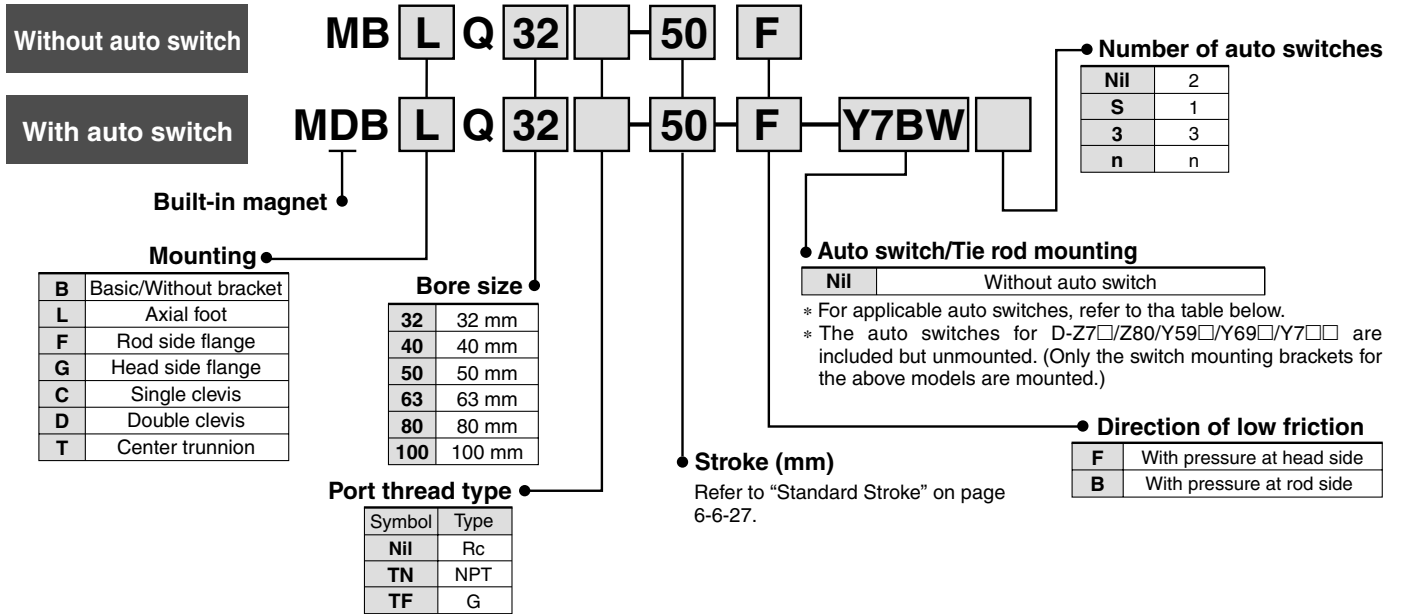


Air Cylinder: Low Friction Type Double Acting, Single Rod Series **MB□Q** ø32, ø40, ø50, ø63, ø80, ø100

How to Order



Applicable Auto Switch/Refer to page 6-16-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model		Lead wire length*(m)			Pre-wire connector	Applicable load			
					DC	AC	Tie-rod mounting	Band mounting	0.5 (Nil)	3 (L)	5 (Z)		IC circuit	Relay PLC		
Reed switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	—	5 V	—	Z76	—	●	●	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	—	Z73	—	●	●	●	—	—	Relay PLC PLC
	100 V, 200 V	—					A54	—	●	●	●					
	—	—					A33	—	—	—	—					
Diagnostic indication (2-color indication)	Grommet	—	—	—	—	A34	—	—	—	—	—	Relay PLC				
—	—	—	—	—	—	A44	—	—	—	—						
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y59A	—	●	●	○	○	IC circuit	Relay PLC	
				3-wire (PNP)				Y7P	—	●	●	○	○			
	2-wire	—		100 V, 200 V	J51	—	●	●	○	○	—					
					Y59B	—	●	●	○	○						
	3-wire (NPN)	—		12 V	—	G39	—	—	—	—	IC circuit					
					—	K39	—	—	—	—						
	2-wire	—		12 V	—	—	—	—	—	—	—					
					—	—	—	—	—	—						
	Diagnostic indication (2-color indication)	Grommet		24 V	3-wire (NPN)	5 V, 12 V	—	—	Y7NW	—	●	●	○	○		IC circuit
	3-wire (PNP)				Y7PW				—	●	●	○	○			
2-wire	12 V		Y7BW		—				●	●	○	○				
			Y7BA		—				—	●	○	○				
Water resistant (2-color indication)	4-wire (NPN)		5 V, 12 V		F59F				—	●	●	○	○	IC circuit		
Diagnostic output (2-color indication)					2-wire				—	P5DW	—	—	●		●	
Magnetic field resistant	—	—	—	—		—	—	—		—	—	—				

* Lead wire length symbols: 0.5 m Nil (Example) A54
3 m L (Example) A54L
5 m Z (Example) A54Z

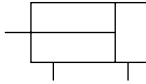
** Solid state switches marked with a "○" are produced upon receipt of order.

• Besides the above models, there are some other auto switches that are applicable. For detailed information, please refer to page 6-6-14.

