screw]

The following stainless steel mounting screw kit (including set screws) is also available. Use it in accordance with the operating environment.

(Since the auto switch mounting bracket and band are not included, order them separately.)

BBA1: For D-A5/A6/F5/J5 types

BBA3: For D-B5/B6/G5/K5 types

Note 2) Refer to the WEB catalog or the Best Pneumatics No. 2 for details on the BBA1 and BBA3.

The above stainless steel screws are used when a cylinder is shipped with D-F5BA or G5BA auto switches. When only an auto switch is shipped independently, the BBA1 or BBA3 is attached.

Note 3) When using the D-M9□A(V) or Y7BA, do not use the steel set screws which are included with the above auto switch mounting brackets (BA7-□□□, BA4-

□□□). Order a stainless steel screw kit (BBA1) separately, and use the M4 x 6 L stainless steel set screws included in the BBA1.

Note 4) There is a difference in the cylinder tube thickness depending on the cylinder model. Use caution when a band mounting type is used as an applicable auto switch and a cylinder model is changed.

Other than the applicable auto switches listed in "How to Order", the following auto switches are mountable. Refer to the WEB catalog or the Best Pneumatics No. 2 for the detailed specifications.

Туре	Model	Electrical entry	Features	
	D-M9NV/M9PV/M9BV			
	D-Y69A/Y69B/Y7PV		_	
	D-M9NWV/M9PWV/M9BWV	Grommet (Perpendicular)	Diagnostic indication	
	D-Y7NWV/Y7PWV/Y7BWV		(2-color indication)	
	D-M9NAV/M9PAV/M9BAV		Water resistant (2-color indication	
Solid state	D-Y59A/Y59B/Y7P			
Solid state	D-F59/F5P/J59			
	D-Y7NW/Y7PW/Y7BW		Diagnostic indication	
	D-F59W/F5PW/J59W	Grommet (In-line)	(2-color indication)	
	D-F5BA/Y7BA		Water resistant (2-color indication	
	D-F5NT/G5NT		With timer	
	D-P5DW		Magnetic field resistant (2-color indication	
	D-A93V/A96V	Grommet (Perpendicular)	_	
Reed	D-A90V	Gronner (Ferpendicular)	Without indicator light	
Reed	D-A53/A56/B53/Z73/Z76	Grommet (In-line)	_	
	D-A67/Z80	Z80 Grommet (In-line) Without indicate		

With pre-wired connector is also available for solid state auto switches. For details, refer to the WEB catalog or the Best Pneumatics No. 2.
 Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H/Y7G/Y7H) are also available. For details, refer to the WEB catalog or the Best Pneumatics No. 2.

INDEX

Air Cylinders

CJ2 CM2 CG1

MB Ga2

CQ2

čõs

Lube-

JA

MXH

MXO

MGP

CUY

C X

CK 1

C(L)K□

C(L)KU

CKO

CKZ2N

WRF

retaine

100

BD1-10M

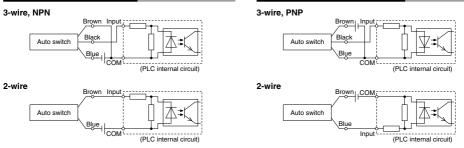
BA-10

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Prior to Use Auto Switch Connection and Example

Source Input Specifications

Sink Input Specifications



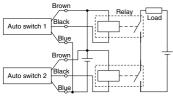
Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

Example of AND (Series) and OR (Parallel) Connection

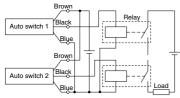
* When using solid state auto switches, ensure the application is set up so the signals for the first 50 ms are invalid.

3-wire AND connection for NPN output

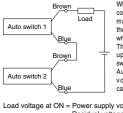
(Using relays)



3-wire AND connection for PNP output (Using relays)

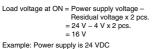


2-wire AND connection



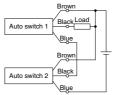
When two auto switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state. The indicator lights will light

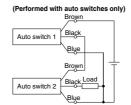
The indicator lights will light up when both of the auto switches are in the ON state. Auto switches with load voltage less than 20 V cannot be used.



Example: Power supply is 24 VDC Internal voltage drop in auto switch is 4 V.

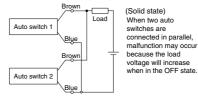
(Performed with auto switches only)





2-wire OR connection

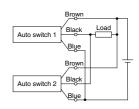
SMC



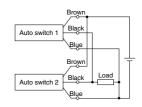
Load voltage at OFF = Leakage current x 2 pcs. x Load impedance = 1 mA x 2 pcs. x 3 k Ω = 6 V

Example: Load impedance is 3 kΩ. Leakage current from auto switch is 1 mA.

3-wire OR connection for NPN output



3-wire OR connection for PNP output



(Reed)

Because there is no current leakage, the load voltage will not increase when turned OFF. However, depending on the number of auto switches in the ON state, the indicator lights may sometimes grow dim or not light up, due to the dispersion and reduction of the current flowing to the auto switches.

Air Cylinders
CJ2
CM2
CG1
MB
CA2
CQ2 CQS
Lube- retainer
JA
MXH
MXQ
MGP
MGP C□y C□x
CK□1
C(L)K 🗆
C(L)KU
CKQ
CKQ CKZ2N WRF
WRF

INDEX

Series CA2 Simple Specials/Made to Order

Simple Specials The following special specifications can be ordered as a simplified Made-to-Order. There is a specification sheet available on paper and CD-ROM. Please contact your SMC sales representatives if necessary.

Symbol	Specifications	(Stand	A2 ard type)
		Single rod	Double rod
-XA0 to 30	Change of rod end shape	 	•
-XC14	Change of trunnion bracket mounting position	Ĩ∳	•
-XC15	Change of tie-rod length]∳	•
Mad	e to Order	-	
Symbol	Specifications	(Stand Doub	CA2 ard type) le acting
		Single rod	Double rod
-XB5	Oversized rod cylinder	Note 1)	
-XB6	Heat resistant cylinder (-10 to 150°C)	↓ •	•
-XC3	Special port location	Note 1)	Note 1)
-XC4	With heavy duty scraper	<u> </u>	•
-XC5	Heat resistant cylinder (-10 to 110°C)	<u> </u>	•
-XC6	Made of stainless steel]	
-XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel]•	•
-XC8	Adjustable stroke cylinder/Adjustable extension type]•	
-XC9	Adjustable stroke cylinder/Adjustable retraction type]•	
-XC10	Dual stroke cylinder/Double rod type]•	
-XC11	Dual stroke cylinder/Single rod type]•	
-XC12	Tandem cylinder]•	
-XC22	Fluororubber seal]•	•
-XC27	Double clevis and double knuckle joint pins made of stainless steel]•	
-XC28	Compact flange made of SS400]•	•
-XC29	Double knuckle joint with spring pin]•	
-XC30	Rod trunnion]	
-XC35	With coil scraper]	•
-XC65	Made of stainless steel (Combination of XC7 and XC68)]	•
-XC68	Made of stainless steel (with hard chrome plated piston rod)]∳	•
-XC85	Grease for food processing equipment]	
-X1184	Cylinder with heat resistant reed auto switch (-10 to 120°C)]∳	
	Note 1) The cover shape is the same as the existing product.		

Note 1) The cover shape is the same as the existing product.

