

# Improved life within

Dust

Water

&

High Temperature

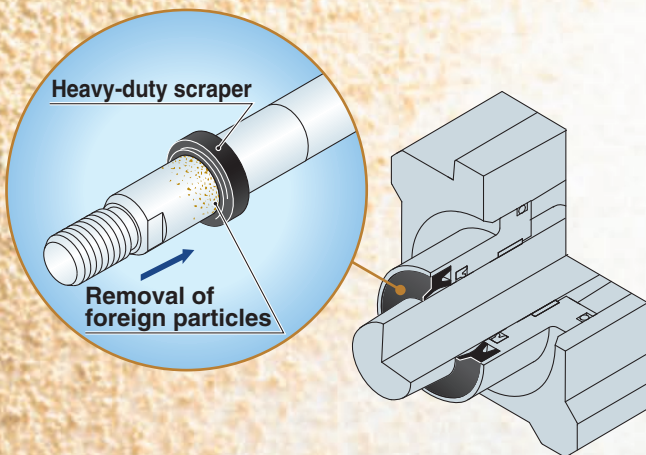
## environments.

### Environment Resistant Actuators

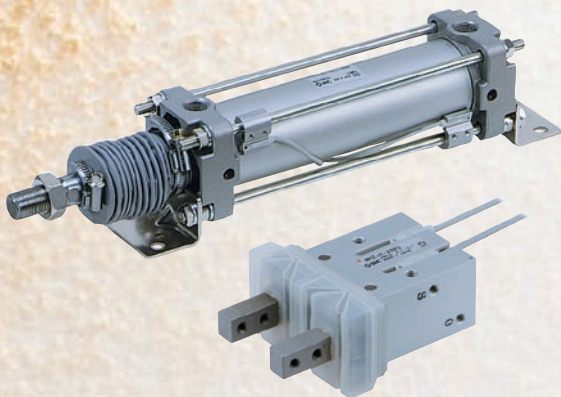
#### For Paper Powder and Dust

With heavy-duty scraper

Removal of foreign particles adhered to the rod



With Rod boot / With dust cover



#### Water Resistant, Corrosion Resistant

Water resistant cylinder



All stainless steel specifications (External parts)

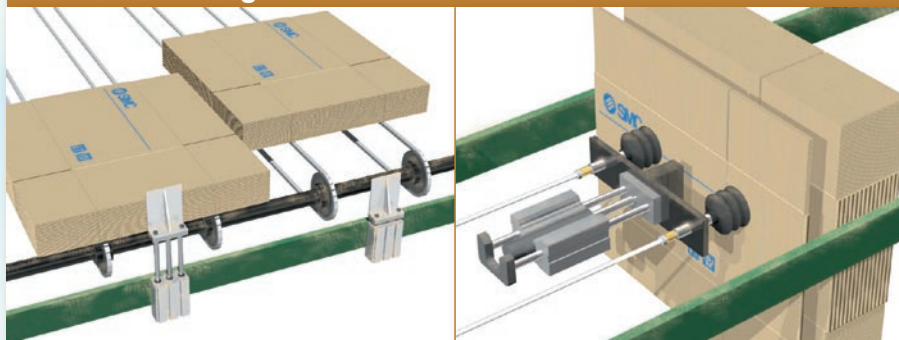
#### For High Temperature

Heat resistant **150°C**

Seal material: Fluororubber

Heat resistant grease

Transfer of corrugated boxes



Device cleaning



# Environment Resistant Actuators Variations

Air Cylinder Series	For Paper Powder and Dust		Water Resistant, Corrosion Resistant		For High Temperature
	With heavy-duty scraper P.3	With rod boot P.8	Made of stainless steel P.14	Water resistant (With special scraper) P.18	Heat resistant (-10 to 150°C) P.23
Pin Cylinder CJP2					●
Air Cylinder CJ2					●
Air Cylinder CM2	●	●	●	●	●
Air Cylinder CG1	●	●	●	●	●
Air Cylinder MB	●	●	●	●	●
Square Tube Type Air Cylinder MB1	●	●	●	●	●
Air Cylinder CA2	●	●	●	●	●
Air Cylinder CS1	●	●	●		●
Air Cylinder CS2		●	●		●
Mini Free Mount Cylinder CUJ					●
Free Mount Cylinder CU					●
Compact Cylinder / Compact Type CQS			●		●
Compact Cylinder CQ2	●		●	●	●
Compact Cylinder with Air Cushion RQ	●				
Stainless Steel Cylinder CJ5			●	●	
Stainless Steel Cylinder CG5			●	●	●
Hygienic Design Cylinder HY				●	
Magnet Type Rodless Cylinders CY3					●
Compact Guide Cylinder MGP	●		●	●	●
Compact Guide Cylinder MGQ					●
Guide Cylinder MGG	●		●	●	●

Air Cylinder Series	For Paper Powder and Dust		Water Resistant, Corrosion Resistant		For High Temperature
	With heavy-duty scraper P.3	With rod boot P.8	Made of stainless steel P.14	Water resistant (With special scraper) P.18	Heat resistant (-10 to 150°C) P.23
Guide Cylinder / Compact Type MGC	●		●		●
Dual Rod Cylinder CXS			●		●
Dual Rod Cylinder CXSJ			●		●
Valve Mounted Air Cylinder CVM5	●	●	●		●
Valve Mounted Air Cylinder CV3	●	●	●		●
Valve Mounted Air Cylinder CVS1		●	●		●
Cylinder with Lock CNA2	●	●			
Cylinder with Lock CNG	●	●			
High Power Cylinder RHC			●		

Air Gripper Series	With dust cover P.9	Heat resistant (-10 to 100°C) P.25
	Linear Guide Parallel Style Air Gripper MHZ	●
Linear Guide Low Profile Air Gripper MHF2		●
Parallel Style Air Gripper Wide Opening MHL2		●
Slide Guide 2-Finger Type Air Gripper MHK2	●	●
Slide Guide 3-Finger Type Air Gripper MHS	● 3 Finger only	●
Angular Style Air Gripper Standard MHC		●
Toggle type Air Gripper MHT2		●
180° Angular Style Air Gripper Cam Style MHY2		●
180° Angular Style Air Gripper Rack & Pinion Style MHW2		●

# Air Cylinder With Heavy-duty Scraper: -XC4

- Applicable for use in paper powder and dust environments with the use of a heavy-duty scraper on the wiper ring.

## Applicable Series

Series	Description	Model	Action	Note	Catalog page
CM2	Air cylinder	CM2	Double acting, Single rod		From P. 128
		CM2W	Double acting, Double rod		
	Centralized piping type	CM2□□P	Double acting, Single rod		
	End lock cylinder	CBM2	Double acting, Single rod	Head side locking type only (Except with air cushion)	
CG1	Air cylinder	CG1	Double acting, Single rod	ø32 to ø63 only	From P. 222
MB	Air cylinder	MB	Double acting, Single rod		From P. 290
		MBW	Double acting, Double rod		
MB1	Air cylinder	MB1	Double acting, Single rod		From P. 332
		MB1W	Double acting, Double rod		
CA2*	Air cylinder	CA2	Double acting, Single rod		From P. 356
		CA2W	Double acting, Double rod		
	End lock cylinder	CBA2	Double acting, Single rod	Head side locking type only	
CS1	Air cylinder	CS1	Double acting, Single rod		From P. 412
		CS1W	Double acting, Double rod		
RQ	Compact cylinder with air cushion	RQ	Double acting, Single rod		From P. 774
CQ2	Air cylinder	CQ2	Double acting, Single rod	ø20 to ø100	CAT.ES20-205
	Axial piping type (Centralized piping type)	CQP2	Double acting, Single rod	ø32 to ø100	
	Long stroke	CQ2	Double acting, Single rod		
CVM5	Valve mounted air cylinder	CVM5	Double acting, Single rod		From P. 1563
CV	Valve mounted cylinder	CV3	Double acting, Single rod		From P. 1604
		CVS1	Double acting, Single rod		
MGP	Compact guide cylinder	MGP	Double acting	ø20 to ø100 (Except with air cushion or end lock)	From P. 272
MGG	Guide cylinder	MGG	Double acting	Except ø20, ø25	From P. 356
MGC		MGC	Double acting	Except ø20, ø25	From P. 392
CNG	Cylinder with lock	CNG	Double acting, Single rod	ø32, ø40 only	From P. 669
CNA2	Cylinder with lock	CNA2	Double acting, Single rod		CAT.ES20-206

\* CA2□H (Air-hydro type) comes with a heavy-duty scraper as standard.

## How to Order

Standard model no. **-XC4**

\* For Series MGP, refer to page 7.

- With heavy-duty scraper (SCB scraper)

**Specifications: Same as standard type.**

## ⚠ Caution

**Do not replace heavy-duty scrapers.**

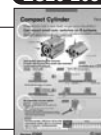
- Since heavy-duty scrapers are press-fit, do not replace the cover only, but rather the entire rod cover assembly. (Holder plate assembly in the case of Series MGP)
- Series CM2 cannot replace either heavy-duty scraper or rod seal. (It goes for replacing retainer assembly for Series CS1.)
- Replace the CNA2 series with the lock unit.

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ES20-205



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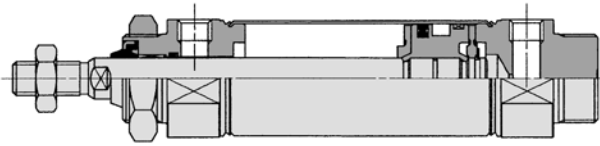
ES20-206



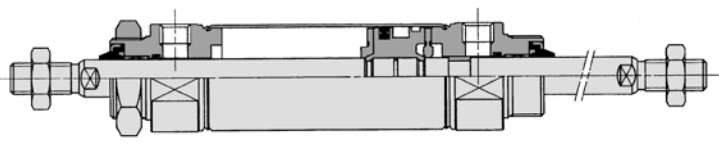
# With Heavy-duty Scraper: -XC4

**Construction** (Dimensions are the same as standard.)

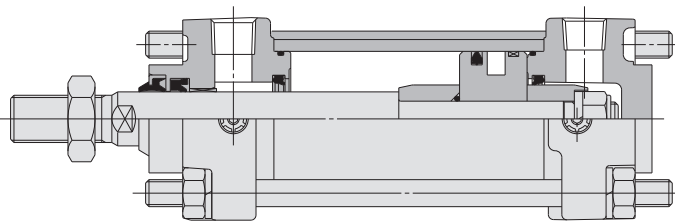
**Series CM2**



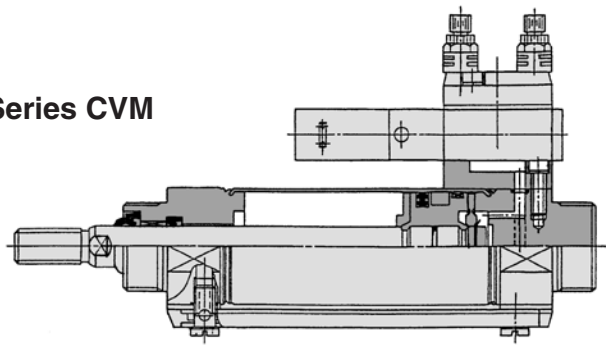
**Series CM2W**



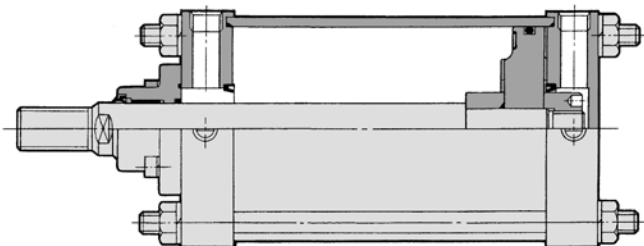
**Series CA2**



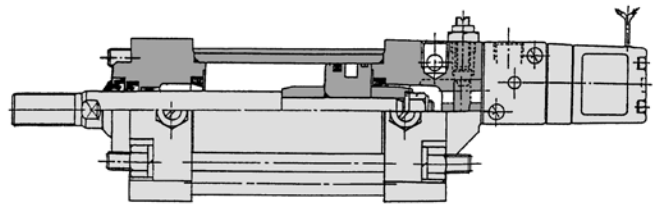
**Series CVM**



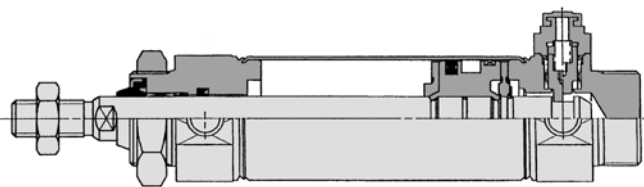
**Series CS1**



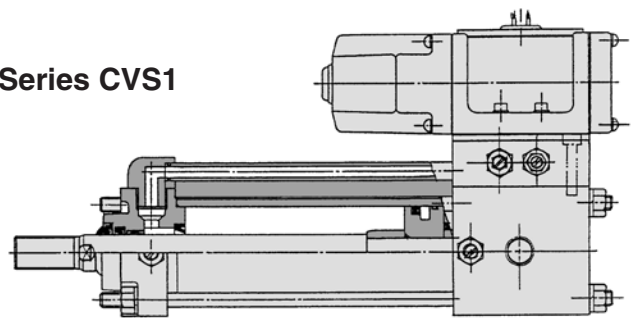
**Series CV3**



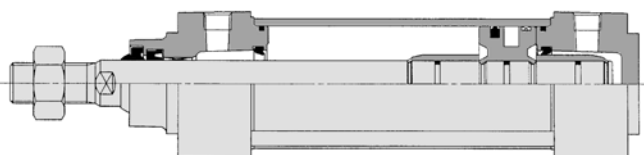
**Series CBM (Only with head side locking)**