Air Cylinder: Low Friction Type Double Acting, Single Rod **Series MB□Q**



JIS Symbol
Double acting



Made to Order Specifications
(For details, refer to 6-6-39.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port position
-XC6	Piston rod and rod end nut made of stainless steel
-XC7	Tie rod, cushion valve, tie rod nut, etc. made of stainless steel
-XC9	Adjustable stroke cylinder/Adjustable retract stroke
-XC14	Change of trunnion bracket mounting position
-XC27	Double clevis pin and double knuckle pin made of stainless steel
-XC29	Double knuckle joint with spring pin
-XC30	Front trunnion

Specifications

Bore size (mm)	32	40	50	63	80	100
Action	Double acting single rod					
Direction of low friction	One direction ^{Note 1)}					
Fluid	Air					
Proof pressure	1.05 MPa					
Max. operating pressure	0.7 MPa					
Min. operating pressure	0.01 MPa					
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)					
Lubrication	Not required (Non-lube)					
Cushion	None					
Thread tolerance	JIS Class 2					
Port size (Rc, NPT, G)	1/8	1/4	1/4	3/8	3/8	1/2
Mounting	Basic, Foot, Rod side flange, Head side flange, Single clevis, Double clevis, Center trunnion					
Allowable leakage	0.5 ℓ/min (ANR) or less					

Note 1) Please refer to Selection Guide for the Low Friction Side.

Standard Stroke

Bore size (mm)	Standard stroke (mm)
32	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
80	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800
100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800

Intermediate strokes are available. (No spacer is used.)

Accessory

Mounting		Basic	Foot	Rod side flange	Head side flange	Single clevis	Double clevis	Center trunnion
Standard	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	●	—
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint (With pin)	●	●	●	●	●	●	●

Mounting Bracket Part No.

Bore size (mm)	32	40	50	63	80	100
Foot ^{Note 1)}	MB-L03	MB-L04	MB-L05	MB-L06	MB-L08	MB-L10
Flange	MB-F03	MB-F04	MB-F05	MB-F06	MB-F08	MB-F10
Single clevis	MB-C03	MB-C04	MB-C05	MB-C06	MB-C08	MB-C10
Double clevis	MB-D03	MB-D04	MB-D05	MB-D06	MB-D08	MB-D10

Note 1) Two foot brackets required for one cylinder.

Note 2) Accessories for each mounting bracket are as follows.

Foot, Flange, Single clevis: Mounting bolts

Double clevis: Clevis pin, Cotter pin

→ Refer to page 6-6-11 for details.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data

Series MB□Q

Weight/Aluminum Tube

(kg)

Bore size (mm)		32	40	50	63	80	100
Basic weight	Basic	0.50	0.69	1.19	1.47	2.73	3.70
	Foot	0.68	0.93	1.56	1.93	3.61	4.8
	Flange	0.79	1.06	1.64	2.26	4.18	7.01
	Single clevis	0.75	0.92	1.53	2.1	3.84	6.87
	Double clevis	0.76	0.96	1.62	2.26	4.13	7.39
	Trunnion	0.79	1.05	1.67	2.27	4.28	7.37
Additional weight per each 50 mm stroke	All mounting bracket	0.11	0.16	0.26	0.27	0.42	0.56
Accessory	Single rod clevis	0.15	0.23	0.26	0.26	0.60	0.83
	Double rod clevis (with pin)	0.22	0.37	0.43	0.43	0.87	1.27

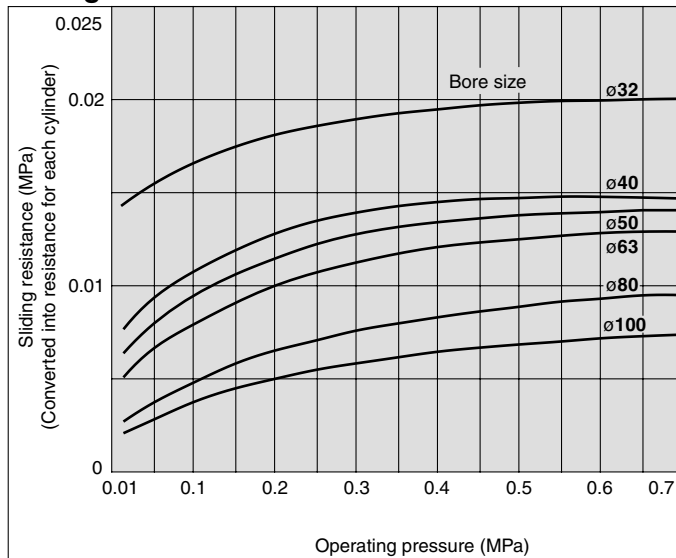
Calculation example: MBBQ32-100 (Basic, ø32, 100 st)

- Basic weight 0.50 (Basic, ø32)
 - Additional weight ... 0.11/50 stroke
 - Cylinder stroke 100 stroke
- $$0.50 + 0.11 \times 100/50 = 0.72 \text{ kg}$$

Selection Guide for the Low Friction Side

- When used as a balancer etc., follow the example of the application mentioned earlier applying pressure at one port while leaving the other port open to atmosphere.
 - With pressure at rod cover port
 - Low friction side B (Example of application ①)
 - With pressure at head cover port
 - Low friction side F (Example of application ②)
- In both cases, as long as the outside pressure moves the piston rod, low friction can result in the direction of extension and retraction.

Sliding Resistance on Low Friction Side



Auto Switch Mounting Bracket Part No.