	CA	2K Note 1)	C/	A2DH Note 1)	CBA2 Note 1)		1 1	
		ng rod type)	(Air-h	ydro type)	(With end lock)	0		s
_		acting	Doub	ble acting	Double acting	Symbol	Page	e e
	Single rod	Double rod	Single rod	Double rod	Single rod		1 1	Air Cylinders
L			· · · · · · · · · · · · · · · · · · ·			_		, iž
	•		•		•	-XA0 to 30	Page 813	Ó
								1
	•	•	•	•	•	-XC14	Page 815	<
	•	•	•	•	•	-XC15	Page 815	CJ2
								032
								0.40
	CA	2K	C/	A2□H	CBA2			CM2
	(Non-rotati	ng rod type)	(Air-h	ydro type)	CBA2 (With end lock)		1 1	
	Double	acting	Doub	ble acting	Double acting	Symbol	Page	CG1
	Single rod	Double rod	Single rod	Double rod	Single rod		1 1	
		Bouble Tou		Bouble rou				MB
						-XB5	Page 816	IAID
						-700	raye 010	
						-XB6	Page 816	CA2
					T	-XD0	. age 010	0.000
						-XC3	Page 817	CQ2 CQS
					T	-700	ruge on	
						-XC4	Page 817	Lube-
					T	X0-1	. ugo 0	retainer
						-XC5	Page 818	
								JA
			•	•	•	-XC6	Page 818	
			Ī		Ī		<u> </u>	MXH
	•	•			•	-XC7	Page 818	
								MXQ
	•				•	-XC8	Page 819	MINQ
								MCD
	•				-	-XC9	Page 820	MGP
					1	Xete		C Y
	•					-XC10	Page 821	C
						-XC11	Dama 000	
						-7011	Page 822	CK🗆 1
						-XC12	Page 823	<u></u>
						-7012	aye oza	C(L)K□
						-XC22	Page 823	olrium
					T	-7022	. age 020	6/I \V/II
						-XC27	Page 823	C(L)KU
	Ť				Ť			
	•	•			•	-XC28	Page 824	CKQ
	Ī	Ī			Ī		<u> </u>	
					•	-XC29	Page 824	CKZ2N
								•••••
						-XC30	Page 825	WRF
					1			WNF
						-XC35	Page 825	
						VOOT		
						-XC65	Page 826	
						-XC68	Dago 926	
						-7008	Page 826	
						-XC85	Page 827	
							. age 027	
						-X1184	Page 828	
		1		1		ATTON	. age 020	

Simple Specials These changes are dealt with Simple Specials System. For details, refer to the Simple Specials System in the WEB catalog. http://www.smcworld.com

Symbol

-XA0 to XA30

1 Change of Rod End Shape

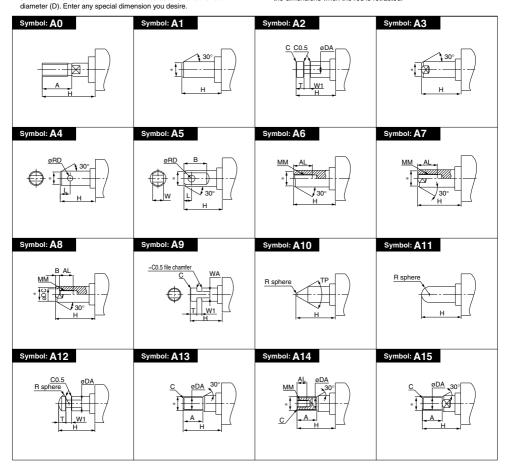
Series CA2

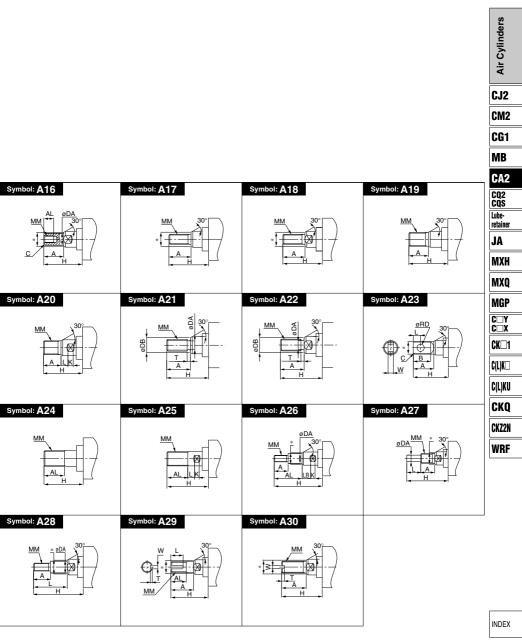
_				
Series		Action	Symbol for change of rod end shape	Note
Standard type	CA2	Double acting, Single rod	XA0 to 30	Except pivot bracket and rod end bracket
Standard type	CA2W	Double acting, Double rod	XA0 to 30	Except pivot bracket and rod end bracket
Non-rotating rod type	CA2K	Double acting, Single rod	XA0, 1, 6, 10, 11, 13, 14, 17, 19, 21	
With end lock	CBA2	Double acting, Single rod	XA0 to 30	
Air-hydro type	CA2⊟H	Double acting, Single rod	XA1, 3, 5 to 8, 10, 11, 13 to 23, 26 to 30	

Precautions

 SMC will make appropriate arrangements if no dimension, tolerance, or finish instructions are given in the diagram.
 Standard dimensions marked with "*" will be as follows to the rod $D \leq 6 \rightarrow D-1$ mm, $6 < D \leq 25 \rightarrow D-2$ mm, $D > 25 \rightarrow D-4$ mm

In the case of double rod type and single acting retraction type, enter the dimensions when the rod is retracted.





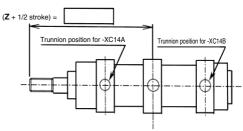
2 Change of Trunnion Bracket Mounting Position

The position for mounting the trunnion pivot bracket on the cylinder can be moved from the standard mounting position to any desired position.

Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	
Standard type	CA2W	Double acting, Double rod	
Non-rotating rod	CA2K	Double acting, Single rod	
type	CA2KW	Double acting, Double rod	
With end lock	CBA2	Double acting, Single rod	
Air-hydro type	CA2⊟H	Double acting, Single rod	
All-flydro type	CA2W□H	Double acting, Double rod	

Precautions

- 1. Specify "Z + 1/2 stroke" in the case the trunnion bracket position is not -XC14A, B or trunnion is not a center trunnion
- 2. SMC will make appropriate arrangements if no dimension, tolerance, or finish instructions are given in the diagram
- 3. The possible range of trunnion bracket mounting position is indicated in the table below.
- Some trunnion mounting positions do not allow auto switch mounting. Please consult with SMC for more information.
- 5. When the trunnion position is changed to somewhere close to the cover for the end lock cylinder, there is a possibility that the lock part and the trunnion pivot bracket may interfere with each other. Change the lock position (-X3) at the same time.



						(mm)
Symbol				Z + 1/2 stroke		
	For -XC14A	For -XC14B	AB For -XC14		Reference	Minimum stroke
Bore size	FUI -AC 14A	FUI -AC 14D	Minimum	Maximum	Standard (Center trunnion)	Minimum stroke
40	89	97 + Stroke	89.5	96.5 + Stroke	93 + 1/2 stroke	1
50	99	107 + Stroke	99.5	106.5 + Stroke	103 + 1/2 stroke	1
63	103	111 + Stroke	103.5	110.5 + Stroke	107 + 1/2 stroke	1
80	125	133 + Stroke	125.5	132.5 + Stroke	129 + 1/2 stroke	1
100	132	138 + Stroke	132.5	137.5 + Stroke	135 + 1/2 stroke	1

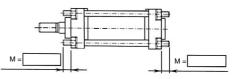
3 Change of Tie-rod Length

Cylinder with M dimension for tie-rod length changed from the standard length.

Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	
Stanuaru type	CA2W	Double acting, Double rod	
Non-rotating rod	CA2K	Double acting, Single rod	
type	CA2KW	Double acting, Double rod	
With end lock	CBA2	Double acting, Single rod	
Air-hydro type	CA2⊟H	Double acting, Single rod	
All-Hydro type	CA2W⊟H	Double acting, Double rod	

Precautions

- 1. To order, specify the M dimension as well as the part number. 2. SMC will make appropriate arrangements if no dimension, tolerance, or
- finish instructions are given in the diagram.
- 3. Tie-rod length changeable range is described in the table on the right. 4. The M dimension of the bracket mounting side of Flange (F, G), Clevis (C, D) types cannot be specified.



