Water Resistant Cylinder (Pneumatic/Hydraulic)

Pneumatic: CM2/CG1/MB/MB1/CQ2/CA2/MGP/MGG/MK/RSQ Series Hydraulic: CHDKB/CH2F Series

Compatible with an operating environment with coolants.





Anti-coolant performance has been improved compared to the standard cylinders. Applicable for an operating

environment where water splashes.

SMC

1125 ®

D--X Technical

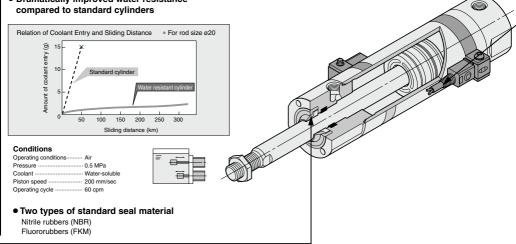
Water Resistant Air Cylinders (Pneumatic/Hydraulic)

Suitable for using under the atmosphere having coolant in the machine tools.

Also, compatible with environments where water is splashed on the food machinery, or car washing machines, etc

Special scraper

 Dramatically improved water resistance compared to standard cylinders



Mounting brackets, accessories, and nut material: Stainless steel

The following accessories need to be prepared separately. (Please order separately.) Refer to the "Accessories" page of each series for details.

Series	Bore size (mm)	Foot	Flange	Single knuckle joint	Double knuckle joint	Mounting nut	Rod end nut	Accessories page
CM2	20, 25, 32, 40	0	0	0	0	0	0	Best Pneumatics No. 2-1 p. 190
CG1	20, 25, 32, 40, 50, 63, 80, 100	0*	0*	0	0	-	0	Best Pneumatics No. 2-1 p. 309-1
CQ2	20, 25, 32, 40, 50, 63, 80, 100	_	—	0	0		0	Best Pneumatics No. 2-1 p. 796

Applicable Cylinder

Air Cylinder

* Except bore size 20 and 25.



@SMC

Water resistant 2-color indicator solid state auto switch

Model	Applicable cylinder	Lead wire	
D-F7BA(V)L/ Rail mounting	CQ2 (ø20 to ø100) MK (ø16 to ø63) RSQ (ø32 to ø50)	Oilproof vinyl cabtire cord: ø3.4 0.2 mm², 2 cores (Brown, Blue), 3 m (standard)	
D-F5BAL/Tie-rod mounting	MB (ø32 to ø100) CA2 (ø40 to ø100) CH2F (ø32 to ø100)	Oilproof vinyl cabtire cord: ø4, 0.3 mm² 2 cores (Brown, Blue), 3 m (standard)	
D-H7BAL/ Band mounting	CM2 (Ø20 to Ø40) CG1 (Ø32 to Ø63) MGG (Ø32 to Ø63)	Oilproof vinyl cabtire cord: ø3.4 0.2 mm², 2 cores (Brown, Blue), 3 m (standard)	
D-G5BAL/ Band mounting	CG1(ø80, ø100) MGG(ø80, ø100)	Oilproof vinyl cabtire cord: ø4, 0.3 mm ² 2 cores (Brown, Blue), 3 m (standard)	
D-Y7BAL/ Direct mounting Note 1)	MB (032 to 0100) MB1 (032 to 0100) CA2 (040 to 0100) CHKDB (032 to 0100)	Oilproof vinyl cabtire cord: ø3.4 0.15mm², 2 cores (Brown, Blue), 3 m (standard)	
D-M9□A(V)L/Direct mounting Note 1)	$\begin{array}{c} CM2 \ (\varpi 20 \ to \ \varpi 40) \\ CG1 \ (\varpi 32 \ to \ \varpi 63) \\ MB \ (\varpi 32 \ to \ \varpi 100) \\ MB1 \ (\varpi 32 \ to \ \varpi 100) \\ CA2 \ (\varpi 40 \ to \ \varpi 100) \\ CQ2 \ (\varpi 40 \ to \ \varpi 100) \\ CQ2 \ (\varpi 40 \ to \ \varpi 100) \\ MGP \ (\varpi 20 \ to \ \varpi 100) \\ MK \ (\varpi 16 \ to \ \varpi 63) \\ RSQ \ (\varpi 32 \ to \ \varpi 50) \\ CHKDB \ (\varpi 20 \ to \ \varpi 100) \end{array}$	Oilproof vinyl cabtire cord: 2.7 x 3.2 Elliptical shape, 0.15 mm ² , 2 cores (D-M9BA(V)), 3 cores (D-M9NA(V),D-M9PA(V))	