(mm)

Auto switch	Bore size					
	32	40	50	63	80	100
D-A3□/A44 D-G39/K39	BMB2-032	BMB2-040	BMB1-050	BMB1-063	BMB1-080	BMB1-100
D-A5□/A6□ D-A59W D-F5□/J5□ D-F5□W/J59W D-F59F D-F5BAL D-F5NTL	BT-03	BT-03	BT-05	BT-05	BT-06	BT-06
D-P5DWL	BMB3T-040	BMB3T-040	BMB3T-050	BMB3T-050	BMB3T-080	BMB3T-080
D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W D-Y7□WV D-Y7BAL	BMB4-032	BMB4-032	BMB4-050	BMB4-050	BA4-063	BA4-063

[A set of stainless steel mounting screws]

A set of following stainless steel mounting screws is attached. (A mounting bracket itself is not attached. Please order it separately.)

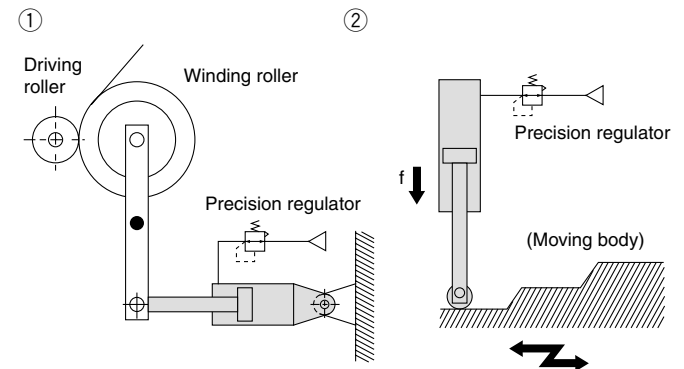
BBA1: D-A5/A6/F5/J5 types

* "D-F5BAL" switch is set on the cylinder with the screws above when shipped.

When a switch only is shipped, "BBA1" screws are attached.

Application Example

Low friction cylinder used in combination with precision regulator (Series IR)



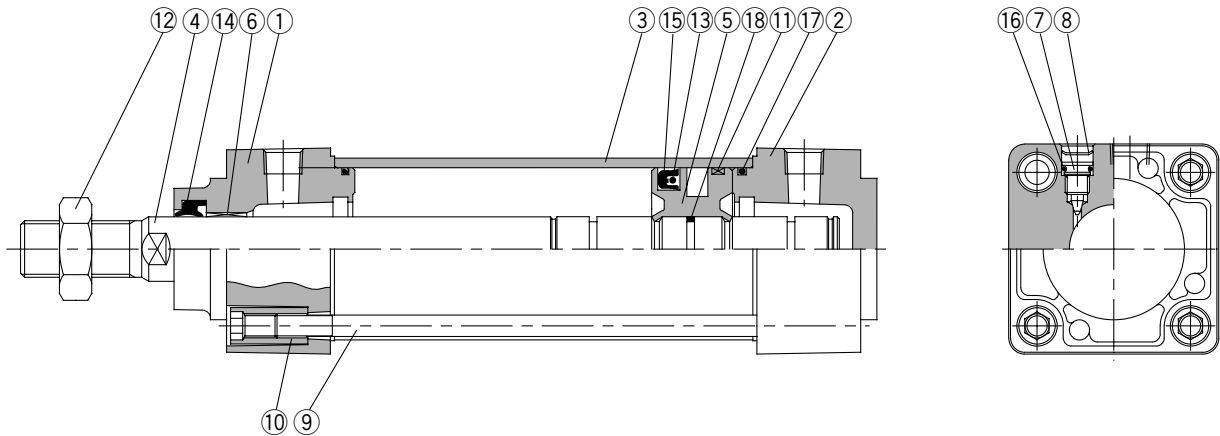
Caution on Use

Warning

- In the direction of low friction operation, speed control must be effected by the meter-in system.

With meter-out control, the exhaust pressure will increase and create a greater sliding resistance.

Construction



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum die-cast	Metallic painted
②	Head cover	Aluminum die-cast	Metallic painted
③	Cylinder tube	Aluminum alloy	Hard anodized
④	Piston rod	Carbon steel	Hard chrome plated
⑤	Piston	Aluminum alloy	Chromated
⑥	Bushing	Lead bronze cast	
⑦	Cushion valve	Steel wire	Nickel plated
⑧	Snap ring	Steel for spring	ø40 to ø100
⑨	Tie rod	Carbon steel	Uni-chromated
⑩	Tie rod nut	Carbon steel	Nickel plated
⑪	Wear rod	Resin	
⑫	Rod end nut	Carbon steel	Nickel plated
⑬*	Back up O ring	NBR	
⑭*	Rod seal	NBR	
⑮*	Piston seal	NBR	
⑯	Cushion valve seal	NBR	
⑰*	Cylinder tube gasket	NBR	
⑱	Piston gasket	NBR	

Replacement Parts: Seal Kit

Bore (mm)	Kit no.	Contents
32	MBQ32-PS	Set of the No. ⑬, ⑭, ⑮ and ⑰
40	MBQ40-PS	
50	MBQ50-PS	
63	MBQ63-PS	
80	MBQ80-PS	
100	MBQ100-PS	

* Seal kits consist of items ⑬, ⑭, ⑮ and ⑰, and can be ordered by using the seal kit number corresponding to each bore size.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