Tie-rod Length Changeable Bange

	ingease nange	(11111)
Bore size	All bore size	
M Min.	0	
M Max.	300	

Symbol

-XC15

(mm)

Symbol

-XC14

Made to Order Please contact SMC for detailed dimensions, specifications and lead times.

Series CA2

Made to Order

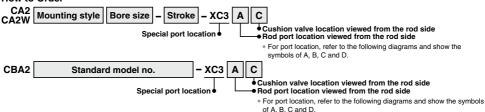
Description Standard type	Model			How 1	o 0	rde	r									
Standard type		Action	Note	CA2	Μοι	Intir	ng s	tyle	В	ore s	size]_[Stroke -	- хв	5	
	CA2	Double acting, Single ro	bc	L							Ove	u u rsize	d rod cylin	der	_	C,
Dimension	S (Dime	nsions other than below	w are the same as stand	lard type)												CI
	0 (2			uru (jpol)	_	_	_	_	_	_	_	_		_		-
Series CA																C
Vidth across flats KA	` \															Μ
Vidth across flats B1		<u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>				_			_		_				(mm)	C
e	Ang.	₹		Bore size	A	AL	B1	øD	н	H1	к	KA	мм	w	zz	CO
° '	HH.			40	35	32	27	20	58	11	7	18	M18 x 1.5	9	153	CC
		<u></u> ╪╫┈ <u>╤</u> ╌──╌─		50	40	37	32	25	71	13	11	22	M22 x 1.5	9	172	Lub
MM	┍╨╢┥┝╢╧															
<u>MM</u>				63	40	37	32	25	71	13	11	22	M22 x 1.5	9	183	
		ZZ + Stroke		63 80 100	40 40 50	37 37 47	41 46	25 30 36	71 72 85	16 18	11 15	22 26 31	M26 x 1.5 M30 x 1.5	0 0 Symb	205 228 ol	J/ M
2 Heat Re		nt Cylinder (–1		<u>80</u> 100	40 50	37 47	41 46	30 36	72 85	16 18	11 15	26 31	M26 x 1.5 M30 x 1.5	0	205 228 ol	J/ M
2 Heat Re	n changed	nt Cylinder (–1	0 to 150°C) grease, so that it could t	<u>80</u> 100	40 50 en at	37 47 highe	41 46 er ter	30 36	72 85	16 18	11 15	26 31	M26 x 1.5 M30 x 1.5	0 0 Symb	205 228 ol	M M M
2 Heat Re	n changed	nt Cylinder (–1		80 100	40 50 en at fica	37 47 highe	41 46 er ter	30 36 mpera	72 85 ature	16 18	11 15	26 31) fron	M26 x 1.5 M30 x 1.5	0 0 Symb	205 228 ol	M M C
2 Heat Re Air cylinder which Applicable S Description	CA2	nt Cylinder (–1 d the seal material and Action Double acting, Single rod	grease, so that it could b Note Except with auto switch	80 100 be used ev Speci Seal m	40 50 en at fica nt ter	37 47 highe	41 46 er ter	30 36 mpera	72 85 ature	16 18	11 15	26 31) from -10	M26 x 1.5 M30 x 1.5 n -10°C.	0 0 Symb	205 228 ol	
2 Heat Re Air cylinder which Applicable S Description Standard type	Model CA2 CA2W	nt Cylinder (–1 the seal material and Action Double acting, Single rod Double acting, Double rod	grease, so that it could I Note Except with auto switch Except with auto switch	80 100 be used ev Speci Ambie	40 50 en at fica nt ter	37 47 highe	41 46 er ter	30 36 mpera	72 85 ature	16 18	11 15 0 150	26 31) from -1(F	M26 x 1.5 M30 x 1.5 n -10°C.	0 0 Symb -XB	205 228 ol	
2 Heat Re Air cylinder which Applicable S Description Standard type With end lock	Model CA2 CA2W CBA2	Action Double acting, Single rod Double acting, Single rod Double acting, Single rod	grease, so that it could I Note Except with auto switch Except with auto switch Except with auto switch	80 100 be used ev Speci Seal n Greas	40 50 en at fica nt ter iateria	37 47 higher tior npera	41 46 er ter IS ature	30 36 mpera	72 85 ature	16 18	11 15) 150	26 31) fron -1(F Heat I	M26 x 1.5 M30 x 1.5 n -10°C.	0 0 Symb -XE	205 228 ol	M M C C C C C
2 Heat Re Air cylinder which Applicable S Description Standard type With end lock Note 1) Operate W Jobe 2) Please cc	CA2 CA2W CBA2 CBA2 CBA2 CBA2 CBA2	nt Cylinder (–1 d the seal material and Action Double acting, Single rod Double acting, Single rod Double acting, Single rod rication from a pneumatic C for details on the main	Rease, so that it could it Note Except with auto switch Except with auto switch Except with auto switch c system lubricator. Intenance intervals for	80 100 be used ev Speci Seal m Grease	40 50 en at fica nt ter iateria	37 47 higher tior npera	41 46 er ter IS ature	30 36 mpera	72 85 ature	16 18	11 15) 150	26 31) fron -1(F Heat I	M26 x 1.5 M30 x 1.5 m -10°C.	0 0 Symb -XE	205 228 ol	
2 Heat Re Air cylinder which Applicable S Description Standard type With end lock Note 1) Operate w Note 2) Please con this cylind Note 3) In principle	CA2W CBA2 ithout lubb ntact SMC er, which o e, it is impo	nt Cylinder (–1 d the seal material and Double acting, Single rod Double acting, Double rod Double acting, Single rod ication from a pneumatic C for details on the mai differ from those of the st sostible to make built-in m	grease, so that it could it Note Except with auto switch Except with auto switch Except with auto switch c system lubricator. ntenance intervals for tandard cylinder. agnet type and the one	80 100 Specifi Seal n Greas Specifi above	40 50 en at fica nt ter materia e cation and e	37 47 highe tior npera al ns oth xtern	41 46 er ter IS ature	30 36 mpera	72 85 ature	16 18	11 15) 150	26 31) fron -1(F Heat I	M26 x 1.5 M30 x 1.5 m -10°C.	0 0 Symb -XE	205 228 ol	M M M C C C C C C C C C
2 Heat Re Air cylinder which Applicable S Description Standard type With end lock With end lock tote 1) Operate w tote 2) Please co this cylind tote 2) Please with auto	Model CA2 CA2W CBA2 ithout lub ntact SM er, which a, it is imposwitch. Bu	Action Double acting, Single rod Double acting, Single rod Double acting, Single rod Double acting, Single rod ication from a pneumatic C for details on the mai affref from those of the st	grease, so that it could it Except with auto switch Except with auto switch Except with auto switch Except with auto switch c system lubricator. thenance intervals for tandard cylinder. agnet type and the one to switch, and the heat	80 100 Speci Seal n Greas Spesifi above	40 50 en at fica nt ter ateri: cation and e arni utio	37 47 highe tior mpera al ms oth xtern ms	41 46 er ter IS ature	30 36 npera rang	72 85 atture e	16 18 up to	11 15) 150	26 31) from 1(F deat i	M26 x 1.5 M30 x 1.5 n -10°C. 0°C to 150°C luororubber resistant gre as standard	0 0 Symb XB	205 228 ol 6	
Heat Re Heat Re Heat Re Are cylinder which Applicable S Description Standard type With end lock tote 1) Operate w tote 2) Please cc this cylind tote 3) In principle with auto 2 resistant cr	A changed Series Model CA2 CA2W CBA2 ithout lubrintact SMG er, which G b, it is imposively. It is imposively. It is which with the series of the se	Action Action Double acting, Single rod Double acting, Single rod Double acting, Single rod ication from a pneumatic C for details on the mail differ from those of the st ssibile to make built-in mat, as for the one with aut	vote Note Except with auto switch Except with auto switch Except with auto switch Except with auto switch c system lubricator. ntenance intervals for tandard cylinder. agnet type and the one to switch, and the heat h, please contact SMC.	80 100 Speci Ambie Seal m Greas Specifi above	40 50 en at fica ateria e catio and e arni utio re tha	37 47 higho tior npera al ns oth xtern ng ns t smo	41 46 er ter 1S ature	30 36 npera rang	72 85 tture e ons	16 18 up to	11 15 0 150	26 31) from 10 F Heat t	M26 x 1.5 M30 x 1.5 x 1.5 n -10°C. 0°C to 150°C0 luororubber resistant gre as standard r hands haw	0 0 Symb -XB	205 228 ol 6	M M C C C C C C C C C C C C C C C C C C
Heat Re Heat Re Heat Re Heat Re Heat Re Description Standard type With end lock tote 1) Operate w tote 2) Please cc this cylind lote 3) In principle with auto : resistant cr	Model CA2 CA2 CA2 CA2 CA2 CBA2 CBA2 CBA2 CBA2	nt Cylinder (–1 d the seal material and Double acting, Single rod Double acting, Single rod Double acting, Single rod Double acting, Single rod ication from a pneumatic C for details on the mai differ from those of the st sssible to make built-in ma t, as for the one with aut heat resistant auto swich	vote Note Except with auto switch Except with auto switch Except with auto switch Except with auto switch c system lubricator. ntenance intervals for tandard cylinder. agnet type and the one to switch, and the heat h, please contact SMC.	80 100 Speci Ambie Seal m Greas Specifi above	40 50 en at fica nt ter ateria e cation and e arni utio re tha with	37 47 highe tior mpera al ing ns t smothe t smothe g	41 46 er ter IS her th al dir bking reas	30 36 npera rang	72 85 tture e ons	16 18 up to	11 15 0 150	26 31) from 10 F Heat t	M26 x 1.5 M30 x 1.5 n -10°C. 0°C to 150°C luororubber resistant gre as standard	0 0 Symb -XB	205 228 ol 6	M M C C C C C C C C C C C C C C C C C C