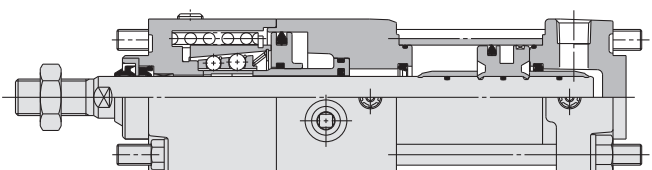
**Series CVS1**



**Series MB**



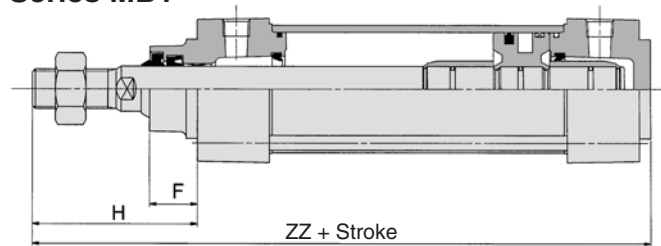
**Series CNA2**



# With Heavy-duty Scraper: -XC4

## Dimensions

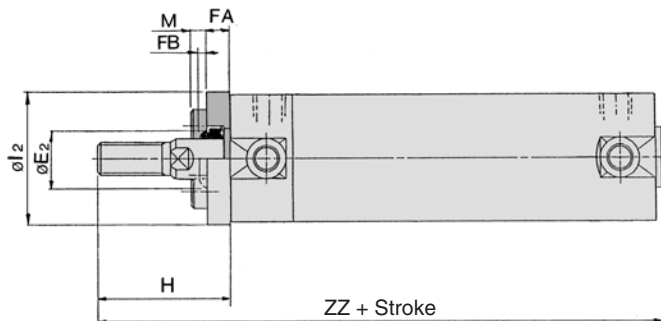
### Series MB Series MB1



Series MB, MB1 (mm)

Bore size	F	H	ZZ
32	15	47	135
40	17	58	146
50	19	67	165
63	19	67	165
80	25	81	199
100	25	81	199

### Series CG1



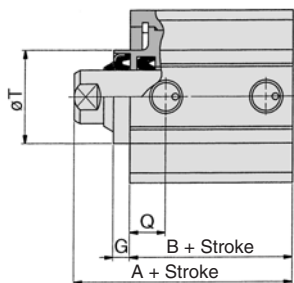
Series CG1 (mm)

Bore size	E2	FA	FB	M	I2	H	ZZ
32	17	8	3	5	38	48	121
40	21	8	3	6	48	58	138
50	26	9	3	8	59	66	158
63	26	9	3	10	72	66	158

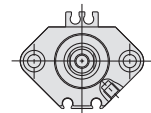
	ZZ
Long stroke	129
	147
	170
	170

\* Other dimensions are the same as double acting, single rod, standard type.  
 \* On the axial foot style and the rod side flange style, the installation bracket is wedged and bolted between the cylinder and the scraper at the time of shipment.  
 On other styles, it is placed in the same package (not assembled).

### Series CQ2



- ( ) : Denotes the dimensions with auto switch.
- Other dimensions are the same as for CQ2/standard type.
- Bore size 32, without switch, 5 strokes: Q-dimensions is 21.5.
- Relation between bore size 12 to 32 piping port and mounting holes is as the following diagram. Please contact SMC for bracket style. Applicable stroke available by the 5 mm interval.



Without switch: Bore size 20 to 32 With switch: Bore size 20, 25  
 With switch: Bore size 32

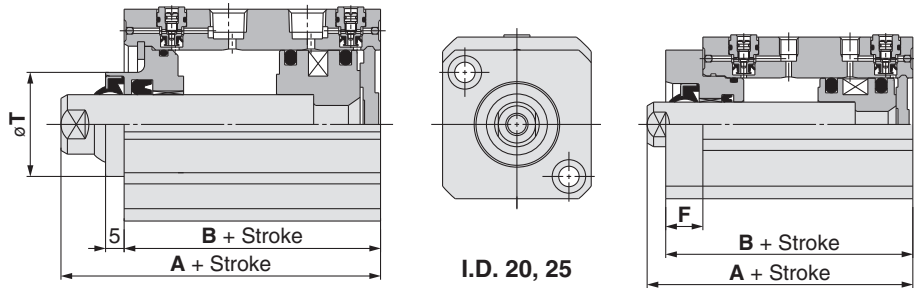
### Series CQ2

Bore size (mm)	A			B			T	G		Q	
	50 stroke or less	75, 100 stroke	125 to 300 stroke	50 stroke or less	75, 100 stroke	125 to 300 stroke		100 stroke or less	125 stroke or more	50 stroke or less	125 stroke or more
20	34 (46)	—	—	29.5 (41.5)	—	—	—	—	—	19 (20.5)	—
25	37.5 (47.5)	—	—	32.5 (42.5)	—	—	—	—	—	21 (21)	—
32	40 (50)	50 (50)	67.5 (67.5)	33 (43)	43 (43)	55.5 (55.5)	—	—	—	20.5 (20.5)	—
40	46.5 (56.5)	56.5 (56.5)	77 (77)	29.5 (39.5)	39.5 (39.5)	55 (55)	28	5	10	11 (11)	14 (14)
50	48.5 (58.5)	58.5 (58.5)	78.5 (78.5)	30.5 (40.5)	40.5 (40.5)	55.5 (55.5)	35	5	10	10.5 (10.5)	14 (14)
63	54 (64)	64 (64)	80 (80)	36 (46)	46 (46)	57 (57)	35	5	10	15 (15)	16.5 (16.5)
80	63.5 (73.5)	73.5 (73.5)	91 (91)	43.5 (53.5)	53.5 (53.5)	66 (66)	43	5	10	16 (16)	19 (19)
100	75 (85)	85 (85)	102.5 (102.5)	53 (63)	63 (63)	75.5 (75.5)	59	5	10	23 (23)	23 (23)

# With Heavy-duty Scraper: -XC4

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

### Series RQ



(mm)				
Bore size (mm)	A	B	T	F
20	46.5	42	—	10
25	51.5	46.5	—	10
32	54	47	—	10
40	61	44	28	—
50	67.5	49.5	35	—
63	73	55	35	—
80	83.5	63.5	43	—
100	98	76	59	—

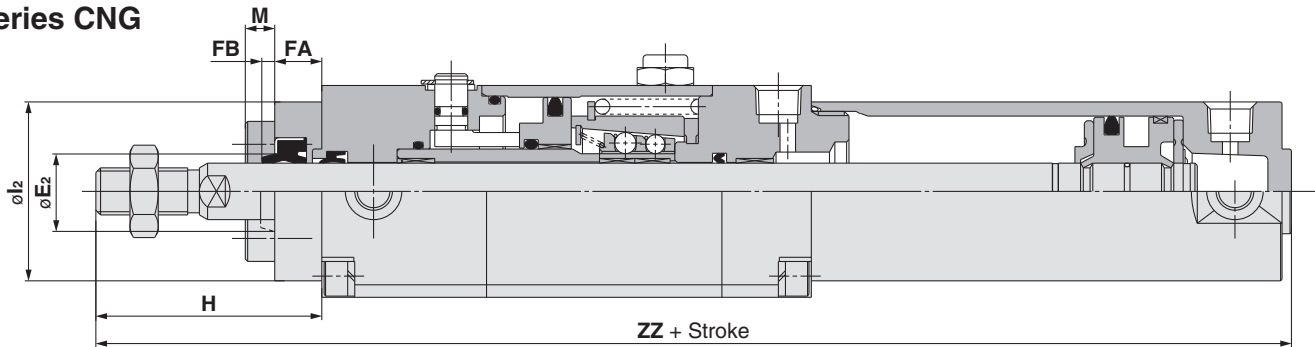
### ⚠ Caution

#### 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.
- \* Contact SMC for the rod cover assembly part number.

- \* Contact SMC for cylinders with I.D. 20 to 32 brackets.
- \* Only standard strokes are applicable.

### Series CNG



Bore size	E <sub>2</sub>	FA	FB	M	l <sub>2</sub>	H	ZZ
32	17	8	3	5	38	48	204
40	21	8	3	6	48	58	229

	ZZ
Long stroke	212
	238

- \* Other dimensions are the same as the standard type. (The above figure shows the rubber bumper type.)
- \* On the axial foot style and the rod side flange style, the installation bracket is wedged and bolted between the cylinder and the scraper at the time of shipment.

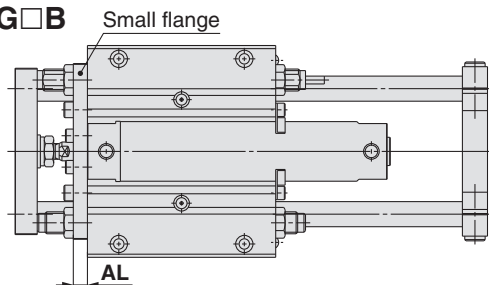
### ⚠ Caution

#### Do not replace heavy-duty scrapers.

- Since heavy-duty scrapers are press-fit, they must be replaced together with the seal holder assembly.

### Series MGG□B

ø32 to ø50



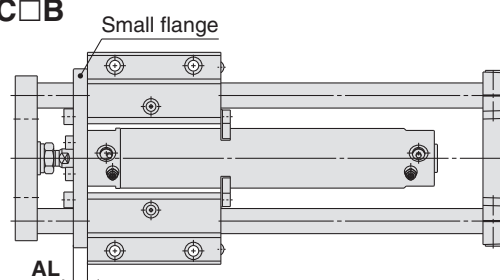
(mm)	
Bore size (mm)	AL
32	9
40	12
50	12

### Specifications: Same as standard type.

- Note 1) Except ø20 and ø25.
- Note 2) Heavy-duty scrapers are attached to the piston rod and guide rods (front and back).
- Note 3) Rod side heavy-duty scrapers for ø32 to ø50 are press-fit to large and small flanges. When replacing them, replace the large and small flange assemblies.

### Series MGC□B

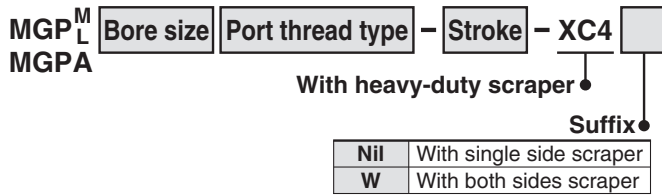
ø32 to ø50



(mm)	
Bore size (mm)	AL
32	9
40	12
50	12

# With Heavy-duty Scraper: -XC4

## How to Order/MGP

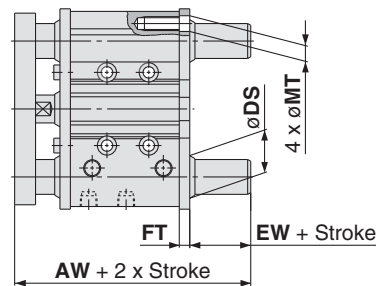
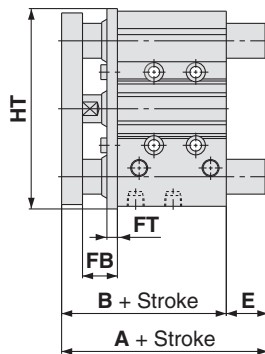


## Specifications

Applicable series	MGPM	MGPL/MGPA
<b>Bearing type</b>	Slide bearing	Ball bushing bearing
<b>Bore size (mm)</b>	20, 25, 32, 40, 50, 63, 80, 100	
<b>Minimum operating pressure</b>	With single side	0.12 MPa
	With both sides	0.14 MPa

Specifications other than above are the same as standard type.

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



For cylinder with both sides scraper

## Common Dimensions:

### MGPM, MGPL, MGPA (mm)

Bore size (mm)	B	FB	FT
20	63	16	5
25	63.5	16	5
32	69.5	20	6
40	76	20	6
50	82	22	6
63	87	22	6
80	106.5	28	6
100	126	35	9

## With Both Sides Scraper Dimensions:

### AW, EW, MT, DS (mm)

Bore size (mm)	AW	EW	MT	DS*	
				MGPM	MGPL, MGPA
20	74	6	6	17	15
25	74.5	6	7	21	19
32	82.5	7	8.5	26	21
40	89	7	9	26	21
50	95	7	11	31	26
63	100	7	11	31	26
80	120.5	8	14	36	31
100	143	8	16	44	36

\* Bypass port size for guide rod with bottom mounting.