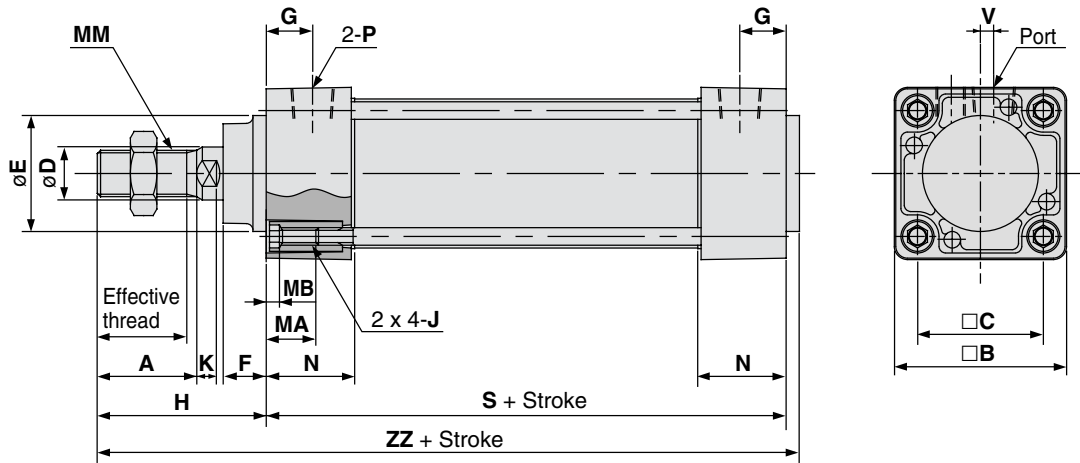
-X

20-

Data

Series MB□Q

Basic: (B)

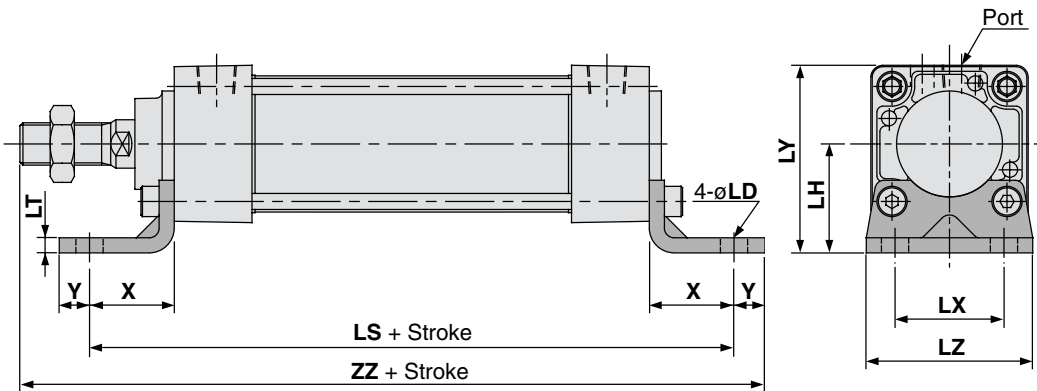


																					(mm)
Bore (mm)	Stroke range	Effective thread length	Width across flats	A	B	C	D	Ee11	F	G	H	MA	MB	J	K	MM	N	P	S	V	ZZ
32	up to 500	19.5	10	22	46	32.5	12	30	13	13	47	16	4	M6 x 1	6	M10 x 1.25	27	1/8	84	4	135
40	up to 500	27	14	30	52	38	16	35	13	14	51	16	4	M6 x 1	6	M14 x 1.5	27	1/4	84	4	139
50	up to 600	32	18	35	65	46.5	20	40	14	15.5	58	16	5	M8 x 1.25	7	M18 x 1.5	31.5	1/4	94	5	156
63	up to 600	32	18	35	75	56.5	20	45	14	16.5	58	16	5	M8 x 1.25	7	M18 x 1.5	31.5	3/8	94	9	156
80	up to 800	37	22	40	95	72	25	45	20	19	72	16	5	M10 x 1.5	10	M22 x 1.5	38	3/8	114	11.5	190
100	up to 800	37	26	40	114	89	30	55	20	19	72	16	5	M10 x 1.5	10	M26 x 1.5	38	1/2	114	17	190

With Mounting Bracket

* Refer to basic mounting (B) for other dimensions and with rod boot.

Foot: (L)

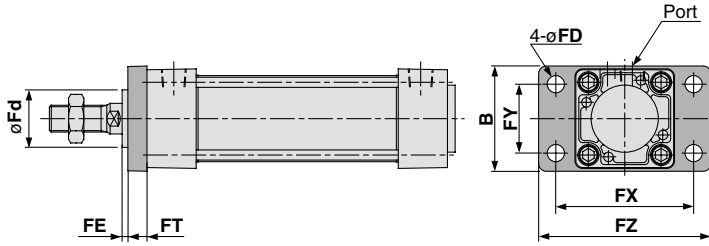


												(mm)
Bore size (mm)	Stroke range	X	Y	LD	LH	LS	LT	LX	LY	LZ	ZZ	
32	to 700	22	9	7	30	128	3.2	32	53	50	162	
40	to 800	24	11	9	33	132	3.2	38	59	55	170	
50	to 1000	27	11	9	40	148	3.2	46	72.5	70	190	
63	to 1000	27	14	12	45	148	3.6	56	82.5	80	193	
80	to 1000	30	14	12	55	174	4.5	72	102.5	100	230	
100	to 1000	32	16	14	65	178	4.5	89	122	120	234	

Air Cylinder: Low Friction Type Double Acting, Single Rod **Series MB□Q**

With Mounting Bracket

Front flange: (F)

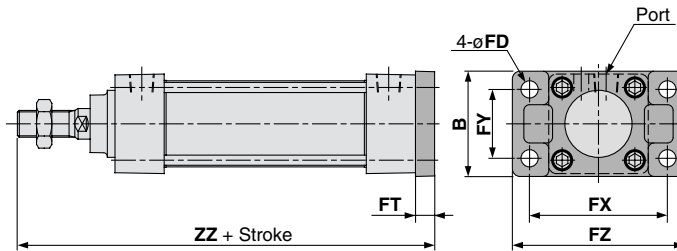


Front Flange

(mm)