Series CA2

						Symbol
3 Special	Port	Location				-XC3
Compared with th	ne standa	rd type, a cylinder which c	changes the conne	ction port location of rod/head	cover and the location of cus	hion valve.
Applicable S	eries					
Description	Model	Action	Note			

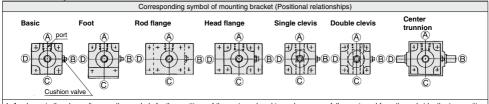
Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	
Stanuaru type	CA2W	Double acting, Double rod	
With end lock	CBA2	Double acting, Single rod	

How to Order



Specifications: Same as standard type

Relationship between Port Location and Cushion Valve Location



1. As shown in the above diagram, the symbols for the positions of the ports and cushion valves are as follows: viewed from the rod side, the top position is rendered A; then, B, C, and D, in the clockwise direction.

2. The type in which the ports and the cushion valves are combined is applicable only when the rod cover and the head cover are changed to the same positions.

- 3. The symbol indicated as "-XC3AB" is the standard specification, and there are no part numbers A or B.
- 4. Those shown above are the same as standard, other than the symbols that indicate the positions of the ports and the cushion valves.

4 With Heavy Duty Scraper

It is suitable for using cylinders under the environment, where there are much dusts in a surrounding area by using a heavy duty scraper on the wiper ring, or using cylinders under earth and sand exposed to the die-casted equipment, construction machinery, or industrial vehicles.

Applicable Series

Description	Model	Action	Note
Otomal and the s	CA2	Double acting, Single rod	
Standard type	CA2W	Double acting, Double rod	
With end lock	CBA2	Double acting, Single rod	

Note) Air-hydro type is equipped with heavy duty scraper as standard.

How to Order

Standard model no.	– XC4
	· —

With heavy duty scraper

Specifications: Same as standard type

∧ Caution

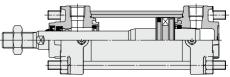
Do not replace heavy duty scrapers.

· Since heavy duty scrapers are press-fit, do not replace the cover only, but rather the entire rod cover assembly.

Symbol

-XC4

Construction (Dimensions are the same as standard.)





Made to Order Series CA2

Symbol

Heat Read	sistar	nt Cylinder (-1	0 to 110°C)		-XC5	
				°C) in order to use under the severe	e ambient temperature condition which	
Applicable S		ifications of –10 to 70°	<i>.</i>	Specifications		Air Cylinders
Description	Model	Action	Note	Ambient temperature range	-10°C to 110°C	Ë.
Description	CA2		Except with auto switch	Seal material	Fluororubber	S
Standard type	-		Except with auto switch	With auto switch	Unavailable Note 2)	Ľ.
low to Orde				Specifications other than above and external dimensions	Same as standard type	
Stan	dard mo	odel no.	- XC5		details on the maintenance intervals for	CJ2
Heat resistant cylinder Heat resistant cylind						
Note 3) Material of rod boot is heat resistant tarpaulin.						
					Symbol	MB
6 Made of	f Stain	less Steel			-XC6	CA
uitable for the ca	ases it is li	ikely to generate rust by	y being immersed in th	e water and corrosion.		CQ2
				Or salflastians		CQS
Applicable S	1	1		Specifications	1	Lube-
Description	Model	Action	Note	Parts changed to stainless steel		retaine
With end lock	CBA2 Note	3, 3		Max. manufacturable stroke	Double acting, Single rod: 1500	JA
Air-hydro type	CA2□H	Double acting, Single		(mm)	Double acting single rod with rod boot: 1000	
lote) Head end lo	CA2W⊡I ck only	H Double acting, Double	rod	Specifications other than above and external dimensions	Same as standard type	MXI
low to Orde	r					
	•					MX
Stan	dard mo	odel no.	- XC6			MX
Stan	dard mo		<u> </u>			MG
Stan	dard mo		<u> </u>			MG
Stan	dard mo		<u> </u>			MG C
Stan	dard mo		<u> </u>		Symbol	MG C
		Made of stainless s	teel	lade of Stainless Steel		MG C :: C :: C ::
7 Tie-rod, Vhen using in lo	, Cush	Made of stainless st ion Valve, Tie-I	rod Nut, etc. M			MG C=; Ck: C(L)K
7 Tie-rod,	, Cush	Made of stainless st ion Valve, Tie-I	rod Nut, etc. M		-XC7	MG C=; Ck: C(L)K
7 Tie-rod, When using in lo	, Cush	Made of stainless st ion Valve, Tie-I	rod Nut, etc. M		-XC7	MG
7 Tie-rod, When using in lo tainless steel.	, Cush cations w Geries Model	Made of stainless st ion Valve, Tie-I there the rust generation	rod Nut, etc. M on or corrosion likeliho	ood exists, the standard parts mate Specifications Component parts T	-XC7 erial have been partly changed to the Tie-rod, Tie-rod nut, Mounting bracket nut,	
Tie-rod, When using in lo tainless steel. Applicable S Description	, Cush cations w Geries Model CA2	Made of stainless st ion Valve, Tie-I there the rust generation Action Double acting, Single ro	rod Nut, etc. M on or corrosion likeliho	ood exists, the standard parts mate	-XC7	MG C C C C C L K C C L K
7 Tie-rod, Vhen using in lo tainless steel. Applicable S	, Cush cations w Geries Model CA2 CA2W	Made of stainless st ion Valve, Tie-I there the rust generation	rod Nut, etc. M	ood exists, the standard parts mate Specifications Component parts T	-XC7 erial have been partly changed to the Tie-rod, Tie-rod nut, Mounting bracket nut,	

How to Order

With end lock

Standard model no.	- <u>XC7</u>
Tie-rod, Cushion valve, Tie-rod nut, etc. ma	de of •
stainless	steel

CA2KW Double acting, Double rod

CBA2 Double acting, Single rod

8	Adjustable	Stroke	Cylinder/Adjustable	Extension Type
---	------------	--------	---------------------	----------------

Symbol

It adjusts the extending stroke by the stroke adjustable mechanism equipped in the head side. (After the stroke is adjusted, with cushion on both sides is altered to single-sided, with cushion.)