Note 1) Tie-rod mounting for CA2 and MB Note 2) This product is not made to be used in water. Refer to pages 1575 to 1701 for the detailed specifications of auto switches.



Hydraulic Cylinders



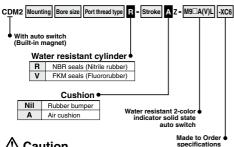


1127 ©

Air Cylinders



How to Order



Caution

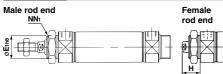
Rod seals and scrapers are not replaceable The above parts cannot be replaced since the scraper is press-fit in the rod cover.

Specifications

Action	Double acting, Single rod		
Bore size (mm)	20, 25, 32, 40		
Cushion	Rubber bumper, Air cushion		
Auto switch mounting	Band mounting		
Made to Order	Made of stainless steel (-XC6)		

* Specifications other than above are the same as standard, basic type.

Dimensions



H	Ĥ	
н		
ZZ	+ St	roke

				(mm)
Bore size (mm)	E1	NN1	Н	ZZ
20	22_0.033	M22 x 1.5	24	99
25	*26_0.033	*M26 x 1.5	24	99
32	*26_0.033	*M26 x 1.5	24	101
40	*32_0.039	*M32 x 2	26	130

Other specifications are the same as the double acting, single rod standard type. (An asterisk means it is the same as the standard type.)

Mounting Bracket*: Part No.

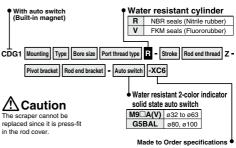
Mounting bracket	Min. order qty.	Bore size (mm) 20	Description (At min. order qty.)
Axial foot type**	2	CM-L020C	2 foots, 1 mounting nut
Flange	1	CM-F020C	1 flange
Trunnion (with nuts)	1	CM-T020C	1 trunnion, 1 trunnion nut

* The brackets for ø25 to ø40 are the same for the standard type.





How to Order

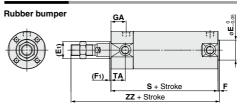


Specifications

Action	Double acting, Single rod
Bore size (mm)	32, 40, 50, 63, 80, 100
Cushion	Rubber bumper, Air cushion
Auto switch mounting	Band mounting
Made to Order	Made of stainless steel (-XC6)

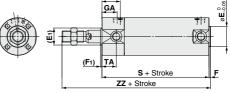
* Specifications other than above are the same as standard, basic type.

Dimensions



WA



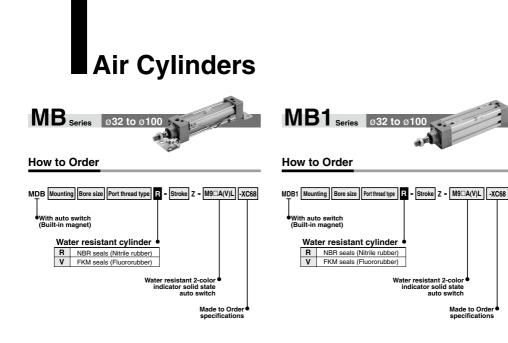


(mm)

Bore size (mm)	(E1)	E*	(F1)	F*	GA	S	TA	WA	ZZ
32	17	18	2	2	18	77 (85)	17	22	119 (127)
40	21	25	2	2	19	84 (93)	18	23	136 (145)
50	26	30	2	2	21	97 (109)	20	25	157 (169)
63	26	32	2	2	21	97 (109)	20	25	157 (169)
80	32	40	3	3	28	116 (130)	-	32	190 (204)
100	37	50	3	3	29	117 (131)	_	33	191 (205)

* Other specifications are the same as the double acting, single rod standard type. (An asterisk means it is the same as the standard type.)