Bore size (mm)	Stroke range	B	FD	FE	FT	FX	FY	FZ	Fd
32	to 700	50	7	3	10	64	32	79	25
40	to 800	55	9	3	10	72	36	90	31
50	to 1000	70	9	2	12	90	45	110	38.5
63	to 1000	80	9	2	12	100	50	120	39.5
80	to 1000	100	12	4	16	126	63	153	45.5
100	to 1000	120	14	4	16	150	75	178	54

Rear flange: (G)

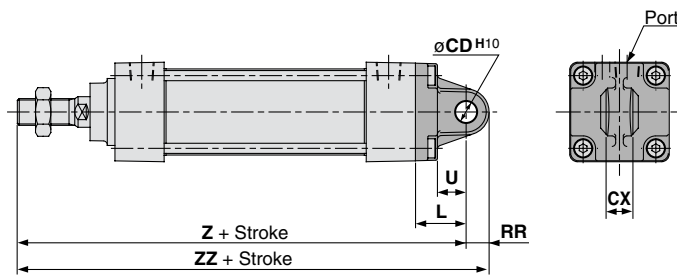


Rear Flange

(mm)

Bore size (mm)	Stroke range	B	FD	FT	FX	FY	FZ	ZZ
32	to 500	50	7	10	64	32	79	141
40	to 500	55	9	10	72	36	90	145
50	to 600	70	9	12	90	45	110	164
63	to 600	80	9	12	100	50	120	164
80	to 750	100	12	16	126	63	153	202
100	to 750	120	14	16	150	75	178	202

Single clevis: (C)

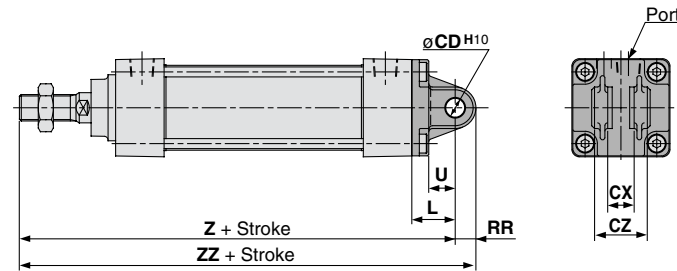


Single Clevis

(mm)

Bore size (mm)	Stroke range	L	RR	U	CD ^{H10}	CX ^{-0.1} _{-0.3}	Z	ZZ
32	to 500	23	10.5	13	10	14	154	164.5
40	to 500	23	11	13	10	14	158	169
50	to 600	30	15	17	14	20	182	197
63	to 600	30	15	17	14	20	182	197
80	to 750	42	23	26	22	30	228	251
100	to 750	42	23	26	22	30	228	251

Double clevis: (D)

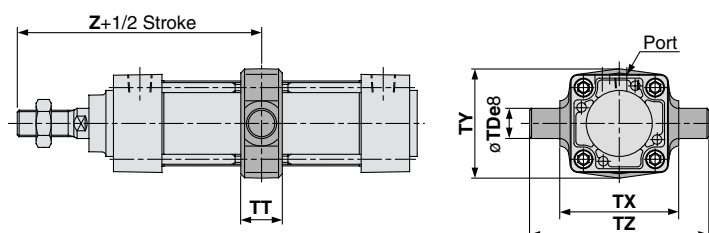


Double Clevis

(mm)

Bore size (mm)	Stroke range	L	RR	U	CD ^{H10}	CX ^{-0.3} _{-0.1}	CZ	Z	ZZ
32	to 500	23	10.5	13	10	14	28	154	164.5
40	to 500	23	11	13	10	14	28	158	169
50	to 600	30	15	17	14	20	40	182	197
63	to 600	30	15	17	14	20	40	182	197
80	to 750	42	23	26	22	30	60	228	251
100	to 750	42	23	26	22	30	60	228	251

Center trunnion: (T)



Center Trunnion

(mm)

Bore size (mm)	Stroke range	TDe8	TT	TX	TY	TZ	Z
32	to 500	12	17	50	49	74	89
40	to 500	16	22	63	58	95	93
50	to 600	16	22	75	71	107	105
63	to 600	20	28	90	87	130	105
80	to 750	20	34	110	110	150	129
100	to 750	25	40	132	136	182	129



Series MB

Simple Specials

Made to Order Specifications

Simple Specials The following special products are treated in the simple order made system. Dedicated simple special specification information and CD-ROM's are available. Please contact SMC sales representatives.

Symbol	Descriptions	Single rod MB	Double rod MBW	Non-rotating rod MBK	Low friction MB□Q	Enk lock MBB	Page
1 -XA0 to XA30	Change of rod end shape	●	●	●	●	●	6-6-40
2 -XC14	Change of trunnion bracket mounting position	●	●	●	●	●	6-6-41