Applicable Series

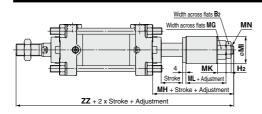
Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	
Non-rotating rod type	CA2K	Double acting, Single rod	
With end lock	CBA2	Double acting, Single rod	

Specifications

Stroke adjustment symbol	A	В	
Stroke adjustment range (mm)	0 to 25	0 to 50	
Additional specifications	Same as standard type		

How to Order CA2 Mounting style Stroke Pivot bracket Bore size Suffix Stroke adjustment symbol Z Rod end bracket XC8 * Except head flange and clevis types Adjustable stroke cylinder/Adjustable extension type CA2K Mounting style Suffix Stroke adjustment symbol Bore size Stroke - XC8 CBA2 * Except head flange and clevis types Adjustable stroke cylinder/Adjustable extension type ▲Warning Precautions e adjustable mechanism 1. When the cylinder is operating, if something gets caught between the stopper bracket for adjusting the stroke and the cylinder body, it could cause bodily injury or damage the peripheral equipment. Therefore, take preventive measures as necessary, such as installing a protective cover. 2. To adjust the stroke, make sure to secure the wrench flats of the stopper bracket by a wrench, etc. before loosening the lock nut. If the lock nut is loosened without securing the stopper bracket, be aware that

could loosen first. It may cause an accident or malfunction. Dimensions (Dimensions other than below are the same as standard type.)

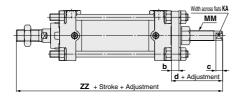


									(mm)
Bore size	B ₂	H ₂	MG	MH	MI	MK	ML	MN	ZZ
40	17	6	19	45	32	10	22	M10 x 1.25	180
50	22	8	24	49	38	13	24	M14 x 1.5	197
63	22	8	24	49	38	13	24	M14 x 1.5	205
80	24	10	27	66	45	14	32	M16 x 1.5	253
100	30	12	32	69	55	17	35	M20 x 1.5	267

the area that joins the load to the piston rod or the area in which the piston rod is joined with the load side and the stopper bracket side

9 Adjusta	ble S ⁱ	troke Cylin	der/Adjustable Ret	traction Type		Symbol	
		-	usted by the adjusting bolt.				
Applicable Se	eries			Specifications			S
Description	Model	Action	Note	Stroke adjustment symbol	A	В	de
Standard type	CA2	Double acting, Single rod	Except head flange and clevis types	Stroke adjustment range (mm) Additional specifications	0 to 25	0 to 50	Air Cylinders
Non-rotating rod type	CA2K	Double acting, Single rod	Except head flange and clevis types		Jodine ao ou	alluaru type	Air (
With end lock	CBA2	Double acting, Single rod	Except head flange and clevis types				CJ2
low to Order	r						CM2
CA2 Mounting				ke adjustment symbol Z – Pivot bracket	Rod end brac	cket - XC9	CG1
		ige and clevis types		Adjustable stroke cylinder/Adj	justable retrac	ction type ∳	MB
BA2	• •	Type Bore size		ke adjustment symbol – XC9			CA2
			 Adjustable stroke cylinder, on both sides is altered to 	r/Adjustable retraction type ♦			CQ2 CQS
ingle-sided, with							Lube- retainer
	<u></u>	37-		1. When air is supplied to the cylinder, loosened in excess of the allowable strok	e adjustment an	nount, be aware	JA
		Adjusti	ing bolt	that the stroke adjusting bolt could fly o which could injure personnel or damage t	the peripheral ec		MXH
				 Adjust the stroke when the cylinder is not If it is adjusted in the pressurized stat section could become deformed, leading 	te, the seal of t	the adjustment	MXQ

Dimensions (Dimensions other than below are the same as standard type.)



CA2						(mm)
Bore size	b	С	d	KA	MM	ZZ
40	9	8	36	8	M12 x 1.25	171
50	11	8	42	13	M16 x 1.5	190
63	11	8	44	17	M20 x 1.5	200
80	15	10	54	19	M24 x 1.5	241
100	15	10	55.5	19	M24 x 1.5	253.5

CA2K, CBA2 (With rod end lock only)

CA2K, CBA	2 (Wit	h rod	end	lock c	only)	(mm)
Bore size	d	С	b	KA	MM	ZZ
40	44	8	9	11	M16 x 1.5	179
50	42	8	11	11	M16 x 1.5	190
63	48	8	11	14	M20 x 1.5	204
80	55	10	15	19	M24 x 1.5	242
100	57	10	15	19	M24 x 1.5	255

MGP

C□Y C□X

CK🗆1

C(L)K□ C(L)KU

CKQ

CKZ2N

WRF

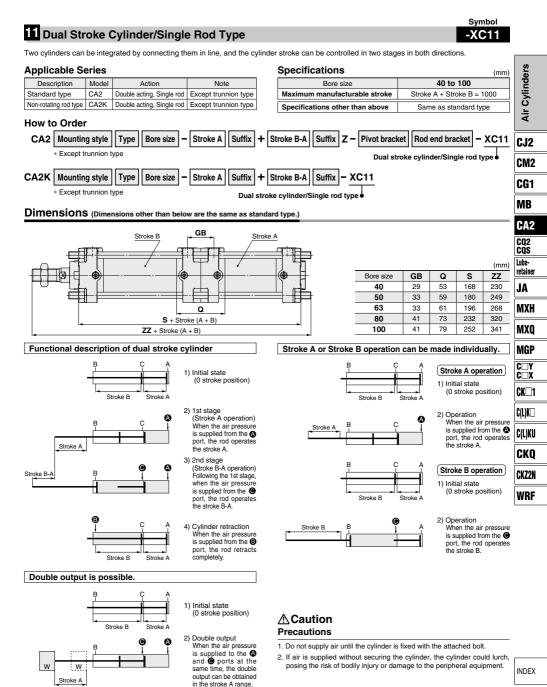
10 Dual Stroke Cylinder/Double Rod Type

Symbol -XC10

Two cylinders are constructed as one cylinder in a back-to-back configuration allowing the cylinder stroke to be controlled in three steps.

Description	Model	Action	Note		Bo	re size (mm)		40 to	100
•		Double acting,	Except clevis and trunnion types	Maxim		ufacturable stroke	e (mm)	Stroke A + I	
Standard type	CA2	Single rod	pivot bracket and rod end bracke			cifications		Same as star	ndard type
Non-rotating rod type	CA2K	Double acting, Single rod	Except clevis and trunnion types					Camb ab cia	idara (jpo
With end lock	CBA2	Double acting, Single rod	Except clevis and trunnion types						
low to Orde	-	·			_]		_	
CA2 Mounti	ng style	Type E	ore size - Strok	e A Suff	ix +	Stroke B	Suffi	× Z – XC1	0
	clevis and	d trunnion types			_	Dual stroke cylir	nder/Dou	ble rod type •	_
CA2K Mounti	ng style	Type E	ore size - Strok	e A Suff	ix +	Stroke B	Suffi	× - XC10	
	• •	d trunnion types							
* Exception		a trunnion types			D	ual stroke cylinde	r/Double	rod type •	
•		trunnion types			D	ual stroke cylinde	r/Double	rod type •	
Function									
•		When air press	sure is supplied to ports	Stroke B	Dic	@Wh	nen air pr	essure is supp	lied to port
Function		When air press	sure is supplied to ports h strokes A and B retract.	Stroke B		@Wh	nen air pr		lied to port
	Stroke A	When air press	h strokes A and B retract. sure is supplied to ports	<u> </u> +		↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports
		When air press	h strokes A and B retract. sure is supplied to ports	<u>+ + (</u>	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports (
		When air press	h strokes A and B retract. sure is supplied to ports	<u>+ + (</u>	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports (
		When air press	h strokes A and B retract. sure is supplied to ports	<u>+ + (</u>	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports (
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports out strokes.	Stroke B	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports (
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports	Stroke B	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports out strokes.	Stroke B	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports (
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports but strokes. an below are the same as a	Stroke B	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports (
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports but strokes. an below are the same as a	Stroke B	● ↓ [_]	↓ Wh ▲ Stroke A Wh	nen air pr and () , E ien air pre	essure is supp 3 out strokes.	ed to ports (
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports but strokes. an below are the same as a	Stroke B	● ↓ [_]	A <u>Stroke</u> A Wh	nen air pr and (), E en air pre d (), both	essure is supplie a out strokes. essure is supplie strokes A and I	ed to ports (
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports but strokes. an below are the same as a	Stroke B	● ↓ [_]	A Stroke A Wh Birth and Bore size C 40 2	anen air pr and (), E een air pre d (), both	essure is supple a out strokes. essure is supplie strokes A and I (mm) <u>S ZZ</u> 167 269	ed to ports
	Stroke A	When air press and (3), bot When air press (3) and (4), A (4)	h strokes A and B retract. sure is supplied to ports but strokes.	Stroke B	● ↓ [_]	A Stroke A Wh Bore size C 40 2 50 3	and (0), E en air pre d (0), both	(mm) (mm) (mm) (S ZZ 167 269 179 295	ed to ports
	Stroke A	When air press and B, bot When air press and C, A of nsions other th	h strokes A and B retract. sure is supplied to ports but strokes. an below are the same as a	Stroke B	● ↓ [_]	A stroke A Wh A stroke A Wh Bore size C 40 2 50 2 63 3	anen air pr and (), E een air pre d (), both	essure is supple a out strokes. essure is supplie strokes A and I (mm) <u>S ZZ</u> 167 269	ed to ports