## MGPL, MGPA (Ball bushing bearing)

### A, E, HT Dimensions (mm)

Bore size (mm)	A				E				HT
	30 st or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st	30 st or less	Over 30 st to 100 st	Over 100 st to 200 st	Over 200 st	
20	73	90	114	132	10	27	51	69	80
25	79.5	95.5	114.5	132	16	32	51	68.5	93

Bore size (mm)	A				E				HT
	50 st or less	Over 50 st to 100 st	Over 100 st to 200 st	Over 200 st	50 st or less	Over 50 st to 100 st	Over 100 st to 200 st	Over 200 st	
32	91	108	128	150	21.5	38.5	58.5	80.5	110
40	91	108	128	150	15	32	52	74	118
50	103	124	144	171	21	42	62	89	146
63	103	124	144	171	16	37	57	84	160

Bore size (mm)	A				E				HT
	25 st or less	Over 25 st to 50 st	Over 50 st to 200 st	Over 200 st	25 st or less	Over 25 st to 50 st	Over 50 st to 200 st	Over 200 st	
80	119.5	140	170	203	13	33.5	63.5	96.5	201
100	131	157	190	213	5	31	64	87	238

## MGPM (Slide bearing) A, E, HT Dimensions (mm)

Bore size (mm)	A			E			HT
	50 st or less	Over 50 st to 200 st	Over 200 st	50 st or less	Over 50 st to 200 st	Over 200 st	
20	63	94.5	132	0	31.5	69	80
25	63.5	95	132	0	31.5	68.5	93
32	97	112	150	27.5	42.5	80.5	113
40	97	112	150	21	36	74	121
50	106.5	128	171	24.5	46	89	153
63	106.5	128	171	19.5	41	84	167
80	125	152	203	18.5	45.5	96.5	205
100	147	172	213	21	46	87	244

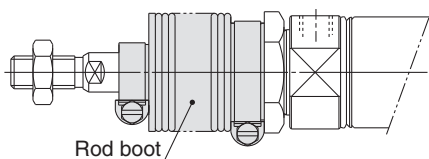


# Air Cylinder Cylinder with rod boot

- Protects the rod from adhering paper powder and dust, etc. by rod boot.

## Applicable Series

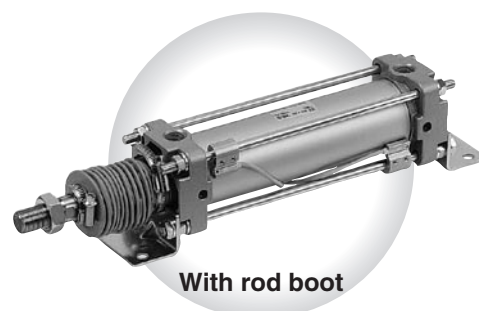
Series	Description	Model	Action	Catalog page	
<b>CM2</b>	Air cylinder	CM2	Double acting, Single rod	<b>From P.128</b>	
	Air cylinder	CM2W	Double acting, Double rod		
	Non-rotating rod type	CM2K	Double acting, Single rod		
	Centralized piping type	CM2□P	Double acting, Single rod		
	End lock cylinder	CBM2	Double acting, Single rod		
<b>CG1</b>	Air cylinder	CG1	Double acting, Single rod	<b>From P.222</b>	
	Air cylinder	CG1W	Double acting, Double rod		
	End lock cylinder	CBG1	Double acting, Single rod		
<b>MB</b>	Air cylinder	MB	Double acting, Single rod	<b>From P.290</b>	Best Pneumatics Catalog Best Pneumatics
	Air cylinder	MBW	Double acting, Double rod		
	Non-rotating rod type	MBK	Double acting, Single rod		
	End lock cylinder	MBB	Double acting, Single rod		
<b>MB1</b>	Air cylinder	MB1	Double acting, Single rod	<b>From P.332</b>	
	Air cylinder	MB1W	Double acting, Double rod		
	Non-rotating rod type	MB1K	Double acting, Single rod		
<b>CA2</b>	Air cylinder	CA2	Double acting, Single rod	<b>From P.356</b>	
	Air cylinder	CA2W	Double acting, Double rod		
	Non-rotating rod type	CA2K	Double acting, Single rod		
	Non-rotating rod type	CA2KW	Double acting, Double rod		
	End lock cylinder	CBA2	Double acting, Single rod		
	Air-hydro type	CA2□H	Double acting, Single rod		
	Air-hydro type	CA2□WH	Double acting, Double rod		
<b>CS1</b>	Air cylinder	CS1	Double acting, Single rod	<b>From P.412</b>	ES20-196
	Air cylinder	CS1W	Double acting, Double rod		
	Low friction type	CS1□Q	Double acting, Single rod		
<b>CS2</b>	Air cylinder	CS2W	Double acting, Double rod	<b>CAT.ES20-196</b>	
	Smooth Cylinder	CS2Y	Double acting, Single rod		
<b>CVM5</b>	Valve mounted cylinder	CVM5	Double acting, Single rod	<b>From P.1563</b>	
	Valve mounted cylinder	CVM5K	Double acting, Single rod		
<b>CV3</b>	Valve mounted cylinder	CV3	Double acting, Single rod	<b>From P.1604</b>	Best Pneumatics Catalog Best Pneumatics
	Valve mounted cylinder	CV3K	Double acting, Single rod		
<b>CVS1</b>	Valve mounted cylinder	CVS1	Double acting, Single rod	<b>From P.1624</b>	
	Valve mounted cylinder	CVS1K	Double acting, Single rod		
<b>CLM2</b>	Fine lock cylinder	CLM2	Double acting, Single rod	<b>From P.611</b>	
<b>CL1</b>	Lock up cylinder	CL1	Double acting, Single rod	<b>From P.636</b>	
<b>CNG</b>	Cylinder with Lock	CNG	Double acting, Single rod	<b>From P.672</b>	
	Cylinder with Lock	CNB	Double acting, Single rod		
<b>MNB</b>	Cylinder with Lock	MNB	Double acting, Single rod	<b>From P.696</b>	ES20-206 Best Pneumatics Catalog Best Pneumatics
	Cylinder with Lock	MNBW	Double acting, Double rod		
<b>CNA2</b>	Cylinder with Lock	CNA2	Double acting, Single rod	<b>CAT.ES20-206</b>	
	Cylinder with Lock	CNA2W	Double acting, Double rod		
<b>CNS</b>	Cylinder with Lock	CNS	Double acting, Single rod	<b>From P.760</b>	
<b>CLS</b>	Cylinder with Lock	CLS	Double acting, Single rod	<b>From P.786</b>	



### Rod Boot Material

Symbol	Rod Boot Material	Maximum operating temperature
<b>J</b>	Nylon tarpaulin	70°C
<b>K</b>	Heat resistant tarpaulin	110°C*

\* Maximum ambient temperature for the rod boot itself.



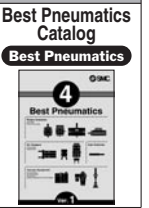
# Air Gripper

## Air Gripper with Dust Cover

- Prevent the entry of paper powder and dust with the use of a dust cover.

### Applicable Series

Series	Description	Model	Action	Catalog page
MHK	Wedge cam operation slide guide	MHK2	Double acting, Single acting (Normally open, Normally closed)	P.522
		MHKL2	Double acting, Single acting (Normally open, Normally closed)	
MHS	3-finger type with dust cover	MHSJ3	Double acting	P.562
	With through hole and dust cover	MHSHJ3	Double acting	P.570
MHZ	Parallel style with dust cover (Compact)	MHZAJ2	Double acting, Single acting (Normally open, Normally closed)	P.388
	Parallel style with dust cover	MHZJ2	Double acting, Single acting (Normally open, Normally closed)	P.424



### Dust cover Material

<b>NII</b>	Chloroprene rubber (CR)
<b>F</b>	Fluororubber (FKM)
<b>S</b>	Silicon rubber (Si)



# Air Gripper with Dust Cover

## Dust Cover Adhesion: -X77<sup>A</sup><sub>B</sub>

- Prevent the entry of paper powder and dust with the use of a dust cover.

### Applicable Series

Series	Description	Model	Action	Note	Catalog page
MHK	Wedge cam operation slide guide	MHK2	Double acting, Single acting (Normally open, Normally closed)		P.522
		MHKL2	Double acting, Single acting (Normally open, Normally closed)		
MHS	3-finger type with dust cover	MHSJ3	Double acting		P.562
	With through hole and dust cover	MHSHJ3	Double acting		P.570
MHZ	Parallel style with dust cover	MHZJ2	Double acting, Single acting (Normally open, Normally closed)	ø10, ø16, ø20, ø25 only	P.424



### How to Order

Standard part number for each series - X77A

Dust cover adhesion

### How to Order

Standard part number for each series - X77B

Dust cover adhesion/Finger part only

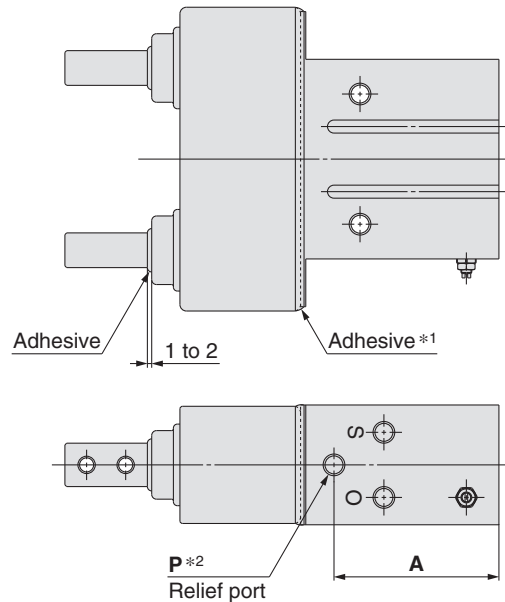
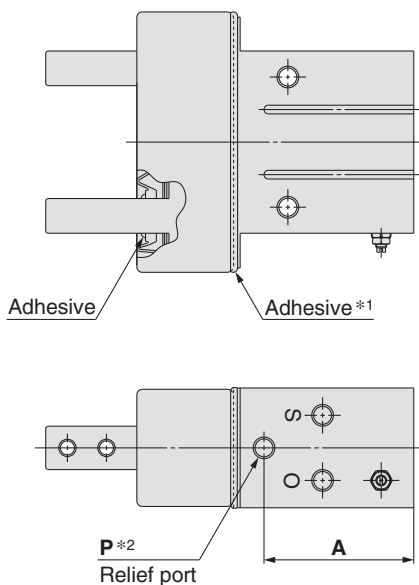
- Note 1) For -X77B, only the finger part is bonded.  
 Note 2) The relief port can be attached to both -X77A and -X77B.  
 Note 3) The dust cover cannot be removed and replaced.  
 Note 4) Be sure to connect the dust cover to the relief port used for dust cover breathing before operating.  
 Note 5) For the single acting type, be sure to use the vent hole after being piped.

### Specifications

Adhesive	Cyano superglue
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### Dimensions (Dimensions other than specified below are the same as the standard type.)

MHK<sub>L2</sub>-□□□□-X77<sup>A</sup><sub>B</sub>



Model	A (mm)	P (mm)
MHK2-12□□□□-X77 <sup>A</sup> <sub>B</sub>	26.5	M3 x 0.5
MHK2-16□□□□-X77 <sup>A</sup> <sub>B</sub>	28.5	
MHK2-20□□□□-X77 <sup>A</sup> <sub>B</sub>	34.5	M5 x 0.8
MHK2-25□□□□-X77 <sup>A</sup> <sub>B</sub>	37	
MHKL2-12□□□□-X77 <sup>A</sup> <sub>B</sub>	31	M3 x 0.5
MHKL2-16□□□□-X77 <sup>A</sup> <sub>B</sub>	33	
MHKL2-20□□□□-X77 <sup>A</sup> <sub>B</sub>	38	M5 x 0.8
MHKL2-25□□□□-X77 <sup>A</sup> <sub>B</sub>	44	

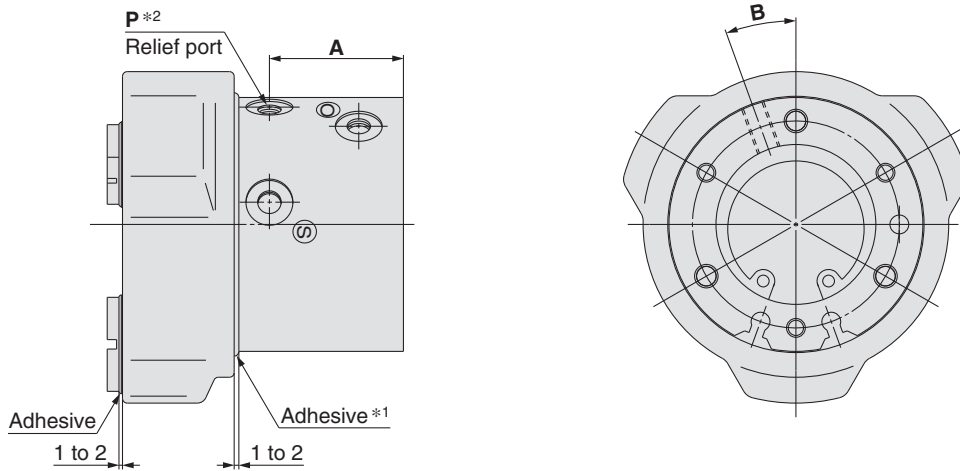
- \*1) For -X77B, the body part is not bonded, but only the finger part.  
 \*2) Use the relief port after being piped.  
 \*3) For the single acting type, be sure to use the vent hole after being piped.

# Dust Cover Adhesion: -X77<sup>A</sup><sub>B</sub>

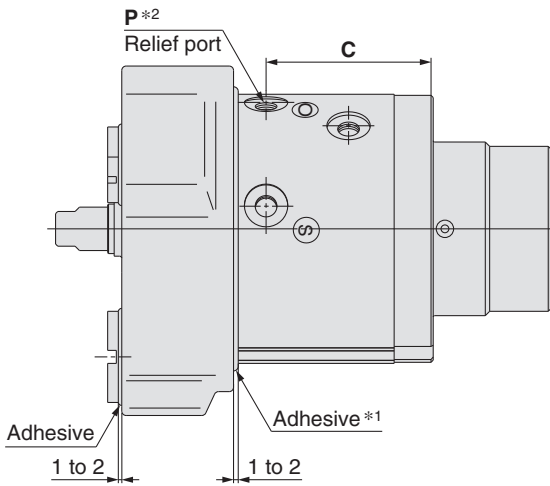
**Dimensions** (Dimensions other than specified below are the same as the standard type.)