Made to Order Specifications

Symbol	Descriptions	Single rod MB	Double rod MBW	Non-rotating rod MBK	Low friction MB□Q	Enk lock MBB	Page
1 -XB5	Oversized rod cylinder	●					6-6-42
2 -XB6	Heat resistant cylinder (150°C)	●	●				
3 -XB13	Low speed cylinder (5 to 50 mm/s)	●	●				
4 -XC3	Special port position	●	●	●	●		
5 -XC4	With heavy duty scraper	●	●				6-6-43
6 -XC5	Heat resistant cylinder (110°C)	●	●				
7 -XC6	Piston rod and rod end nut made of stainless steel	●	●	●	●		
8 -XC7	Tie rod, cushion valve, tie rod nut, etc. made of stainless steel	●	●	●	●	●	
9 -XC8	Adjustable stroke cylinder/Adjustable extend stroke	●		●			6-6-44
10 -XC9	Adjustable stroke cylinder/Adjustable retract stroke	●		●	●		
11 -XC10	Dual stroke cylinder/Double rod	●		●		●	
12 -XC11	Dual stroke cylinder/Single rod	●					
13 -XC12	Tandem cylinder	●					6-6-45
14 -XC22	Fluorine rubber seals	●	●				
15 -XC27	Double clevis pin and double knuckle pin made of stainless steel	●	●	●	●	●	
16 -XC29	Double knuckle joint with spring pin	●	●	●	●	●	
17 -XC30	Front trunnion	●	●	●	●	●	6-6-45
18 -XC35	With coil scraper	●	●				

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data

Simple Specials

1 Change of Rod End Shape -XA0 to XA30

Rod end shape except standard style for actuator is provided in patterns.

Series		Action	Applicable pattern symbols	
MB	Standard	MB	Double acting, Single rod	XA0-30
		MBW	Double acting, Double rod	XA0-30
	Non-rotating rod	MBK	Double acting, Single rod	XA0, 1, 6, 10, 11, 13, 14, 17, 19, 21
	Low friction	MB□Q	Double acting, Single rod	XA0-30
	End lock	MBB	Double acting, Single rod	XA0-30

1) SMC will make appropriate arrangements if no dimensional, tolerance, or finish instructions are given in the diagram.

2) The standard dimensions marked with "*" can be obtained from the rod diameter (D) as follows. Please specify any dimensions that are to be different.

$D \leq 6 \rightarrow D - 1 \text{ mm}$ $6 < D \leq 25 \rightarrow D - 2 \text{ mm}$ $D > 25 \rightarrow D - 4 \text{ mm}$

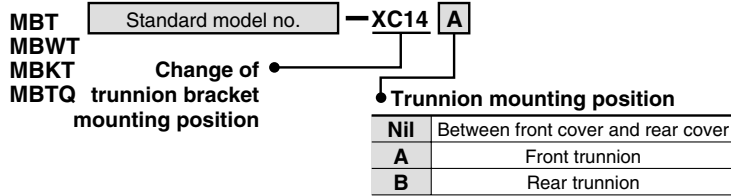
3) In case of a double rod type and a single acting retraction type, enter the dimension with the rod retracted.

4) In case of a double rod type, the change is applicable to a single side only.

<p>Symbol: A0</p>	<p>Symbol: A1</p>	<p>Symbol: A2</p>	<p>Symbol: A3</p>
<p>Symbol: A4</p>	<p>Symbol: A5</p>	<p>Symbol: A6</p>	<p>Symbol: A7</p>
<p>Symbol: A8</p>	<p>Symbol: A9</p>	<p>Symbol: A10</p>	<p>Symbol: A11</p>
<p>Symbol: A12</p>	<p>Symbol: A13</p>	<p>Symbol: A14</p>	<p>Symbol: A15</p>
<p>Symbol: A16</p>	<p>Symbol: A17</p>	<p>Symbol: A18</p>	<p>Symbol: A19</p>
<p>Symbol: A20</p>	<p>Symbol: A21</p>	<p>Symbol: A22</p>	<p>Symbol: A23</p>
<p>Symbol: A24</p>	<p>Symbol: A25</p>	<p>Symbol: A26</p>	<p>Symbol: A27</p>
<p>Symbol: A28</p>	<p>Symbol: A29</p>	<p>Symbol: A30</p>	

2 Change of Trunnion Bracket Mounting Position -XC14

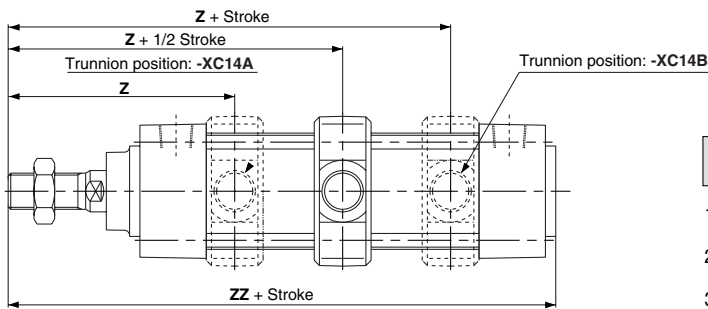
An air cylinder on which the position for mounting the trunnion bracket can be moved from the standard mounting position to a desired position.



Specifications

Action	Double acting, Single rod
Mounting	T bracket only

All specifications except for the above are the same as those of the standard type.



⚠ Precautions

- 1) Enter "Z + 1/2 stroke" when ordering with the model no. except -XC14A/B and Center trunnion.
- 2) SMC will make appropriate arrangements if no dimensional, tolerance, or finish instructions are given in the diagram.
- 3) The possible ranges for the trunnion bracket mounting position are indicated in the table below.
- 4) Please consult with SMC when one of the auto switches cannot be mounted because of trunnion mounting position.