Made to Order Series CA2



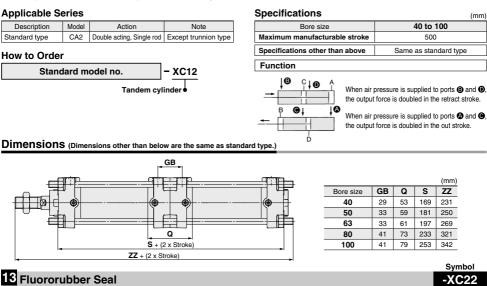


Series CA2

Tanalama	
Tannem	Cylinder

Symbol -XC12

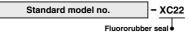
This is a cylinder produced with two air cylinders in line allowing double the output force.



Applicable Series

Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	
Stanuaru type	CA2W	Double acting, Double rod	
With end lock	CBA2	Double acting, Single rod	

How to Order



Specifications

Seal material	Fluororubber
Ambient temperature range	With auto switch $^{Note 1)}$: $-10^{\circ}C$ to $60^{\circ}C$ (No freezing) Without auto switch : $-10^{\circ}C$ to $70^{\circ}C$
Specifications other than above and external dimensions	Same as standard type

Note 1) Please contact SMC, as the type of chemical and the operating temperature may not allow the use of this product.

Note 2) Cylinders with auto switches can also be produced; however, auto switch related parts (auto switch units, mounting brackets, built-im magnets) are the same as standard products. Before using these, please contact SMC regarding their suitability for the operating environment.

Symbol

-XC27

14 Double Clevis and Double Knuckle Joint Pins Made of Stainless Steel

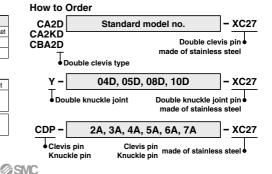
To prevent the oscillating portion of the double clevis or the double knuckle joint from rusting, the material of the pin and the retaining ring has been changed to stainless steel.

Applicable Series

Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	Except rod end bracket
Non-rotating rod type	CA2K	Double acting, Single rod	
With end lock	CBA2	Double acting, Single rod	

Specifications

Mounting	Only double clevis type (D), double knuckle joint
Pin and retaining ring material	Stainless steel 304
Specifications other than above	Same as standard type