MHSJ3-□D□-X77<sup>A</sup><sub>B</sub>

MHSHJ3-□D□-X77<sup>A</sup><sub>B</sub>



**With center pusher**



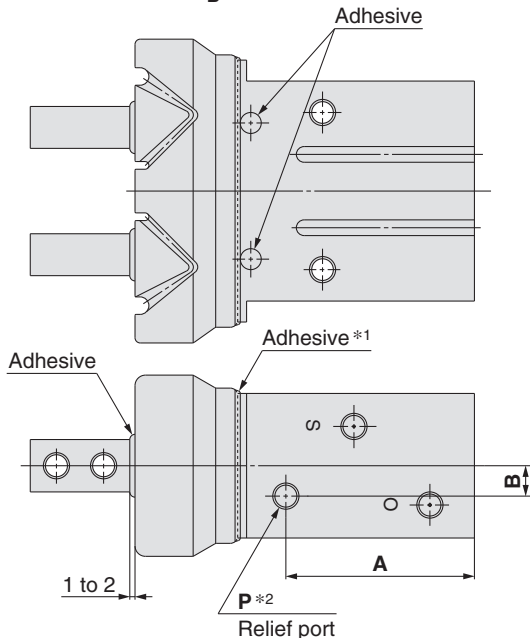
Model	A	B	C	P
MHSJ3-16D□-X77 <sup>A</sup> <sub>B</sub>	21	25°	—	M3 x 0.5
MHSJ3-20D□-X77 <sup>A</sup> <sub>B</sub>	21		—	
MHSJ3-25D□-X77 <sup>A</sup> <sub>B</sub>	25	20°	—	M5 x 0.8
MHS <sub>HJ</sub> 3-32D□-X77 <sup>A</sup> <sub>B</sub>	28.5		37.5	
MHS <sub>HJ</sub> 3-40D□-X77 <sup>A</sup> <sub>B</sub>	29		38.5	
MHS <sub>HJ</sub> 3-50D□-X77 <sup>A</sup> <sub>B</sub>	38		49	
MHS <sub>HJ</sub> 3-63D□-X77 <sup>A</sup> <sub>B</sub>	41		54	
MHS <sub>HJ</sub> 3-80D□-X77 <sup>A</sup> <sub>B</sub>	45	58		

\*1) For -X77B, the body part is not bonded, but only the finger part.

\*2) Use the relief port after being piped.

\*3) Body through-hole mounting is not possible.

MHZJ2-□□□-X77<sup>A</sup><sub>B</sub>



**Series MHZJ2**

Model	A	B	P
MHZJ2-10□□-X77 <sup>A</sup> <sub>B</sub>	27	4.2	M3 x 0.5
MHZJ2-16□□-X77 <sup>A</sup> <sub>B</sub>	28.8	5	
MHZJ2-20□□-X77 <sup>A</sup> <sub>B</sub>	36	5.8	M5 x 0.8
MHZJ2-25□□-X77 <sup>A</sup> <sub>B</sub>	43	6.8	

\*1) For -X77B, the body part is not bonded, but only the finger part.

\*2) Use the relief port after being piped.

\*3) For the single acting type, be sure to use the vent hole after being piped.

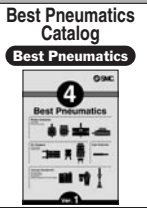
# Air Gripper with Dust Cover

## Dust Cover Caulking: -X78<sup>A</sup><sub>B</sub>

- Dustproof and dripproof

### Applicable Series

Series	Description	Model	Action	Note	Catalog page
MHK	Wedge cam operation slide guide	MHK2	Double acting, Single acting (Normally open, Normally closed)		P.522
		MHKL2	Double acting, Single acting (Normally open, Normally closed)		
MHS	3-finger type with dust cover	MHSJ3	Double acting		P.562
	With through hole and dust cover	MHSHJ3	Double acting		P.570
MHZ	Parallel style with dust cover	MHZJ2	Double acting, Single acting (Normally open, Normally closed)	ø10, ø16, ø20, ø25 only	P.424



### How to Order

Standard part number for each series -X78A

Dust cover caulking

### How to Order

Standard part number for each series -X78B

Dust cover caulking/Finger part only

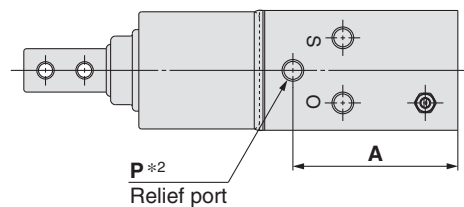
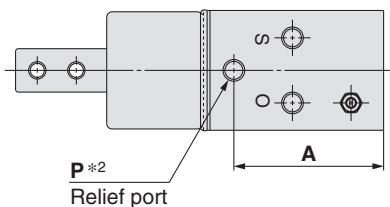
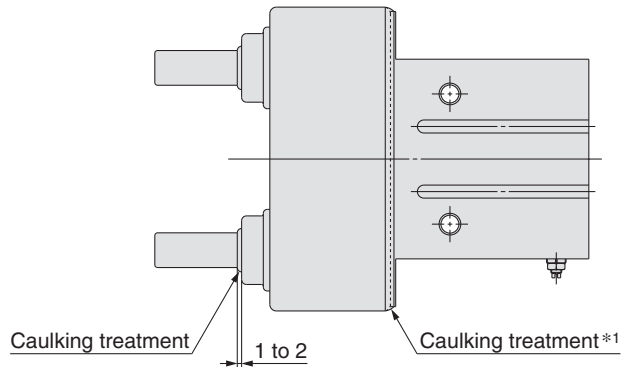
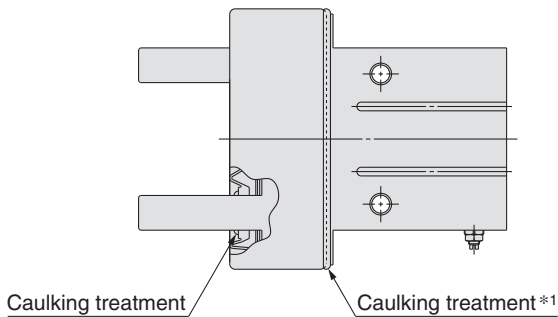
- Note 1) For -X78B, caulking is applied to only the finger part.  
 Note 2) Relief port can be mounted on both -X78A and -X78B.  
 Note 3) Use the dust cover after being piped to the relief port for dust cover breathing.  
 Note 4) For the single acting type, be sure to use the vent hole after being piped.

### Specifications

Caulking agent	Silicone adhesive, sealant (white)
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### Dimensions (Dimensions other than specified below are the same as the standard type.)

MHK<sub>L2</sub>-□□□□-X78<sup>A</sup><sub>B</sub>



(mm)

Model	A	P
MHK2-12□□□□-X78 <sup>A</sup> <sub>B</sub>	26.5	M3 x 0.5
MHK2-16□□□□-X78 <sup>A</sup> <sub>B</sub>	28.5	
MHK2-20□□□□-X78 <sup>A</sup> <sub>B</sub>	34.5	M5 x 0.8
MHK2-25□□□□-X78 <sup>A</sup> <sub>B</sub>	37	
MHKL2-12□□□□-X78 <sup>A</sup> <sub>B</sub>	31	M3 x 0.5
MHKL2-16□□□□-X78 <sup>A</sup> <sub>B</sub>	33	M5 x 0.8
MHKL2-20□□□□-X78 <sup>A</sup> <sub>B</sub>	38	
MHKL2-25□□□□-X78 <sup>A</sup> <sub>B</sub>	44	

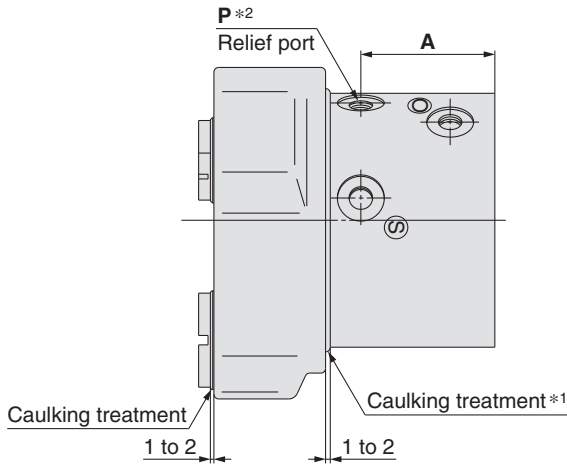
- \*1) Caulking treatment is not applied to the body of -X78B, but only to the finger part.  
 \*2) Use the relief port after being piped.  
 \*3) For the single acting type, be sure to use the vent hole after being piped.

# Dust Cover Caulking: -X78<sup>A</sup><sub>B</sub>

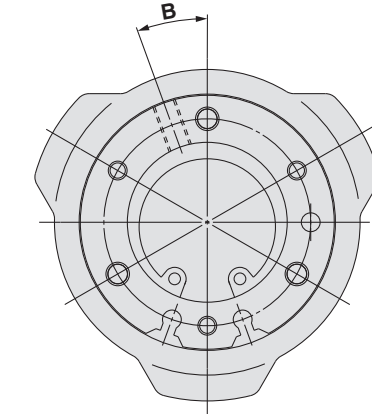
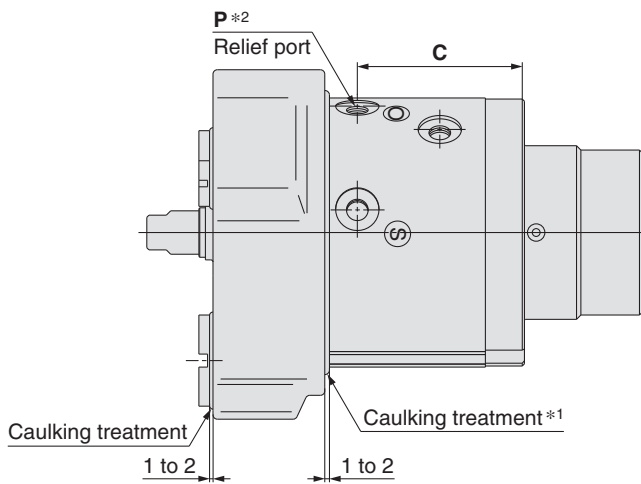
**Dimensions** (Dimensions other than specified below are the same as the standard type.)

MHSJ3-□D□-X78<sup>A</sup><sub>B</sub>

MHSHJ3-□D□-X78<sup>A</sup><sub>B</sub>



With center pusher



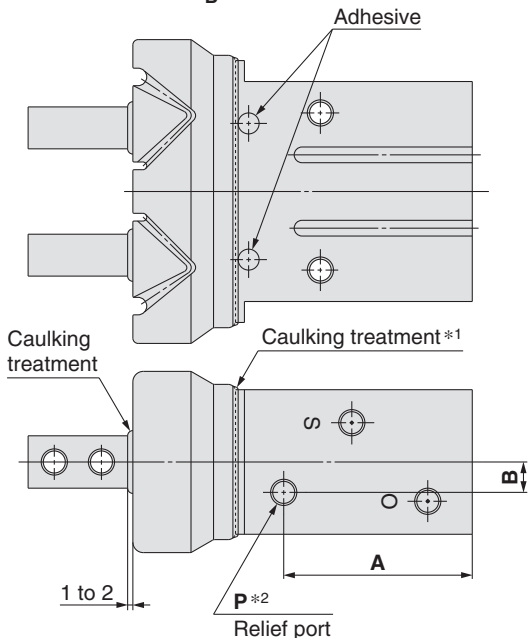
Model	A	B	C	P
MHSJ3-16D□-X78 <sup>A</sup> <sub>B</sub>	21	25°	—	M3 x 0.5
MHSJ3-20D□-X78 <sup>A</sup> <sub>B</sub>	21		—	
MHSJ3-25D□-X78 <sup>A</sup> <sub>B</sub>	25	20°	—	M5 x 0.8
MHS <sub>HJ</sub> 3-32D□-X78 <sup>A</sup> <sub>B</sub>	28.5		37.5	
MHS <sub>HJ</sub> 3-40D□-X78 <sup>A</sup> <sub>B</sub>	29		38.5	
MHS <sub>HJ</sub> 3-50D□-X78 <sup>A</sup> <sub>B</sub>	38		49	
MHS <sub>HJ</sub> 3-63D□-X78 <sup>A</sup> <sub>B</sub>	41		54	
MHS <sub>HJ</sub> 3-80D□-X78 <sup>A</sup> <sub>B</sub>	45	58	58	

\*1) Caulking treatment is not applied to the body of -X78B, but only to the finger part.

\*2) Use the relief port after being piped.

\*3) Body through-hole mounting is not possible.

MHZJ2-□□□-X78<sup>A</sup><sub>B</sub>



**Series MHZJ2**

Model	A	B	P
MHZJ2-10□□-X78 <sup>A</sup> <sub>B</sub>	27	4.2	M3 x 0.5
MHZJ2-16□□-X78 <sup>A</sup> <sub>B</sub>	28.8	5	
MHZJ2-20□□-X78 <sup>A</sup> <sub>B</sub>	36	5.8	M5 x 0.8
MHZJ2-25□□-X78 <sup>A</sup> <sub>B</sub>	43	6.8	

\*1) Caulking treatment is not applied to the body of -X78B, but only to the finger part.