(mm)

Symbol Bore size	Z + 1/2 stroke					Reference: Standard (Center trunnion)	Minimum stroke
	-XC14A	-XC14B	-XC14				
			Min	Max			
32	82.5	95.5 + Stroke	84	94 + Stroke	89 + 1/2 stroke	0	
40	89	97 + Stroke	90	96 + Stroke	93 + 1/2 stroke	0	
50	100.5	109.5 + Stroke	102	108 + Stroke	105 + 1/2 stroke	0	
63	103.5	106.5 + Stroke	105	105 + Stroke	105 + 1/2 stroke	0	
80	127	131 + Stroke	128	130 + Stroke	129 + 1/2 stroke	0	
100	130	128 + Stroke	131	217 + Stroke	129 + 1/2 stroke	0	

Made to Order Specifications

Please contact SMC for the detailed specifications, delivery and prices.

1 -XB5

Oversized Rod Cylinder

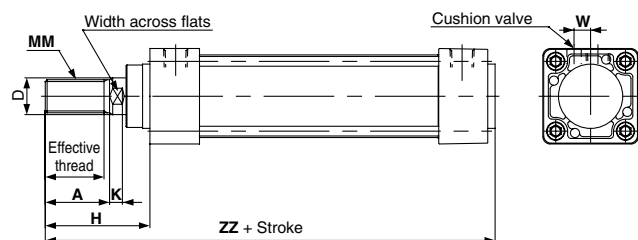
A cylinder that has been made stronger through the use of a piston rod with a larger diameter. It is used for long stroke applications that pose the risk of bending or buckling of the piston rod. (Consult with SMC if a lateral load must be applied to it.)

MB Standard model no. — **XB5**
 • Strong rod cylinder

Specifications

Action	Double acting, Single rod
Bore size (mm)	32, 40, 50, 63, 80, 100
Auto switch	Available for mounting

Dimensions



Bore size (mm)	Effective thread length	Width across flats	A	D	H	K	MM	W	ZZ
32	27	14	30	16	51	6	M14 x 1.5	7.2	139
40	32	18	35	20	58	7	M18 x 1.5	9.7	146
50	37	22	40	25	68	10	M22 x 1.5	10.5	166
63	37	22	40	25	68	10	M22 x 1.5	12	166
80	37	26	40	30	74	10	M26 x 1.5	14	192
100	47	31	50	36	90	16	M30 x 1.5	15	208

2 -XB6

Heat Resistant Cylinder (150°C)

An air cylinder in which the materials of the seals and the grease have been changed so that the cylinder can be operated at high ambient temperatures of up to 150°C.

MB Standard model no. — **XB6**
 • Heat resistant cylinder (150°C)

Specifications

Action	Double acting, Single/Double rod
Ambient temp.	-10°C to 150°C
Auto switch	Unavailable for mounting
Cushion	Air cushion
Material	Fluorine rubber
Grease	Heat resistant grease

The specifications and dimensions other than the above are the same as those of the standard type.

3 -XB13

Low Speed Cylinder (5 to 50 mm/s)

Operates smoothly without sticking or slipping even at low speeds of 5 to 50 mm/s.

Note 1) Do not lubricate this cylinder.

MB Standard model no. — **XB13**
 MBW
 • Low speed cylinder

Specifications

Action	Double acting, Single/Double rod
Piston speed	5 to 50 mm/sec

The specifications and dimensions other than the above are the same as those of the standard type.

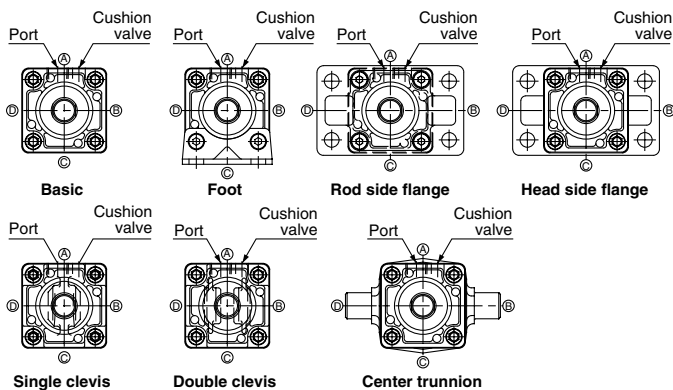
4 -XC3

Special Port Position

Cylinder changed connecting port position of rod/head cover and position of cushion valve.

MB Standard model no. — **XC3** **A** **C**
 MBW
 MBK
 MB□Q
 Special port position
 Port position seen from the front
 Cushion valve position seen from the front

Relation between Port Position and Cushion Valve Position



- As shown in the above diagram, the symbols for the positions of the ports and cushion valves are as follows: viewed from the rod side, the top position is rendered A; then, B, C, and D, in the clockwise direction.
- The style in which the ports and the cushion valves are combined is applicable only when the rod cover and the head cover are changed to the same positions.
- The part number "XC3AA" does not exist with regard to the port and cushion valve positions, because this is the standard specification.

5 -XC4

With Heavy Duty Scraper

As it uses a powerful scraper for the wiper ring, this cylinder is suitable for use in an area that is dusty, or in an environment in which mud splashes on the cylinder, such as when operating casting equipment, construction equipment, or an industrial vehicle.

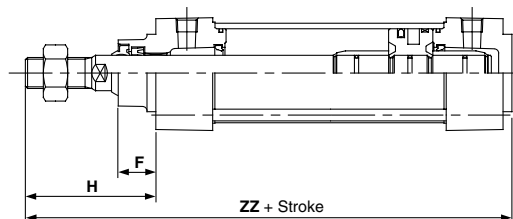
MB Standard model no. — **XC4**
 MBW
 • With heavy duty scraper

Specifications

Action	Double acting, Single Double rod
Cushion	Air cushion/Rubber bumper
Wiper ring	SCB scraper

The specifications other than the above are the same as those of the standard type.