Made to Order Series CA2

		on the rod and head side different from the stand				cover to s	ave the m	Junung	space	. (Fla	inge s	shape	rs
Applicable S	eries			How to	Order								Air Cylinders
Description	Model	Action	Note	CA2	F	Standar	-d mode	100	1_ y	(C28	Q		,lin
Standard type	CA2	Double acting, Single ro		CA2W						-	<u> </u>		ΰ
	CA2W	Double acting, Double ro		CA2K CA2KW		Compac	t flange n	nade of	SS40	0			Air
Non-rotating rod type	CA2K CA2KW	Double acting, Single ro Double acting, Double ro		CA2KW CBA2									
With end lock	CBA2KW CBA2	Double acting, Double ro		• - · · -	♦ Mour	nting Rod flange	_						CJ2
		me as standard t			-	Head flange							CM2
•		lle do standara .	he										
Dimension	s												CG1
	TP-				- 1	ф		_	_	_	_	(mm)	MB
	⊐ [Y Bo	2 Alt	φ	Bo	ore size	F		FV	FZ	CA2
					ĕ))}			40	12	_	60	100	
	_ L				26	4		50 63	12	_	70	110 130	CQ2 CQS
			<u>ᡶ</u> ᠊ᢩᡰ <u></u> ╞╛	4 WU	1.0	Ψ		63 80	15		85 102	130	Lube-
FT				FZ	z _			100	18	_	116	180	retainer
اخدا								• •	_	·			ſ
Other dimension:		same as flange on the ro	d side and head side o	of standard type.									JA
Other dimension:		same as flange on the roo ge on the rod side.)	d side and head side o	of standard type.									JA MXH
Other dimensions (Figure is the cas	se of flang	e on the rod side.)		of standard type.						S	ymbo	ol _	-
Other dimensions (Figure is the cas	se of flang			of standard type.						S: -X	ymbo C2	ol 19	MXH MXQ
Other dimensions (Figure is the cas	se of flang	e on the rod side.)	Spring Pin			-				s; -X	ymb (C2	ol 2 9	MXH MXQ Mgp
Other dimension: (Figure is the cas	Knuc Knuc ning of the Series	e on the rod side.) kle Joint with \$ e double knuckle joint o	Spring Pin of standard air cylinde		Order	-				s) -X	ymbo (C2	ol 29	MXH MXQ
Other dimension: (Figure is the case o prevent looser Applicable S Description	Knuc ning of the Series Model	e on the rod side.) kle Joint with \$ e double knuckle joint o Action	Spring Pin of standard air cylinde Note	er.		rd mode	l no.		- x0	s -X C29	C2	ol 29	MXH MXQ MGP C□Y
Other dimension: (Figure is the cas	Knuc Knuc ning of the Series	e on the rod side.) kle Joint with \$ e double knuckle joint o Action	Spring Pin of standard air cylinde	er.	Standa	rd mode		th sprin		-X	C2	ol 29	MXH MXQ MGP C_Y C_X CK_1
Cher dimension: (Figure is the case) Construction Constru	Knuc ning of the Series Model CA2 CBA2	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod	Spring Pin of standard air cylinde Note Except rod end bracket	er.	Standa			th sprin		-X	C2	ol 29	MXH MXQ MGP C::: X CK:: 1 C(L)K:
Conter dimension: (Figure is the cass Content of	Knuc ning of the Series Model CA2 CBA2 ns: Sar	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod	Spring Pin of standard air cylinde Note Except rod end bracket ype	er.	Standa			th sprin		-X	C2	ol 29	MXH MXQ MGP C:: Y C: X CK: 1 C(L)KU C(L)KU
Conter dimension: (Figure is the case or prevent looser Applicable S Description Standard type With end lock Specification Dimension	Knuc ning of the Series Model CA2 CBA2 ns: Sar	e on the rod side.) kle Joint with \$ e double knuckle joint of Action Double acting, Single rod Double acting, Single rod me as standard t	Spring Pin of standard air cylinde Note Except rod end bracket ype	er.	Standa			th sprin		-X	C2	ol 29	MXH MXQ MGP C□Y C□X CK□1 C(L)K□ C(L)KU CKQ
Conter dimension: (Figure is the cass Content of	Knuc ning of the Series Model CA2 CBA2 ns: Sar	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is	Spring Pin of standard air cylinde Note Except rod end bracket ype	er.	Standa			th sprin		-X	C2	29	MXH MXQ MGP C=y C=x CK=1 C(L)K
Other dimension: (Figure is the case (Figure is the case (Figure is the case oprevent looser (Applicable S Description Standard type With end lock Specification Dimension	Knuc ning of the Series Model CA2 CBA2 ns: Sar	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is	Spring Pin of standard air cylinde Note Except rod end bracket ype	er. How to	Standa			th sprin		-X	C2	ol 29	MXH MXQ MGP C::: CK:: CK:: C(L)K: C(L)KU CKQ CK22N
Other dimension: (Figure is the case io prevent looser Applicable S Description Standard type With end lock Specification Dimension	Knuc ning of the Series Model CA2 CBA2 ns: Sar	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is	Spring Pin of standard air cylinde Note Except rod end bracket ype	er.	Standa			th sprin	ig pin	-X C29	C2	29	MXH MXQ MGP C:::Y C::X CK:1 C(L)K C(L)KU CKQ
Other dimension: (Figure is the case (Figure is the case (Figure is the case oprevent looser (Applicable S Description Standard type With end lock Specification Dimension	Knuc ning of the Series Model CA2 CBA2 ns: Sar	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is	Spring Pin of standard air cylinde Note Except rod end bracket ype	er. How to	Standa	øNDd9	e joint wi	NX	ig pin	-X C29	(C2	(mm)	MXH MXQ MGP C::: CK:: CK:: C(L)K: C(L)KU CKQ CK22N
Other dimension: (Figure is the case (Figure is the case (Figure is the case oprevent looser Applicable S Description Standard type With end lock Specification Dimension	Knuc ning of the Series Model CA2 CBA2 ns: Sar	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is	Spring Pin of standard air cylinde Note Except rod end bracket ype	er. How to Bore size	Standa Dout	ole knucki oNDd9 12 -0.058 12	e joint wi	NX 16 ^{+0.3} 16 ^{+0.1} 16 ^{+0.3}	ng pin	-X C29 •	RR1	(mm) zz	MXH MXQ MGP C::: CK:: CK:: C(L)K: C(L)KU CKQ CK22N
Other dimension: (Figure is the case Control (Figure is the case Contro	Knuc ning of the Series Model CA2 CBA2 ns: Sar IS (For m	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is	Spring Pin of standard air cylinde Note Except rod end bracket ype	er. How to Bore size 40 50 63	Standa Dout H L1 51 55 58 60 58 60	ØNDd9 12 -0.050 12 -0.050 12 -0.051 12 -0.051 12 -0.051 12 -0.051	e joint wi 0 ND H10 12 + ⁰⁰⁷⁰ 12 + ⁰⁰⁷⁰ 12 + ⁰⁰⁷⁰ 12 + ⁰⁰⁷⁰	NX 16 ^{+0.3} 16 ^{+0.1} 16 ^{+0.1} 16 ^{+0.1}	NZ 38 38 38	-X C29 • PY 84 91 91	RR1 13 15 15	(mm) ZZ 192 207 218	MXH MXQ MGP C::: CK:: CK:: C(L)K: C(L)KU CKQ CK22N
Other dimension: (Figure is the case (Figure is the case) (Figure is the case (Figure is the case) (Figure is the c	Knuc ning of the Series Model CA2 CBA2 ns: Sar IS (For m	e on the rod side.) kle Joint with \$ e double knuckle joint o Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is	Spring Pin of standard air cylinde Note Except rod end bracket ype	er. How to Bore size 40 63 80	Standa Dout 1 51 55 60 58 60 71	e NDds 12 -0.050 12 -0.050 12 -0.051 12 -0.051 12 -0.051 18 -0.051 18 -0.051	е joint wi о ND н10 12 + ^{0,070} 12 + ^{0,070} 12 + ^{0,070} 18 + ^{0,070}	NX 16 ^{+0.3} 16 ^{+0.3} 16 ^{+0.3} 16 ^{+0.1} 28 ^{+0.3}	NZ 38 38 38 55	-X C29 • PY 84 91 91 105	RR1 13 15 15 19	(mm) ZZ 192 207 218 257	MXH MXQ MGP C=Y C=X CKL1 C(L)KU C(L)KU CKQ CKZ2N
Other dimension: (Figure is the case (Figure is the case (Figure is the case oprevent looser Applicable S Description Standard type With end lock Specification Dimension	Knuc ning of the Series Model CA2 CBA2 ns: Sar IS (For m	e on the rod side.) kle Joint with \$ e double knuckle joint of Action Double acting, Single rod Double acting, Single rod me as standard ty sounting bracket, pin is H Spring pin	Spring Pin of standard air cylinde Note Except rod end bracket ype	er. How to Bore size 40 50 63 80 100	Standa Dout 1 51 58 60 71 72	ØNDd9 12 -0.050 12 -0.050 12 -0.051 12 -0.051 18 -0.052 18 -0.052 20 -0.055 20 -0.055	e joint wi 0 NDH10 12 *0.070 12 *0.070 12 *0.070 13 *0.070 18 *0.070 18 *0.070 20 *0.084	NX 16 ^{+0.3} 16 ^{+0.1} 16 ^{+0.1} 16 ^{+0.1} 28 ^{+0.1} 30 ^{+0.1}	NZ 38 38 38 55 61	-X C229 ● PY 84 91 105 118	RR1 13 15 15 19 21	(mm) ZZ 192 207 218 257 282	MXH MXQ MGP C=Y C=X CK1 C(L)KU C(L)KU CKQ CKZ2N
Other dimension: (Figure is the case (Figure is the case) (Figure is the case (Figure is the case) (Figure is the c	Knuc ning of the Series Model CA2 CBA2 ns: Sar IS (For m	e on the rod side.) kle Joint with \$ e double knuckle joint of Action Double acting, Single rod Double acting, Single rod me as standard ty nounting bracket, pin is H	Spring Pin of standard air cylinde Note Except rod end bracket ype	er. How to Bore size 40 50 63 80 100	Standa Dout 1 51 58 60 71 72	e NDds 12 -0.050 12 -0.050 12 -0.051 12 -0.051 12 -0.051 18 -0.051 18 -0.051	e joint wi 0 NDH10 12 *0.070 12 *0.070 12 *0.070 13 *0.070 18 *0.070 18 *0.070 20 *0.084	NX 16 ^{+0.3} 16 ^{+0.1} 16 ^{+0.1} 16 ^{+0.1} 28 ^{+0.1} 30 ^{+0.1}	NZ 38 38 38 55 61	-X C229 ● PY 84 91 105 118	RR1 13 15 15 19 21	(mm) ZZ 192 207 218 257 282	MXH MXQ MGP C=Y CK=1 C(L)KU C(L)KU CKQ

Series CA2

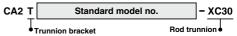
17 Rod Trunnion

This cylinder shortens the distance between the fulcrum and the rod end by installing a trunnion bracket in front of the rod side cover.

Applicable Series

Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	

How to Order



Symbol

-XC30

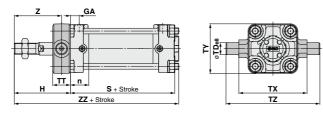
Symbol

-XC35

(mm)

Specifications: Same as standard type

Dimensions (Dimensions other than below are the same as standard type.)



												(mm)
Symbol Bore size	Stroke range	n	GA	н	s	TD _{e8}	π	тх	ТΥ	ΤZ	z	zz
40	Up to 1000	23	11	66	80	15 -0.032 -0.059	22	85	62	117	55	151
50	Up to 1000	26	13	71	86	15 -0.032 -0.059	22	95	74	127	60	163
63	Up to 1000	27	13	79	94	18 -0.032 -0.059	28	110	90	148	65	179
80	Up to 1000	32	16	94.5	111	25 -0.040 -0.073	34	140	110	192	77.5	212.5
100	Up to 1000	35	16	100	121	25 -0.040 -0.073	40	162	130	214	80	229

18 With Coil Scraper

It gets rid of frost, ice, weld spatter, cutting chips adhered to the piston rod, and protects the seals etc.