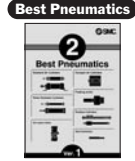
\*2) Use the relief port after being piped.

\*3) For the single acting type, be sure to use the vent hole after being piped.

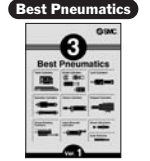
# Air Cylinder Made of Stainless Steel: -XC6

- Applicable for use under environments with water splashing.  
Stainless steel parts improve corrosion resistance.

Best Pneumatics  
Catalog



Best Pneumatics  
Catalog



## Applicable Series

Series	Description	Model	Action	Catalog page
CM2	Air cylinder	CM2	Double acting, Single rod	From P. 128
			Single acting (Spring return/extend)	
	Non-rotating rod type	CM2W	Double acting, Double rod	
			CM2K	
	Non-rotating rod type	CM2KW	Single acting (Spring return/extend)	
			Double acting, Double rod	
	Direct mount type	CM2R	Double acting, Single rod	
	Non-rotating rod, Direct mount type	CM2RK	Double acting, Single rod	
	Centralized piping type	CM2□□P	Double acting, Single rod	
	Smooth cylinder	CM2Y	Double acting, Single rod	
	Air-hydro type	CM2H	Double acting, Single rod	
	Direct mount type, air-hydro type	CM2RH	Double acting, Single rod	
End lock cylinder	CBM2	Double acting, Single rod		
CG1	Air cylinder	CG1	Double acting, Single rod	From P. 222
			Single acting (Spring return)	
	Double rod type	CG1W	Double acting, Double rod	
	Direct mount type	CG1R	Double acting, Single rod	
Smooth cylinder	CG1Y	Double acting, Single rod		
Note 2) MB	Air cylinder	MB	Double acting, Single rod	From P. 290
			MBW	
	Non-rotating rod type	MBK	Double acting, Single rod	
	Low friction type	MB□Q	Double acting, Single rod	
Note 2) MB1	Air cylinder	MB1	Double acting, Single rod	From P. 332
			MB1W	
	Non-rotating rod type	MB1K	Double acting, Single rod	
Note 2) CA2	Air cylinder	CA2	Double acting, Single rod	From P. 356
			CA2W	
	End lock cylinder	<sup>Note 1)</sup> CBA2	Double acting, Single rod	
	Air-hydro type	CA2H	Double acting, Single rod	
	Smooth cylinder	CA2□Y	Double acting, Single rod	
CQS	Compact cylinder	CQS	Double acting, Single rod	From P. 551
			Single acting (Spring return/extend)	
	Non-rotating rod type	CQSW	Double acting, Double rod	
			CQSK	
Lateral load resisting type	CQS□S	Double acting, Single rod		
Note 2) CS1	Air cylinder	CS1	Double acting, Single rod	From P. 412
			CS1W	
	Air-hydro type	CS1H	Double acting, Single rod	
Note 2) Note 3) CS2	Air cylinder	CS2	Double acting, Single rod	ES20-196
			CS2W	
CQ2	Compact cylinder	CQ2	Double acting, Single rod	ES20-205
			Single acting (Spring return/extend)	
	Axial piping type (Centralized piping type)	CQP2	Double acting, Double rod	
			Double acting, Single rod	
	Long stroke	CQ2	Single acting (Spring return/extend)	
			Double acting, Single rod	
Lateral load resisting type	CQ2□S	Double acting, Single rod		

## Applicable Series

Series	Description	Model	Action	Catalog page
CV	Valve mounted cylinder	CVM5	Double acting, Single rod	From P. 1563
		CVM5K	Double acting, Single rod	
		CV3	Double acting, Single rod	
		CVS1	Double acting, Single rod	
MGP	Compact guide cylinder	MGP	Double acting	From P. 272
MGG	Guide cylinder	MGG	Double acting	From P. 356
MGC	Guide cylinder	MGC	Double acting	From P. 392
CXS	Dual rod cylinder	CXSM	Double acting	From P. 561
CXSJ	Dual rod cylinder compact type	CXSJM	Double acting	From P. 549
RHC	High power cylinder	RHC	Double acting	From P. 1201

Note 1) Head side locking type only.

Note 2) There is a maximum stroke limit for CA2, MB, MB1 (ø100), CS1 and CS2 cylinders.

Note 3) The CS2 series, made of stainless steel, is applicable as "-XC68".

## How to Order

CM2, CG1, MB, MB1, CA2, CS1,  
CQS, CQ2, CV



## Maximum Stroke

Series	Maximum Stroke (mm)	
	Double acting, Single rod	Double acting rod with rod boot
CA2, MB, MB1 (Bore size 100) Others same as the standard type	1500 (Same as standard)	1000
CS1	1200	1200
CS2	1400	1200

## Specifications

Parts changed to stainless steel	Piston rod, rod end nut
Specifications other than above and external dimensions	Same as standard



Note 1) In the case of CS1 cylinder, the piston rod is only made of stainless steel. Rod end nut is not attached.

Note 2) In the case of CQ cylinder, its snap ring and piston rod are made of stainless steel.  
Rod end nut is also made of stainless steel for rod end male thread type.

# Made of Stainless Steel: -XC6

## Series MGP

### How to Order

MGP<sup>M</sup><sub>L</sub> Standard model no. - XC6 A

Made of stainless steel

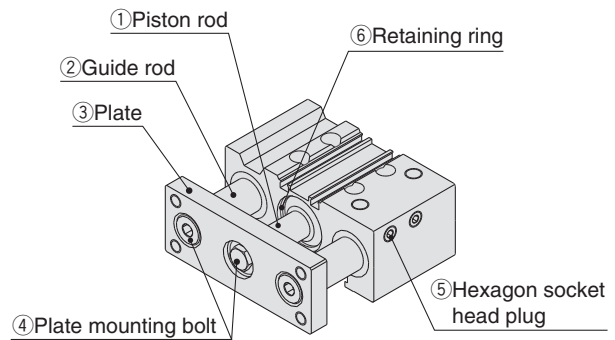
Suffix

<b>A</b>	Stainless steel used on all standard iron parts
<b>B</b>	Stainless steel rod parts

### Stainless Steel Modified Parts

<b>XC6A</b>	①, ②, ③, ④, ⑤, ⑥
<b>XC6B</b>	①, ②, ⑤, ⑥

Specifications and external dimensions other than above are the same as standard type.



## Series CXSJM

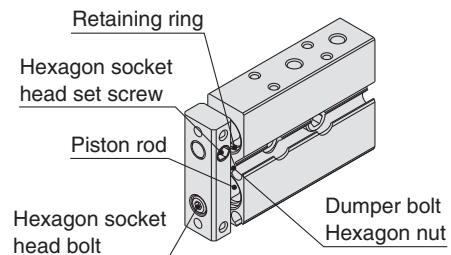
### How to Order

CXSJM Standard model no. - XC6

Made of stainless steel

### Specifications

<b>Parts changed to stainless steel</b>	Piston rod, retaining ring, hexagon socket head bolt, hexagon socket head set screw, dumper bolt, hexagon nut
<b>Specifications other than above and external dimensions</b>	Same as standard



Note) The head cover retaining ring for ø6 is made of special steel.

## Series CXSM

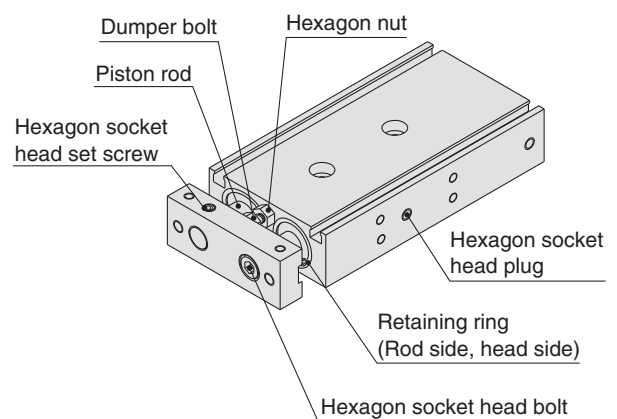
### How to Order

CXSM Standard model no. - XC6

Made of stainless steel

### Specifications

<b>Parts changed to stainless steel</b>	Piston rod, retaining ring, hexagon socket head bolt, hexagon socket head set screw, dumper bolt, hexagon nut, hexagon socket head plug
<b>Specifications other than above and external dimensions</b>	Same as standard

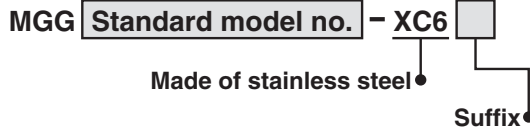




# Made of Stainless Steel: -XC6

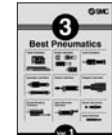
## Series MGG

### How to Order



<b>Nil</b>	Piston rod, rod end nut made of stainless steel
<b>A</b>	Stainless steel used on all standard iron parts
<b>B</b>	Stainless steel rod end moving parts
<b>C</b>	Stainless steel rod parts

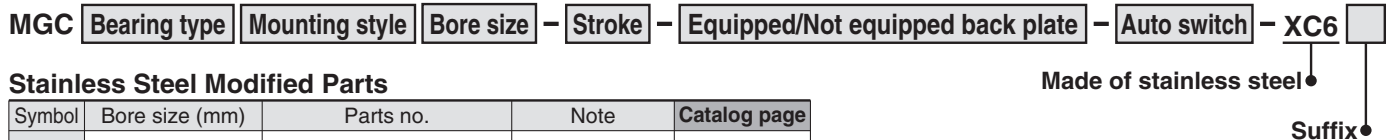
## Stainless Steel Modified Parts

Symbol	Bore size (mm)	Parts no.	Note	Catalog page
<b>-XC6</b>	20, 25, 32, 40, 50	④⑪		Best Pneumatics Catalog Best Pneumatics  P.369
	63, 80, 100	④⑩		
<b>-XC6A</b>	20, 25, 32, 40, 50	④⑪⑬⑭⑮⑯⑰⑱⑲⑳㉑㉒㉓㉔㉕㉖㉗㉘㉙㉚㉛㉜㉝㉞㉟㊱㊲㊳㊴㊵㊶㊷㊸㊹㊺㊻㊼㊽㊾㊿	⑲ is type L only.	
	63, 80, 100	④⑩⑮⑯⑰⑱⑲⑳㉑㉒㉓㉔㉕㉖㉗㉘㉙㉚㉛㉜㉝㉞㉟㊱㊲㊳㊴㊵㊶㊷㊸㊹㊺㊻㊼㊽㊾㊿	⑰ is type L only, ⑳ is type B only, ㉑ and ㉒ are type F only.	
<b>-XC6B</b>	20, 25, 32, 40, 50	④⑪⑰⑱⑲⑳㉑㉒㉓㉔㉕㉖㉗㉘㉙㉚㉛㉜㉝㉞㉟㊱㊲㊳㊴㊵㊶㊷㊸㊹㊺㊻㊼㊽㊾㊿	㉑ is rod side only.	
<b>-XC6C</b>	20, 25, 32, 40, 50	④⑩⑰⑱	㉑ is rod side only.	
	63, 80, 100	④⑩⑰⑱		


\* Refer to the construction of the standard type (Best Pneumatics No. 3) for part numbers.  
\* Specifications other than the above are the same as the standard type.  
Note) RBL (coolant resistant) type shock absorbers are used. (-XC6A only)

## Series MGC

### How to Order



## Stainless Steel Modified Parts

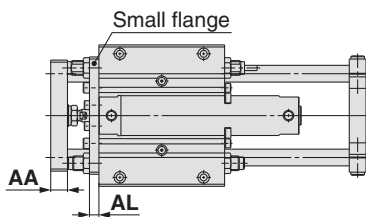
Symbol	Bore size (mm)	Parts no.	Note	Catalog page
<b>-XC6</b>	20, 25, 32, 40, 50	④⑭		ES20-209  P.10
<b>-XC6A</b>	20, 25, 32, 40, 50	④⑩⑪⑬⑭⑮⑯⑰⑱⑲⑳㉑㉒㉓㉔㉕㉖㉗㉘㉙㉚㉛㉜㉝㉞㉟㊱㊲㊳㊴㊵㊶㊷㊸㊹㊺㊻㊼㊽㊾㊿	㉖ is type L only	
<b>-XC6B</b>	20, 25, 32, 40, 50	④⑩⑪⑬⑭⑮⑯⑰⑱⑲⑳㉑㉒㉓㉔㉕㉖㉗㉘㉙㉚㉛㉜㉝㉞㉟㊱㊲㊳㊴㊵㊶㊷㊸㊹㊺㊻㊼㊽㊾㊿		
<b>-XC6C</b>	20, 25, 32, 40, 50	④⑩⑪⑬⑭⑮		

<b>Nil</b>	Piston rod, rod end nut made of stainless steel
<b>A</b>	Stainless steel used on all standard iron parts
<b>B</b>	Stainless steel rod end moving parts
<b>C</b>	Stainless steel rod parts

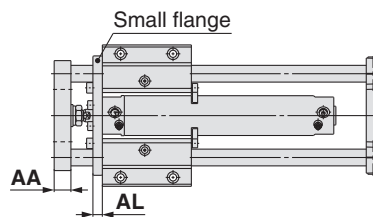
\* Refer to the construction of the standard type (CAT.ES20-209) for part numbers.  
\* Specifications and dimensions other than the above are the same as the standard type.