): For the long stroke type

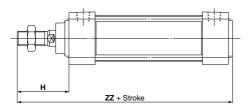


Specifications

Action	Double acting, Single rod		
Bore size (mm)	ø32, 40, 50, 63, 80, 100		
Cushion	Air cushion, Rubber bumper		
Auto switch mounting	Tie rod mounting		
Made to Order	Made of stainless steel (-XC68)		

* Specifications other than above are the same as standard, basic type.

Dimensions



		(mm)
Bore size (mm)	Н	ZZ
32	47	135 (141)
40	58	146 (152)
50	67	165 (173)
63	67	165 (173)
80	81	199 (209)
100	81	199 (209)

* Other specifications are the same as the double acting, single rod standard type.

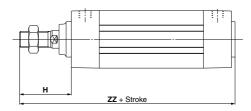
* (): For the type without a rubber bumper

Specifications

Action	Double acting, Single rod			
Bore size (mm)	ø32, 40, 50, 63, 80, 100			
Cushion	Air cushion, Rubber bumper			
Auto switch mounting	Direct mounting			
Made to Order	Made of stainless steel (Piston rod is hard chrome plated) (-XC68)			

* Specifications other than above are the same as standard, basic type.

Dimensions



		(mm)
Bore size (mm)	Н	ZZ
32	47	135 (141)
40	58	146 (152)
50	67	165 (173)
63	67	165 (173)
80	81	199 (209)
100	81	199 (209)

* Other specifications are the same as the double acting, single rod standard type.

* (): For the type without a rubber bumper



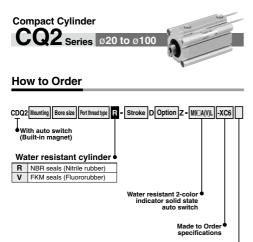
CJ5 CG5

HY□ Water Resistan

Made to Order specifications

SMC

Air Cylinders



 Nil
 Retaining ring, piston rod, rod end nut material: Stainless steel

 A
 Piston rod, rod end nut, cover holding bolt material: Stainless steel

 Note) -XC6A: ø20 to ø32 only

Specifications

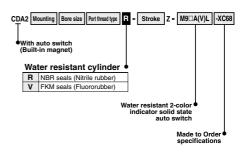
Action	Double acting, Single rod
Bore size (mm)	20, 25, 32, 40, 50, 63, 80, 100
Mounting	920 to 932 ······B (through-hole) only 940 to 9100 ·····B (through-hole), F (rod side flange) A (both ends tapped), G (head side flange) L (foot), D (double clevis)
Cushion	None
Minimum operating pressure	0.08 MPa
Auto switch mounting	Rail mounting (D-F7BAL/F7BAVL)/Direct mounting (D-M9□A(V)L) Use auto switch brackets for rail mounting.
Made to Order	Retaining ring, piston rod, rod end nut material: Stainless steel (-XC6)

* Specifications other than above are the same as standard, basic type.

Refer to page 949 for details.



How to Order



Specifications

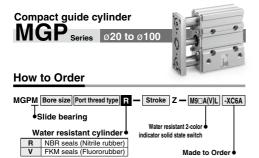
Double acting, Single rod
40, 50, 63, 80, 100
Air cushion
Tie-rod mounting type
Made of stainless steel (Piston rod is hard chrome plated) (-XC68)

* Specifications other than above are the same as standard, basic type. Note 1) Air-hydro type, rod boot specifications are excluded. Note 2) Combination of auto switches and steel tube is not available.

Dimensions

* Other specifications are the same as the double acting, single rod standard type.

Air Cylinders



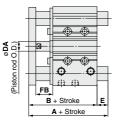
* Piston rod and guide rod are made of stainless steel.