Applicable Series

	Description Model		Action	Note
Chandard turns	Standard type	CA2	Double acting, Single rod	
Standard type		CA2W	Double acting, Double rod	
	With end lock	CBA2	Double acting, Single rod	

Specifications: Same as standard type

Dimensions: Same as standard type

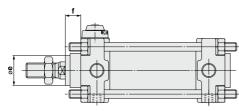
* For air cylinders with end lock, refer to the table below.

How to Order



Dimensions (Dimensions other than below are the same as standard type.)

Series CBA2



		(mm)
Bore size	øe	f
Bore size		With rod end lock, With double end lock
40	28	14.5
50	32	16.5
63	32	14
80	37	16
100	44	17.5

The above diagram shows the rod end lock and non-locking type manual release.

Series CBA2 head end lock is the same as the standard type. The dimensions of the non-locking type manual release are the same as indicated above.



itandard model no. – XC65	Parts changed to stainless steel Specifications other than above and external dimensions Maximum Manut Double acting, Singl 1600	Tie-rod, Tie-rod nut, Cushion v Piston rod (with hard chrome plated), Same as standard type facturable Stroke e rod Double acting single rod w	
Decomposition Double acting, Double rod Order Decomposition Standard model no. - XC65	Specifications other than above and external dimensions Maximum Manuf Double acting, Singl	Same as standard type	
Drder Standard model no. – XC65	than above and external dimensions Maximum Manuf Double acting, Singl	acturable Stroke	(r
	Maximum Manuf		(r
stainless steel (Combination of XC7 and XC68)	Double acting, Singl		(r.
			ith rod bo
		1400	
de of Stainless Steel (With Hard or the cases it is likely to generate rust by being imm			Symbol XC68
cable Series	Specifications		
cription Model Action Not	Parts changed to stainle	Piston rod, Rod end	l nut
d type CA2 Double acting, Single rod CA2W Double acting, Double rod	Specifications other than above and	Same as standard	huno
	external dimensions	Same as standard	iype
o Order Standard model no XC68	Maximum Manuf	acturable Stroke	(r
	Double acting, Singl		ith rod b
Made of stainless steel ● (With hard chrome plated piston rod)	1600	1400	

21 Grease for Food Processing Equipment

Food grade grease (certified by NSF-H1) is used as lubricant.

Applicable Series

Description	Model	Action	Note
Standard type	CA2	Double acting, Single rod	
Stanuard type	CA2W	Double acting, Double rod	

How to Order

Standard model no. - XC85

Grease for food processing equipment

▲ Warning Precautions

Be aware that smoking cigarettes etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

Not installable zone

- Food zone-----An environment where the raw materials and materials of food products, semi-finished food products and food products that make direct or indirect contact in a normal processing process. Splash zone-------An area where a portion of food products
- accidentally splash and stick under the intended operating conditions. An environment where food products that enter this area do not return to the food product contact portion again, and are not used as food products.

Installable zone

- Non-food zoneAn environment where there is no contact with food.
- Note 1) Avoid using this product in the food zone. (Refer to the figure on the right.)
- Note 2) When the product is used in an area of liquid splash, or a water resistant function is required for the product, please consult with SMC.
- Note 3) Operate without lubrication from a pneumatic system lubricator.
- Note 4) Use the following grease pack for the maintenance work.

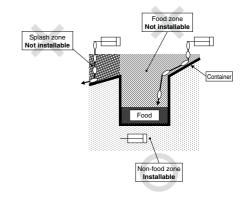
GR-H-010 (Grease: 10 g)

Note 5) Please contact SMC for details about the maintenance intervals for this cylinder, which differ from those of the standard cylinder.

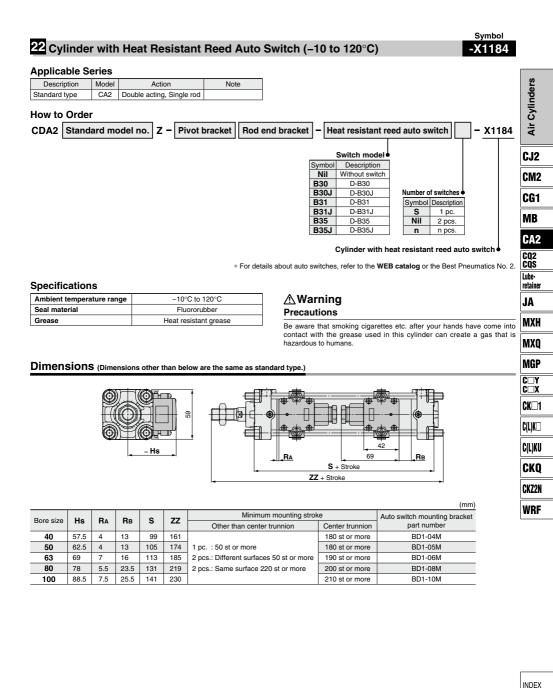
Symbol

Specifications

Ambient temperature range	-10°C to 70°C
Seal material	Nitrile rubber
Grease	Grease for food
Auto switch	Mountable
Dimensions	Same as standard type
Additional specifications	Same as standard type



Made to Order Series CA2





Series CA2 Specific Product Precautions

Be sure to read this before handling. Refer to page 1574 for Safety Instructions. For Actuator and Auto Switch Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Handling

≜Caution

1. Do not open the cushion valve beyond the stopper. A retaining ring is installed as a cushion valve retention mechanism. Do not open the cushion valve beyond it. If not operated in accordance with the above precautions, the cushion valve may be ejected from the cover when air pressure is supplied.

Bore size (mm)	Width across flats	Socket wrench
40, 50	2.5	JIS 4648 Hexagonal wrench key 2.5
63, 80, 100	4	JIS 4648 Hexagonal wrench key 4

2. Use the air cushion at the end of cylinder stroke. Otherwise, the tie-rod or piston rod assembly will be damaged.

∆Caution

- 1. Do not use a pneumatic type as an air-hydro cylinder. It can cause oil leak.
- 2. Do not rotate the piston rod when the rod boot is fixed.

Before rotating the piston rod, loosen the band to avoid twisting the rod boot.

3. Install the rod boot with the breathing hole facing downwards or in a direction suitable to prevent dust, moisture etc. from entering easily into the rod boot.



Disassembly/Replacement

≜Caution

 Use a socket wrench when the bracket is replaced. If other tools are used, the nut or other parts may be deformed or the work efficiency may decrease. For applicable sockets, refer to the table below.

Bore size (mm)	Nut	Width across flats	Socket	Tightening torque (N·m)	
40, 50 DA00040		13	JIS B4636	7.4	
40, 30	(M8 x 1.25, Hexagon nut 3 types)	13	+ Two-angle socket 13	7.4	
63	DA00010	17	JIS B4636	20	
03	(M10 x 1.25, Hexagon nut 3 types)	17	+ Two-angle socket 17	20	
90 100	DA00131	19	JIS B4636	29	
80, 100	(M12 x 1.75, Hexagon nut 3 types)	19	+ Two-angle socket 19	29	

2. Do not replace the bushing.

As the bushing is press-fit, replace the cover assembly when the bushing must be replaced.

3. When a seal is replaced, apply grease to the new seal before it is assembled.

Operation of the cylinder without greasing will result in extreme abrasion of the seal, causing premature air leakage.

4. The trunnion type cylinder requires accuracy in assembly.

The trunnion type cylinder may lose dimensional accuracy and malfunction when it is disassembled and reassembled because the axial center of the trunnion and that of the cylinder will not be aligned easily.

Water Resistant Air Cylinder

Water resistant air cylinders are also available in Series CA2, which are suitable for use on machine tools, where exposure to coolant is possible and applicable for food machinery and automobile washing equipment in an environment where water splashes. Please contact SMC for more information.