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

### MGG□B20 to 50-□-XC6A

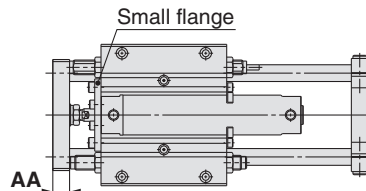


### MGC□B20 to 50-□-XC6A

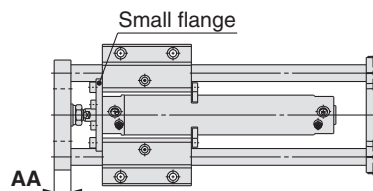


Bore size (mm)	(mm)	
	AA	AL
20	12	9
25	16	9
32	16	9
40	19	12
50	25	12

### MGG□B20 to 50-□-XC6B MGC□B20 to 50-□-XC6C

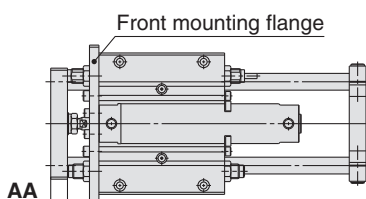


### MGC□B20 to 50-□-XC6B MGC□B20 to 50-□-XC6C

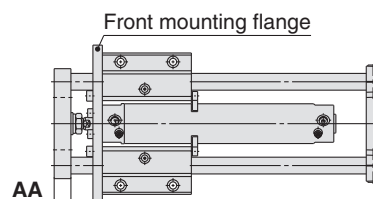


Bore size (mm)	(mm)
	AA
20	12
25	16
32	16
40	19
50	25

### MGG□F20 to 50-□-XC6A MGC□F20 to 50-□-XC6B MGC□F20 to 50-□-XC6C



### MGC□F20 to 50-□-XC6A MGC□F20 to 50-□-XC6B MGC□F20 to 50-□-XC6C



Bore size (mm)	(mm)
	AA
20	12
25	16
32	16
40	19
50	25

# Air Cylinder

## Tie-rod, Cushion Valve, Tie-rod Nut, etc. Made of Stainless Steel: -XC7

- Applicable for use under environments with water splashing.  
Stainless steel parts improve corrosion resistance.

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### Applicable Series

Series	Description	Model	Action	Catalog page
MB	Standard type	MB	Double acting, Single rod	From P. 290
		MBW	Double acting, Double rod	
	Non-rotating rod type	MBK	Double acting, Single rod	
	Low friction type	MB□Q	Double acting, Single rod	
	Cylinder with end lock	MBB	Double acting, Single rod	
MB1	Standard type	MB1	Double acting, Single rod	From P. 332
		MB1W	Double acting, Double rod	
	Non-rotating rod type	MB1K	Double acting, Single rod	
CA2	Standard type	CA2	Double acting, Single rod	From P. 356
		CA2W	Double acting, Double rod	
	Non-rotating rod type	CA2K	Double acting, Single rod	
		CA2KW	Double acting, Double rod	
	End lock cylinder	CBA2	Double acting, Single rod	

### Applicable Series

Series	Description	Model	Action	Catalog page
CV	Valve mounted cylinder	CV3	Double acting, Single rod	From P. 1604
		CVS1	Double acting, Single rod	
		CV3K	Double acting, Single rod	
		CVS1K	Double acting, Single rod	

### How to Order

Standard model no. — XC7

Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel

### Specifications

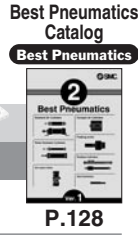
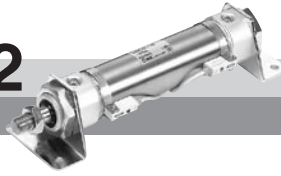
<b>Component parts changed to stainless steel</b>	Tie-rod, tie-rod nut, mounting bracket nut, spring washer, cushion valve, lock nut
<b>Additional specifications Dimensions</b>	Same as standard type

# Water Resistant Cylinder

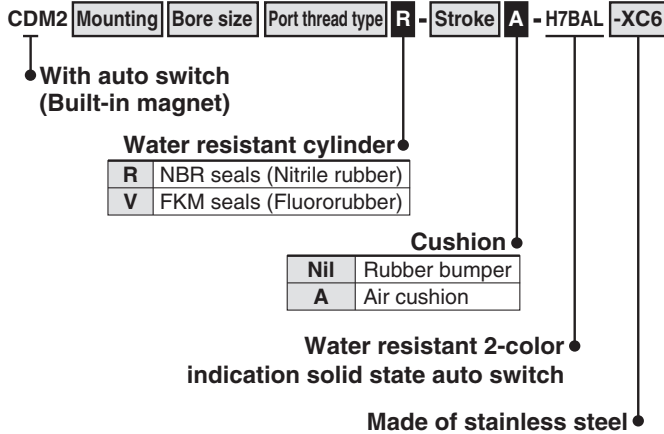
- Applicable for use under environments with water splashing.
- Entry of water is reduced by a special scraper.
- Stainless steel type is available. (-XC6)
- Two types of seal material, NBR or FKM (fluororubber), can be selected.

## Series CM2

ø20 to ø40



How to Order



### ⚠ Caution

Rod seals and scrapers are not replaceable.

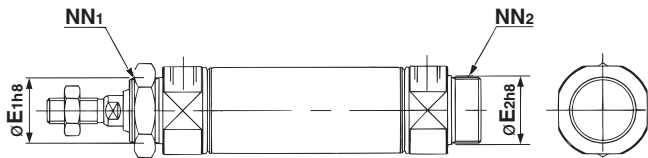
- The above parts cannot be replaced since the scraper is press-fit in the rod cover.

### 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	Piston rod, rod end nut made of stainless steel (-XC6)

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

### Dimensions



Bore size (mm)	E <sub>1</sub>	E <sub>2</sub> *	NN <sub>1</sub>	NN <sub>2</sub> *
20	22 <sup>0</sup> <sub>-0.033</sub>	20 <sup>0</sup> <sub>-0.033</sub>	M22 x 1.5	M20 x 1.5

\* 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.

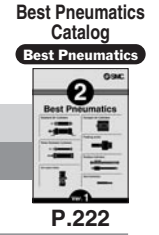
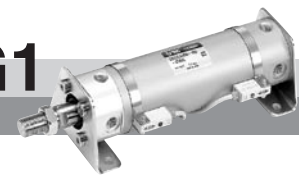
Mounting bracket	Min. order qty.	Bore size (mm)	Description (At min. order qty.)
		20	
Axial foot style**	2	CM-L020C	2 feet, 1 mounting nut
Flange	1	CM-F020C	1 flange, 1 mounting nut
Trunnion (with nuts)	1	CM-T020C	1 trunnion, 1 trunnion nut

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

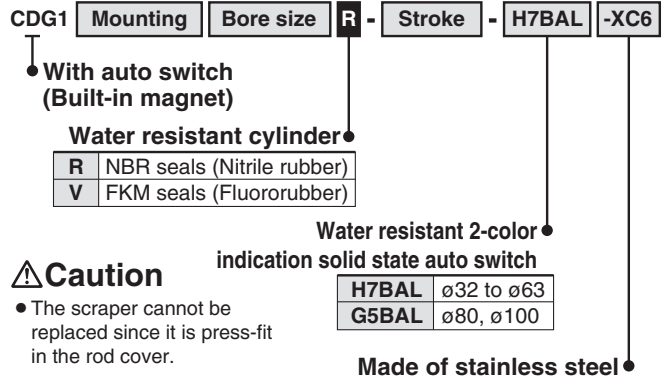
\*\* Order 2 foot brackets for each cylinder unit.

## Series CG1

ø32 to ø100



How to Order



### ⚠ Caution

- The scraper cannot be replaced since it is press-fit in the rod cover.

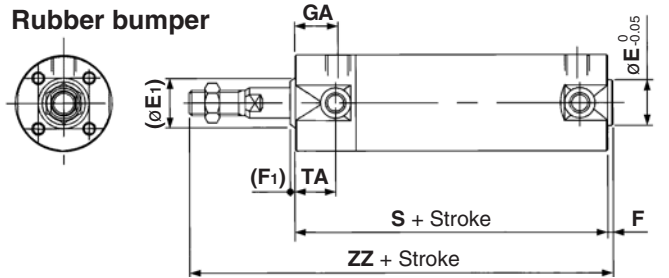
### Specifications

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	Piston rod, rod end nut made of stainless steel (-XC6)

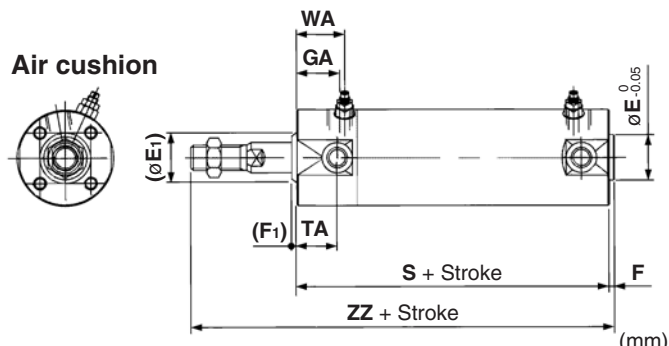
\* Specifications other than above are the same as standard, basic style.

### Dimensions

#### Rubber bumper



#### Air cushion



Bore size (mm)	(E <sub>1</sub> )	E*	(F <sub>1</sub> )	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	22	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)	—	30	190 (204)
100	37	50	3	3	29	117 (131)	—	31	191 (205)

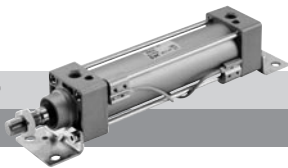
\* Other specifications are the same as the double acting, single rod standard type. (An asterisk means it is the same as the standard type.)

\* ( ): For the long stroke type.

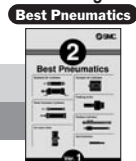
# Water Resistant Cylinder

## Series MB

ø32 to ø100



Best Pneumatics Catalog



P.290

### How to Order

MDB Mounting Bore size Port thread type **R** - Stroke - M9□A(V)L -XC6

• With auto switch (Built-in magnet)

Water resistant cylinder •

<b>R</b>	NBR seals (Nitrile rubber)
<b>V</b>	FKM seals (Fluororubber)

Water resistant 2-color indication solid state auto switch •

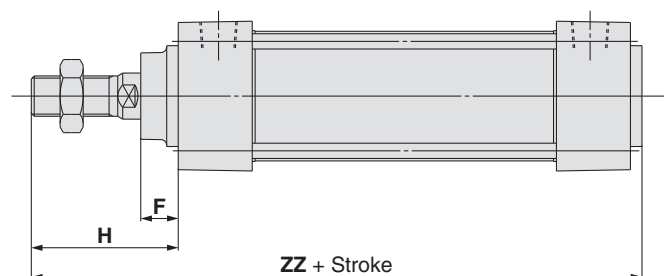
Made of stainless steel •

### Specifications

<b>Action</b>	Double acting, single rod
<b>Bore size (mm)</b>	32, 40, 50, 63, 80, 100
<b>Cushion</b>	Air cushion
<b>Auto switch mounting</b>	Tie rod mounting
<b>Made to order</b>	Piston rod, rod end nut made of stainless steel (-XC6)

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

### Dimensions



Bore size (mm)	F	H	ZZ
32	15	47	135 (141)
40	17	58	146 (152)
50	19	67	165 (173)
63	19	67	165 (173)
80	25	81	199 (209)
100	25	81	199 (209)

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

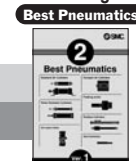
\* ( ): For the type without an air cushion.

## Series MB1

ø32 to ø100



Best Pneumatics Catalog



P.332

### How to Order

MDB1 Mounting Bore size Port thread type **R** - Stroke - M9□A(V)L -XC6

• With auto switch (Built-in magnet)

Water resistant cylinder •

<b>R</b>	NBR seals (Nitrile rubber)
<b>V</b>	FKM seals (Fluororubber)

Water resistant 2-color indication solid state auto switch •

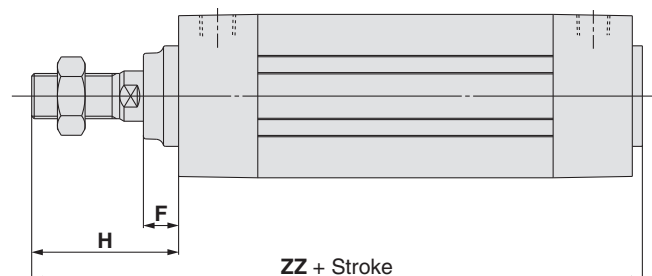
Made of stainless steel •

### Specifications

<b>Action</b>	Double acting, single rod
<b>Bore size (mm)</b>	32, 40, 50, 63, 80, 100
<b>Cushion</b>	Air cushion
<b>Auto switch mounting</b>	Tie rod mounting
<b>Made to order</b>	Piston rod, rod end nut made of stainless steel (-XC6)

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

### Dimensions



Bore size (mm)	F	H	ZZ
32	15	47	135 (141)
40	17	58	146 (152)
50	19	67	165 (173)
63	19	67	165 (173)
80	25	81	199 (209)
100	25	81	199 (209)

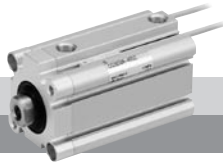
\* Other specifications are the same as the double acting, single rod standard type.

\* ( ): For the type without an air cushion.