Specifications

Applicable series		MGPM		
Bearing type		Slide bearing		
Bore size	Bore size (mm) 20, 25, 32, 40, 50, 63, 80, 100			
Cushion MGPM□□R MGPM□□V		Rubber bumper		
		Without cushion		
Auto swit	ch mounting	Direct mounting		
Minimum operating pressure		0.13 MPa		
Made to Order -XC6A		Specified parts made of stainless steel		

* Specifications other than above are the same as standard, basic type. Note) Refer to the Best Pneumatics No. 2-2 for details.

Dimensions

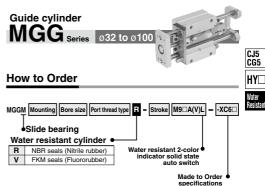


					()	
Dana dina		Α				
Bore size (mm)	50 st or less	Over 50 st 200 st or less	Over 200 st	В	DA	
20	66	90.5	123	66	(10)	
25	67.5	91.5	123.5	67.5	(10)	
32	87	105.5	141.5	71.5	(14)	
40	87	105.5	141.5	78	(14)	
50	99.5	120.5	161.5	83	20	
63	99.5	120.5	161.5	88	20	
80	110.5	137.5	186.5	102.5	25	
100	130.5	155.5	194.5	120	30	

Bore size		E			XC6A
(mm)	50 st or less	Over 50 st 200 st or less	Over 200 st	FB	FB
20	(0)	(24.5)	(57)	21	20
25	(0)	(24)	(56)	21	20
32	(15.5)	(34)	(70)	24	22
40	(9)	(27.5)	(63.5)	24	22
50	(16.5)	(37.5)	(78.5)	27	23
63	(11.5)	(32.5)	(73.5)	27	23
80	(8)	(35)	(84)	30	27
100	(10.5)	(35.5)	(74.5)	35	32

* The dimensions in () are the same as standard type.

* The FB dimensions change for the XC6A.



* A scraper is installed on piston rod parts only.

Specifications

Action		Double acting			
Bore size (mm)		32, 40, 50, 63, 80, 100			
Bearing type		Slide bearing			
Cushion		Built-in rubber bumper and shock absorber			
Auto switch m	ounting	Band mounting			
-XC6		Made of stainless steel (Piston rod, rod end nut)			
Made to Order	-XC6A	Stainless steel used on all iron parts			
-XC6B		Stainless steel rod end moving parts			
		Stainless steel rods			

* Specifications other than above are the same as standard, basic type. Refer to the Best Pneumatics No. 2-2 for details.

Front mounting flange

Note) RBL (anti-coolant) type is used for shock absorbers.

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

ø32 to ø50

(mm)

N:
"LQ
X Y + Stroke

Ø63 to Ø100 Front mounting flange

2			
11:	631	103	
	Y	~	

FF .		ł
	,	
x	Q Y + Stroke	

			(mm)	
Bore size (mm)	Q	X	Y	
32	16	48	77 (85)	D D
40	17	58	84 (93)	U -∟
50	19	69	97 (109)	
63	34	56	112 (124)	-X□
80	46	68	137 (151)	
100	47	68	138 (152)	Technic
* (): For the long	stroke type			Data

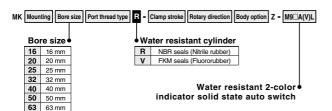
): For the long stroke type.



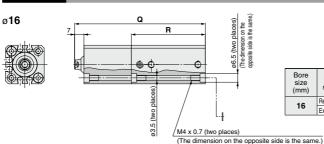
Air Cylinder

ø16 to ø63

How to Order

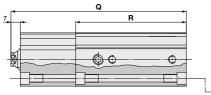


Dimensions



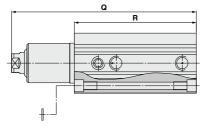
Bore size (mm) state		Clamp stroke					
		10 mm		20 mm		30 mm	
(mm) st	Sidle	Q	R	Q	R	Q	R
16	Retracted	78	45.5	98	55.5	118	65.5
	Extended	95.5		125.5	55.5	155.5	65.5