# Water Resistant Cylinder

## Compact Cylinder Series CQ2

ø20 to ø100



ES20-205



How to Order

P.160

CDQ2 [Mounting] [Bore size] [Port thread type] **R** - Stroke D Option Z - M9□A(V)L -XC6

• With auto switch  
(Built-in magnet)

Water resistant cylinder •

R	NBR seals (Nitrile rubber)
V	FKM seals (Fluororubber)

Water resistant 2-color  
indication solid state auto switch •

F7BA(V)L	ø20 to ø100
M9□A(V)L	ø20 to ø100

Made of stainless steel •

Suffix •

Nil	Retaining ring, piston rod, rod end nut made of stainless steel
A	Piston rod, rod end nut, cover holding bolt made of stainless steel

Note) Only ø20 to ø32 for -XC6A.

## Specifications

Action	Double acting, single rod
Bore size (mm)	20, 25, 32, 40, 50, 63, 80, 100
Mounting	ø20 to ø32 ..... B (through-hole) only ø40 to ø100 ..... B (through-hole), F (rod side flange) A (both ends tapped), G (head side flange) L (foot), D (double clevis)
Cushion	None
Auto switch mounting	Rail mounting (D-F7BAL/F7BAVL)/Direct mounting (D-M9□A(V)L) Use auto switch brackets for ø20, ø25
Made to order	Retaining ring, piston rod, rod end nut made of stainless steel (-XC6)

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

Refer to page 160 of CAT.ES20-205 for details.

## Series CA2

ø40 to ø100



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Catalog

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How to Order

P.356

CDA2 [Mounting] [Bore size] [Port thread type] **R** - Stroke - M9□A(V)L -XC6

• With auto switch  
(Built-in magnet)

Water resistant cylinder •

R	NBR seals (Nitrile rubber)
V	FKM seals (Fluororubber)

Water resistant 2-color  
indication solid state auto switch •

Made of stainless steel •

## Specifications

Action	Double acting, single rod
Bore size (mm)	40, 50, 63, 80, 100
Cushion	Air cushion
Auto switch mounting	Tie-rod mounting style
Made to order	Piston rod, Rod end nut made of stainless steel (-XC6)

\* Specifications other than above are the same as standard, basic style.  
Note 1) Air-hydro type, rod boot specifications of Series CA2 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.

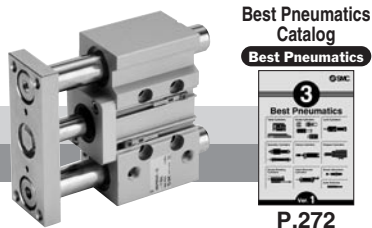
# Water Resistant Cylinder

## Compact Guide Cylinder

### Series MGP

ø20 to ø100

#### How to Order



MGPM [Bore size] [Port thread type] R - Stroke - M9□A(V)L

• Slide bearing

Water resistant cylinder •

R	NBR seals (Nitrile rubber)
V	FKM seals (Fluororubber)

Water resistant 2-color indication solid state auto switch •

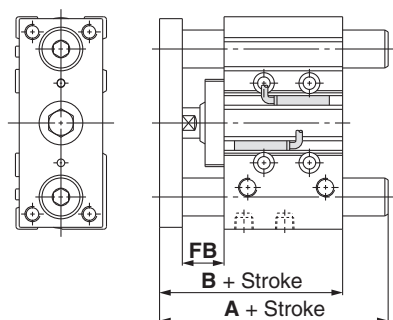
- \* Piston rods and guide rods are made of stainless steel.
- \* Iron parts made of stainless steel are available as made to order.
- \* A scraper is available only for the piston rod.

## Specifications

<b>Action</b>		Double acting
<b>Bearing type</b>		Slide bearing
<b>Bore size (mm)</b>		20, 25, 32, 40, 50, 63, 80, 100
<b>Cushion</b>	MGPM□□R	Rubber bumper
	MGPM□□V	Without cushion
<b>Auto switch mounting</b>		Direct mounting

- \* Specifications other than above are the same as standard, basic style.
- Note) MGPM□□V does not come with a cushion.
- Refer to the allowable kinetic energy.

## Dimensions



Bore size (mm)	A (mm)			B (mm)	FB (mm)
	Below 50 strokes	Between 50 and 200 strokes	Over 200 strokes		
20	66	97.5	135	66	19
25	67.5	99	136	67.5	20
32	109	114	152	71.5	22
40	109	114	152	78	22
50	117.5	129	172	83	23
63	117.5	129	172	88	23
80	121	148	199	102.5	24
100	141	166	207	120	29

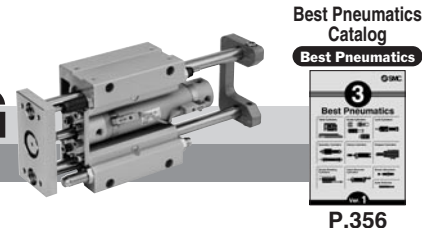
- \* Other specifications are the same as the standard type.

## Guide Cylinder

### Series MGG

ø32 to ø100

#### How to Order



MGGM [Mounting] [Bore size] [Port thread type] R - Stroke - H7BAL -XC6□

• Slide bearing

Water resistant cylinder •

R	NBR seals (Nitrile rubber)
V	FKM seals (Fluororubber)

Water resistant 2-color indication solid state auto switch •

H7BAL	ø32 to ø63
G5BAL	ø80, ø100

- \* A scraper is available only for the piston rod.

Made of stainless steel •

## Specifications

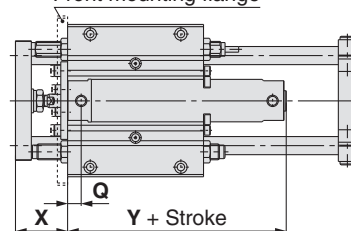
<b>Action</b>	Double acting	
<b>Bore size (mm)</b>	32, 40, 50, 63, 80, 100	
<b>Bearing type</b>	Slide bearing	
<b>Cushion</b>	Built-in rubber bumper and shock absorber	
<b>Auto switch mounting</b>	Band mounting	
<b>Made to order</b>	-XC6	Piston rod and rod end nut made of stainless steel
	-XC6A	Stainless steel used on all iron parts
	-XC6B	Stainless steel rod end moving parts
	-XC6C	Stainless steel rods

- \* Specifications other than above are the same as standard, basic style.
- Note 1) RBL (anti-coolant) type is used for shock absorbers.

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

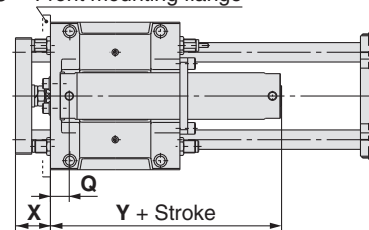
ø32 to ø50

Front mounting flange



ø63 to ø100

Front mounting flange

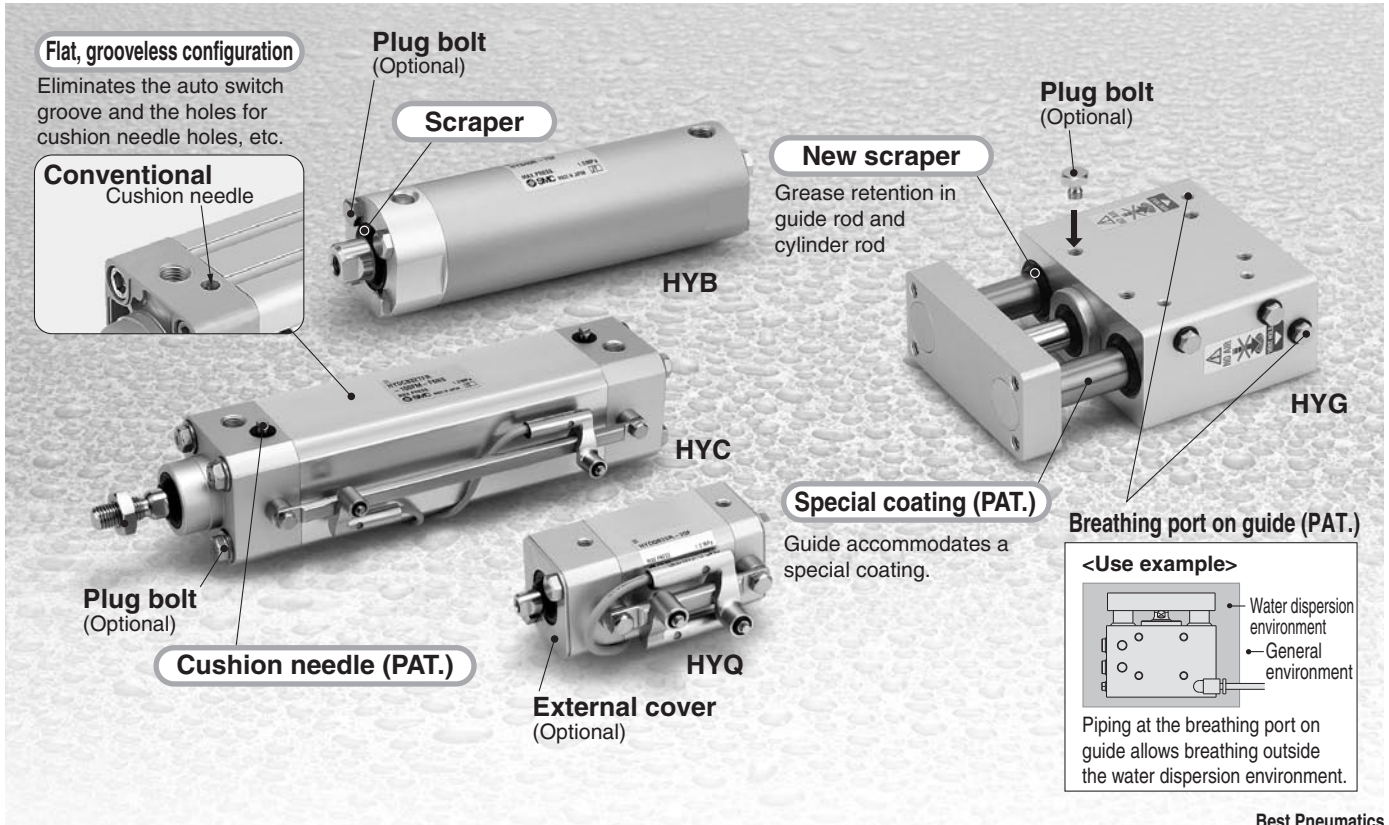


Bore size (mm)	Q (mm)	X (mm)	Y (mm)
32	16	48	77 (85)
40	17	58	84 (93)
50	19	69	97 (109)
63	34	56	112 (124)
80	46	68	137 (151)
100	47	68	138 (152)

- \* ( ) : For the long stroke type.

# Hygienic Design Cylinder





- A water resistant cylinder configured for easy cleaning.
- Five times increase in service life compared to water resistant cylinder. \* In SMC conditions.
- Grease for food (NSF-H1 certified) is available.
- External seal material: Choice of NBR or FKM
- Mounting section: Conforms to ISO/VDMA standard. (Series **HYQ, HYC**)



Best Pneumatics Catalog

Best Pneumatics



Series	Bore size							External seal material	Body material	Optional parts*	Mounting brackets*	Page			
	20	25	32	40	50	63	80						100		
<b>HYB</b> 	●	●	●	●	●	●	●	NBR, FKM	Aluminum	Plug bolt	Foot Flange (ø32 to ø100)	P.854			
<b>HYQ</b> 	●	●	●	●	●	●	NBR, FKM			Aluminum	External cover Rod end Head end	Foot Flange Single clevis Double clevis (ø32 to ø63)	P.858		
<b>HYC</b> 	●	●	●	●	●	●					NBR, FKM	Aluminum	Plug bolt	Foot Flange Single clevis Double clevis (ø32 to ø63)	P.867
<b>HYG</b> 	●	●	●	●	●	●							NBR, FKM	Aluminum	Plug bolt

\* Optional parts and mounting brackets must be ordered separately. Refer to pages 885 to 889 of Best Pneumatics No.2 for detailed specifications.

# Air Cylinder

# Heat Resistant Cylinder (−10 to 150°C): -XB6

- Air cylinder which changed the seal material and grease, so that it could be used even at higher temperature up to 150 from −10°C.