ø20, ø25



Bore Rod		Clamp stroke					
size state	10 mm		20 mm		30 mm		
(mm)	Sidle	Q	R	Q	R	Q	R
20	Retracted	99	72	119	82	139	92
20	Extended	118.5		148.5		178.5	
25	Retracted	111.5	73	131.5	83	151.5	93
25	Extended	131	/3	161	03	191	33

ø32 to ø63



Bore	Ded		Clamp stroke							
size	Rod state	10	mm 20 mm		30 mm		50 mm			
(mm)	Sidle	Q	R	Q	R	Q	R	Q	R	
32	Retracted	118.5	81.5	138.5	91.5	158.5	101.5	198.5	121.5	
32	Extended	143.5	01.5	173.5	91.5	203.5	101.5	263.5	121.0	
40	Retracted	119	75 139 85 15	159	95	199	115			
40	Extended	144	/5	174	65	204	95	264	115	
50	Retracted	137	86.5	157	96.5	177	106.5	217	126.5	
50	Extended	166	00.5	196	96.5	226	106.5	286	120.5	
63	Retracted	140	90 160	100	180	110	220	130		
03	Extended	169	90	199	100	229	110	289	130	



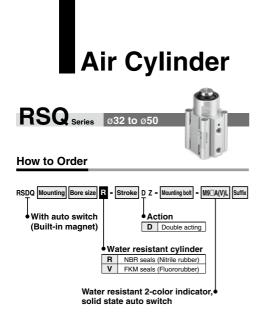
Bore size (mm)	16	20	25	32	40	50	63
Action	Double acting						
Cushion		Rubber bumper					
Minimum operating pressure		0.15 MPa (0.1 MPa)					.)
Auto switch mounting		Direct mounting					

Specifications other than above are the same as standard, basic type.

Excludes bore sizes ø16 to ø25 of the rod flange type

* The dimensions in () are the same as standard type.



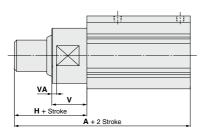


Specifications

Action	Double acting
Bore size (mm)	ø32, ø40, ø50
Cushion	Rubber bumper
Rod end configuration	Round bar
Auto switch mounting	Direct mounting

* Specifications other than the above are the same as the standard type.

Dimensions



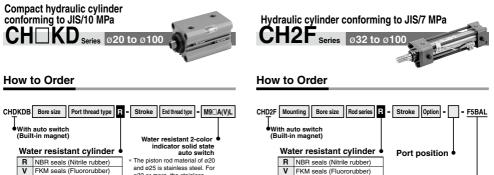
				(mm)
Bore size	A	н	V	VA
32	80	32	24	8
40	89.5	37	29	0
50	91	37	29	0

* Other specifications are the same as the double acting.

CJ5 CG5
HY□
Water Resistant



Hydraulic Cylinders



R and V.

Piston seal is made of NBR for both

Specifications

Action	Double acting, Single rod	
Bore size (mm)	20, 25, 32, 40, 50, 63, 80, 100	
Cushion	None	
Auto switch mounting Direct mounting		

* Specifications other than above are the same as standard, basic type.

Dimensions



					(mm
Bore size (mm)	A	в	с	N	s
20	61	43	18	26.5	6
25	63	45	18	30	6
32	71	51	20	38	7
40	75	55	20	45	7
50	81	60	21	55	7
63	90	67	23	66	7
80	105	78	27	86	7
100	132	96	36	104	7

ø32 or more, the stainless

as made to order.

steel piston rods are available

* Other specifications are the same as the double acting, single rod standard type.



Rod end male thread

		(mm)
Bore size (mm)	g	h
20	33	76
25	36	81
32	45	96
40	50	105
50	56	116
63	68	135
80	87	165
100	111	207

* Other specifications are the same as the double acting, single rod standard type.

Specifications

R and V.