## Applicable Series

Series	Description	Model	Action	Note	Catalog page	
CJP2	Pin cylinder	CJP2	Double acting, Single rod	Except clevis and trunnion style	From P. 23	
CJ2	Air cylinder	CJ2	Double acting, Single rod	Except with air cushion	From P. 42	
		CJ2W	Double acting, Double rod	Except with air cushion		
CM2	Air cylinder	CM2	Double acting, Single rod		From P. 128	
		CM2W	Double acting, Double rod			
	Non-rotating rod type		CM2K	Double acting, Single rod		
			CM2KW	Double acting, Double rod		
	Direct mount type		CM2R	Double acting, Single rod		
	Non-rotating rod, Direct mount type		CM2RK	Double acting, Single rod		
CG1	Air cylinder	CG1	Double acting, Single rod	Without a bumper for cylinders with a rubber bumper	From P. 222	
		CG1W	Double acting, Double rod	Without a bumper for cylinders with a rubber bumper		
	Direct mount type		CG1R	Double acting, Single rod		Without a bumper for cylinders with a rubber bumper
MB	Air cylinder	MB	Double acting, Single rod	Except without air cushion	From P. 290	
		MBW	Double acting, Double rod	Except without air cushion		
MB1	Air cylinder	MB1	Double acting, Single rod	Except without air cushion	From P. 332	
		MB1W	Double acting, Double rod	Except without air cushion		
CA2	Air cylinder	CA2	Double acting, Single rod		From P. 356	
		CA2W	Double acting, Double rod			
	End lock cylinder		CBA2	Double acting, Single rod		
CUJ	Mini free mount cylinder	CUJ	Double acting, Single rod	Except ø4	From P. 466	
CU	Free mount cylinder	CU	Double acting, Single rod		From P. 483	
	Non-rotating rod type	CUK	Double acting, Single rod			
	Long stroke	CU	Double acting, Single rod			
	Long stroke, Non-rotating rod	CUK	Double acting, Single rod			
CQS	Compact cylinder	CQS	Double acting, Single rod	Except with rubber bumper	From P. 551	
		CQSW	Double acting, Double rod	Except with rubber bumper		
CG5	Stainless cylinder	CG5	Double acting, Single rod	Without a bumper for cylinders with a rubber bumper (Grease for non-food is used.)	From P. 840	
CY3	Magnetically coupled rodless cylinder	CY3B	Basic type	No bumper	From P. 1174	
CS1	Air cylinder	CS1□N	Double acting, Single rod	Applicable bore size (ø125 to ø200)	From P. 412	
		CS1W□N	Double acting, Double rod			
CS2	Air cylinder	CS2	Double acting, Single rod		CAT.ES20-196	
		CS2W	Double acting, Double rod			
CQ2	Compact cylinder	CQ2	Double acting, Single rod	Except with rubber bumper	CAT.ES20-205	
		CQ2W	Double acting, Double rod	Except with rubber bumper		
	Axial piping type (Centralized piping type)		CQP2	Double acting, Single rod		Except with rubber bumper
MGP	Compact guide cylinder	MGPM	Double acting	Except those with air cushion or end lock	From P. 272	
MGQ		MGQ	Double acting	Except ø12 to ø25 of MGQL (Ball bushing type)	From P. 338	
MGG	Guide cylinder	MGG	Double acting	No shock absorber and rubber bumper are equipped.	From P. 356	
MGC		MGC	Double acting		From P. 392	
CXSJ	Dual rod cylinder	CXSJ	Compact type		From P. 549	
CXS		CXS	Basic type		From P. 561	

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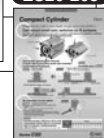
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ES20-196

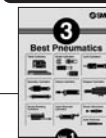


ES20-205



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## How to Order

Standard model no.

– XB6

Heat resistant cylinder

## Specifications

Ambient temperature range	−10°C to 150°C (0 to 150°C for CS1 and CS2)
Seals materials	Fluororubber
Grease	Heat resistant grease
Specifications other than above and external dimensions	Same as standard type

## 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.



Note 1) Operate without lubrication from a pneumatic system lubricator.

Note 2) Please contact SMC for details on the maintenance intervals for this cylinder, which differ from those of the standard cylinder.

Note 3) In principle, it is impossible to make built-in magnet type and the one with auto switch. But, as for the one with auto switch, and the heat resistant cylinder with heat resistant auto switch, since it will be differed depending on the series, please contact SMC.

Note 4) Piston speed is ranged from 50 to 500 mm/s. But, for MGQ□80, 100, MGP□80, 100 and CY3B series it will be 50 to 400 mm/s.

Note 5) Please contact SMC for Series CQ2, CQS and MGQ with rubber bumper.

Note 6) As for the ambient temperature range of Series CY3B, since the magnetic holding force will be varied depending on the operating conditions, make sure that by referring to the next page.

Note 7) The ambient temperature range of the CY3B series is 50 to 150°C.



# Heat Resistant Cylinder (−10 to 150°C): -XB6

## Series CY3B How to Order

CY3B Bore size Port thread type - Stroke - XB6  
Heat resistant cylinder ●

## Specifications

Applicable size	CY3B
Bore size	ø6 to ø63
Ambient and fluid temperature	50 to 150°C*
Maximum operating pressure	0.5 MPa
Piston speed	50 to 400 mm/s*

\* When using in less than 100°C range, since it could make a difference in the maintenance cycle, depending on the operating speed, use it at 200 mm/s or less.

## Operating Pressure Limit for Intermediate Stop and Vertical Operation

Maximum operating pressure at the intermediate stop	0.4 MPa*
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\* Use caution that the magnet coupling will be removed, if it is used to stop in an intermediate stroke by an external stopper with the operating pressure over 0.4 MPa.

## Magnetic Holding Force

(N)

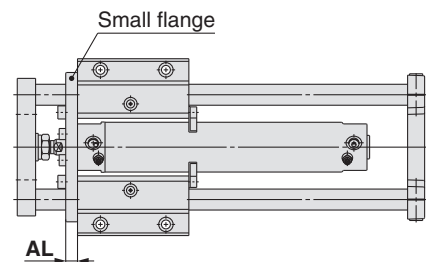
Bore size (mm)	6	10	15	20	25	32	40	50	63
Holding force (at 150°C)	14.4	40.0	90.1	160	250	410	641	1000	1590
Holding force (at 100°C)	17.2	47.9	107	192	299	490	766	1190	1900

## Series MGC How to Order

MGC Standard model no. - XB6  
Heat resistant cylinder ●

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

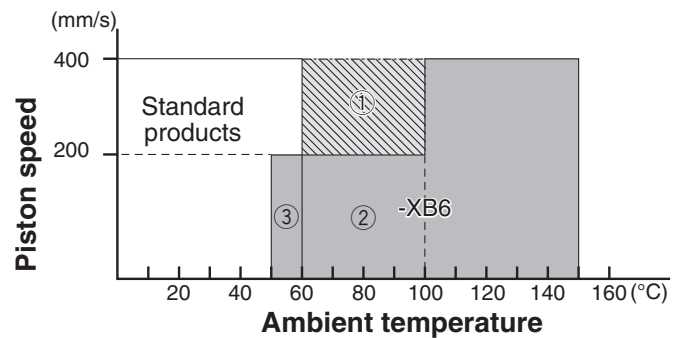
### Series MGCLB



(mm)	
Bore size (mm)	AL
20	9
25	9
32	9
40	12
50	12

## Temperature Range for Operating Cylinder and Piston Speed

- When using with the operating temperature from 60 up to 100°C, and the piston speed of more than 200 mm/s, please consult with SMC separately.
- When using with the operating temperature from 50 up to 100°C, and the piston speed of less than 200 mm/s, XB6 specifications can be used.
- As for XB6, regarding the temperature range (over 50 to 60°C) which overlaps the one of standard products, consider the tendency of operating temperature (upper, lower limits), then choose a model.



When using with the operating temperature fluctuated between 50°C or less and 100°C or more, the operating speed, etc. will be largely restricted by the durability. Prior to use, please contact SMC.

## <Reference>

Maintenance cycle for XB6 could vary substantially, depending on the operating condition and the ambient temperature. Even if using in our recommended range, as a guide, conduct it in around 1/2 intervals, compared to the standard products.

# Air Gripper

## Heat Resistance: -X4

- Seal material and grease have been changed, so that it could be used even at higher temperature up to 100 from  $-10^{\circ}\text{C}$ .

### Applicable Series

Series	Description	Model	Action	Note	Catalog page
MHC	Angular style	MHC2	Double acting, Single acting (Normally open)		P.633
		MHCA2	Double acting, Single acting (Normally open)	Magnet is not built-in.	P.622
		MHCM2	Single acting (Normally open)	Magnet is not built-in.	P.631
MHF	Low profile	MHF2	Double acting		P.452
MHK	Wedge cam operation slide guide	MHK2	Double acting, Single acting (Normally open, Normally closed)		P.522
		MHKL2	Double acting, Single acting (Normally open, Normally closed)		
MHL	Wide opening	MHL2	Double acting		P.474
MHS	2-finger type	MHS2	Double acting		P.544
	3-finger type	MHS3	Double acting		P.552
	3-finger type with dust cover	MHSJ3	Double acting		P.562
	With through hole	MHSH3	Double acting		P.570
	With through hole and dust cover	MHSHJ3	Double acting		
	Long stroke 3-finger type	MHSL3	Double acting		P.586
	4-finger type	MHS4	Double acting		P.596
MHT	Toggle type	MHT2	Double acting		P.644
MHW	180° angular style	MHW2	Double acting		P.669
MHY	180° angular style cam style	MHY2	Double acting		P.662
MHZ	Parallel style (compact)	MHZA2	Double acting, Single acting (Normally open, Normally closed)	Magnet is not built-in.	P.388
	Parallel style with dust cover (compact)	MHZAJ2	Double acting, Single acting (Normally open, Normally closed)	Magnet is not built-in.	
	Parallel style	MHZ2	Double acting, Single acting (Normally open, Normally closed)		P.397 to 399
	Parallel style (long stroke)	MHZL2	Double acting, Single acting (Normally open, Normally closed)		P.414
	Parallel style with dust cover	MHZJ2	Double acting, Single acting (Normally open, Normally closed)		P.424



### How to Order

Standard part number for each series - X4

Heat resistance

### Specifications

Ambient temperature range	$-10^{\circ}\text{C}$ to $100^{\circ}\text{C}$
Seal material	Fluororubber
Grease	Heat resistant grease (GR-F)
Specifications/dimensions other than the above	Same as the standard type

Note 1) Magnet is built-in, but when using an auto switch, the acceptable temperature range becomes  $-10$  to  $60^{\circ}\text{C}$ .

Note 2) With the part number for the dust cover option, only fluororubber (F) or silicon rubber (S) options may be selected.

Note 3) With the part number compatible with body options, only E type or M type are compatible.

Note 4) For lubrication, specialized grease GR-F is recommended.

### ⚠ Warning

#### Handling Precautions

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



# Related Product

\* For details, refer to the following page of the Best Pneumatics or individual catalog.

## Heat Resistance

### Vacuum Pad

- Vacuum Pad ..... *Series ZP* ..... ④ P.1119

### Air Line Equipment

- Regulators for High Temperature (Made to Order) ..... *AR/AW-X440* ..... ⑤ P.346, 366
- Precision Regulators for High Temperature (Made to Order) ..... *IR-T* ..... ⑤ P.549

### Fittings & Tubing

- Brass One-touch Fittings ..... *Series KQB* ..... ⑥ P.99
- Stainless Steel 316 One-touch Fittings ..... *Series KQG* ..... ⑥ P.229
- Stainless Steel 316 Insert Fittings ..... *Series KFG* ..... ⑥ P.253
- S Couplers Stainless Steel Type ..... *Series KKA* ..... ⑥ P.267
- Fluoropolymer Fittings Hyper Fitting ..... *Series LQ1/LQ3* ..... ⑥ P.291, 317
- Fluoropolymer Tubing ..... *Series TL/TIL* ..... ⑥ P.388
- FEP Tubing (Fluoropolymer) ..... *Series TH/TIH* ..... ⑥ P.390
- Soft Fluoropolymer Tubing ..... *Series TD/TID* ..... ⑥ P.393

### Flow Control Equipment

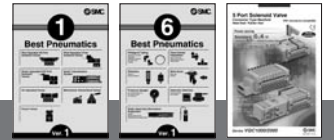
- Speed Controller:High Temperature ..... *Series AS-H* ..... ⑥ P.456

### Sensor

- Digital Flow Switch for Water (High Temperature Fluid Type) ..... *Series PF2W□T* ..... ⑥ P.1000
- Digital Flow Switch for Deionized Water and Chemicals ..... *Series PF2D* ..... ⑥ P.1015



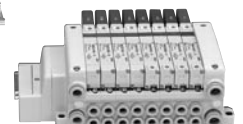
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## Corrosion Resistance / Water Resistance

### Directional Control Valves (IP65/IP67 compliant)

- 5 Port Solenoid Valve ..... *Series SV/VQC* ..... ① P.343, CAT.ES11-101
- 4/5 Port Solenoid Valve ..... *Series SY/SYJ* ..... ① P.101, 453
- 7 mm Width Compact Pilot Type 5 Port Solenoid Valve ..... *Series S0700* ..... CAT.ES11-88
- 5 Port Solenoid Valve ..... *Series VQ* ..... CAT.ES11-100
- 5 Port Solenoid Valve ..... *Series VQZ* ..... ① P.907



### Fittings & Tubing (Stainless steel)

- Stainless Steel 316 One-touch Fittings ..... *Series KQG* ..... ⑥ P.229
- Stainless Steel 316 Insert Fittings ..... *Series KFG* ..... ⑥ P.253
- Miniature Fittings/Stainless Steel 316 ..... *Series MS* ..... ⑥ P.262
- S Couplers Stainless Steel Type ..... *Series KKA* ..... ⑥ P.267
- Stainless Steel Speed Controller ..... *Series ASG*

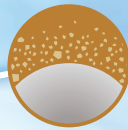


### Sensor (IP65/IP67 compliant)

- High-Precision Digital Pressure Switch ..... *Series ZSE40A(F)/ISE40A* ..... CAT.ES100-79
- 2-Color Display Digital Pressure Switch ..... *Series ISE70,75(H)* ..... ⑥ P.719
- 2-Color Display Digital Pressure Switch ..... *Series ZSE/ISE80* ..... ⑥ P.729
- High-Precision Digital Pressure Switch for General Fluids ..... *Series ZSE/ISE50,60* ..... ⑥ P.747
- Pressure Sensor for General Fluids ..... *Series PSE56□* ..... ⑥ P.837
- Digital Flow Switch for Air/Water ..... *Series PF2A/2W* ..... ⑥ P.971



**For Paper Powder  
and Dust**

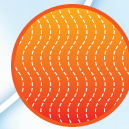


# **Improved Life**

**Environment Resistant Actuators**



**Water Resistant,  
Corrosion Resistant**



**For High  
Temperature**