Piston seal is made of NBR for both

Action Double acting, Single rod	
Bore size (mm)	32, 40, 50, 63, 80, 100
Cushion	Cushion seal type
Auto switch mounting	Tie-rod mounting

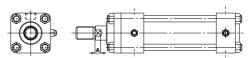
Water resistant 2-color

* Stainless steel piston rods are available as made to order.

indicator solid state auto switch

* Specifications other than above are the same as standard, basic type.

Dimensions



	(mm)
Bore size	B type rod
(mm)	А
32	_
40	—
50	_
63	—
80	13.5
100	14.5

* Other specifications are the same as the double acting, single rod standard type.

S





Water Resistant Air Cylinder/Water Resistant Hydraulic Cylinder Specific Product Precautions

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Handling Precautions

- Before installing a cylinder, thoroughly flush out the piping to prevent dust or cutting chips from entering the cylinder. For the hydraulic cylinder, use the air bleed valve to bleed the air inside the cylinder.
- Eccentric loads applied to the piston rod dramatically shorten the service life. Use the piston rod by always applying a load in an axial direction.
- 3.Make sure not to scratch or gouge the sliding portion of the piston rod, as this could damage the seals and lead to leaks. Attach a cover or other protection in locations where the cylinder is exposed to grinding sludge or machining chips.
- 4. When the cylinder is used in a place where the liquid from the piston rod is lightly splashed, and exposed to dust or sand, use a heavy duty scraper (-XC4).
- 5.If there is a possibility that liquid splashes on cylinder fittings when using an air cylinder, use insert fittings, self-align fittings, piping, etc. Consider the compatibility of liquid components and piping materials before using.
- 6. When selecting seals, generally use NBR (nitrile rubber) seals with liquids that do not contain chlorine and sulfur, and use FKM (fluororubber) seals with liquids that contain chlorine and sulfur. However, depending on the type and the brand of liquid that splashes on the cylinder, the operating life of seals may be reduced dramatically (such as coolant liquid). In cases where special additives are used, or where liquid caused trouble with the current nitrile or fluororubber seals in the past, request an investigation or set up a test period for the use of the seals.

Examples of coolants

Shimiron, PA-O-5	(Daido Chemical Industry Co., Ltd.)	(NBR seals)
Noritake Cool, AFG-S	(Noritake Co., Ltd.)	(NBR seals)
Yushiroken, S-46S	(Yushiro Chemical Industry Co., Ltd.)	(NBR seals)
Yushiroken, EC-50-T3	(Yushiro Chemical Industry Co., Ltd.)	(NBR seals)
Yushiron Oil, No. 23	(Yushiro Chemical Industry Co., Ltd.)	(FKM seals)
Daphne Cut, Hs-1	(Idemitsu Kosan Co., Ltd.)	(FKM seals)

 Please consult with SMC separately when liquid contains sulfur, which is used for cylinders with a guide (MGP, MGG).

CJ5 CG5
HY□
Water Resistant



Made to Order Common Specifications: -XC93 : With Greater Water Resistance + Stable Lubrication Function

66 With Greater Water Resistance + Stable Lubrication Function

Symbol -XC93

-5 times stronger against water (liquids) than the standard model

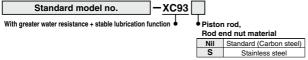
Equipped with the greater water resistant scraper (Fluororubber). The Lube-retainer creates grease coating around the piston rod, which improves lubrication.

Stainless steel can be selected for the piston rod and rod end nut.

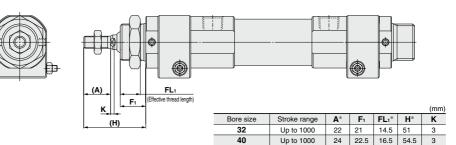
Applicable Series

Series	Description	Model	Action		Vol. no. (for std model)
RHC	High power cylinder	RHC	Double acting, Single rod	Applicable bore size: ø32, ø40 Rc port only	2-3 From P. 351

How to Order



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



*: Same as the standard model.