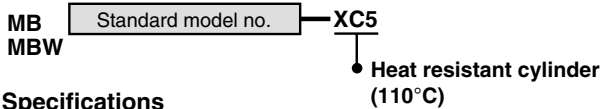
Dimensions



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

6 -XC5 Heat Resistant Cylinder (110°C)

A cylinder in which the material of the seals has been changed to a heat resistant style (for up to 110°C) so that it can be operated under extreme ambient temperatures that exceed the standard specifications of between -10°C and +70°C.



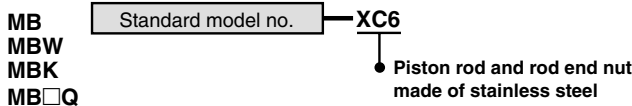
Specifications

Action	Double acting, Single/Double rod
Ambient temp.	-10°C to 110°C
Auto switch	Unavailable for mounting
Cushion	Air cushion
Material	Fluorine rubber

The specifications and dimensions other than the above are the same as those of the standard type.

7 -XC6 Piston Rod and Rod End Nut Made of Stainless Steel

It is used in case there is the risk of rust or corrosion, such as when the end of the piston rod becomes immersed in water as it moves forward.



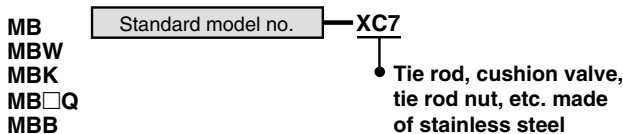
Specifications

Action	Double acting, Single/Double rod
Cushion	Air cushion

The specifications and dimensions other than the above are the same as those of the standard type.

8 -XC7 Tie Rod, Cushion Valve, Tie Rod Nut, etc. Made of Stainless Steel

A portion of the materials of the standard parts has been changed to stainless steel to enable the cylinder to be used in an area that poses the risk of rust or corrosion.



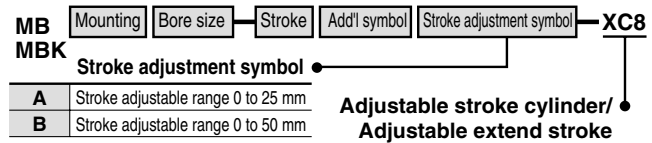
Specifications

Action	Double acting, Single/Double rod
Cushion	Air cushion

The specifications and dimensions other than the above are the same as those of the standard type.

9 -XC8 Adjustable Stroke Cylinder/Adjustable Extend Stroke

The stroke at return of the cylinder can be adjusted from full stroke (0 to 25)mm or (0 to 50)mm. A stroke adjustment mechanism has been provided in the head portion to adjust the extend stroke.

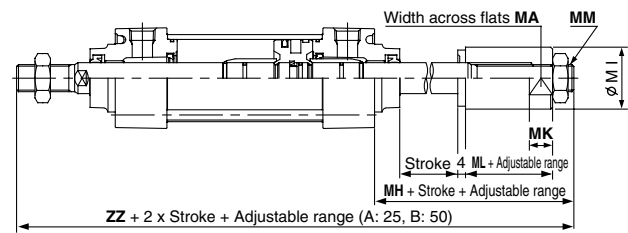


Specifications

Action	Double acting, Single rod
Mounting	B, L, F, T type (G, C, D not available)
Stroke adjustment system	Stopper adjustment
Stroke adjustment range	A: 0 to 25 mm, B: 0 to 50 mm

The specifications other than the above are the same as those of the standard type.

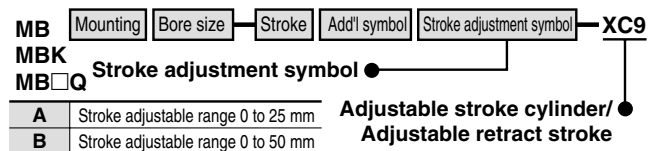
Dimensions



Bore size (mm)	MA	MK	MI	MH	ML	MM	ZZ
32	21	10	24	44	18	10	175
40	27	12	32	48	20	14	183
50	32	15	38	53	21	18	205
63	32	15	38	53	21	18	205
80	36	20	45	72	32	22	258
100	46	20	55	75	32	26	261

10 -XC9 Adjustable Stroke Cylinder/Adjustable Retract Stroke

The retract stroke of the cylinder can be adjusted from (0 to 25)mm or (0 to 50)mm by the adjusting bolt.

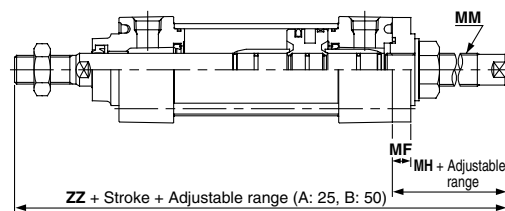


Specifications

Action	Double acting, Single rod
Mounting	B, L, F, T type (G, C, D not available)
Stroke adjustment system	Adjusting bolt
Stroke adjustment range	A: 0 to 25 mm, B: 0 to 50 mm

The specifications other than the above are the same as those of the standard type.

Dimensions



Bore size (mm)	MH	MF	MM	ZZ
32	41.5	9.5	M12 x 1.25	172
40	41.5	9.5	M12 x 1.25	176
50	52.5	11.5	M20 x 1.5	204
63	52.5	11.5	M20 x 1.5	204
80	62.5	15.5	M24 x 1.5	248
100	62.5	15.5	M24 x 1.5	248

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data

Series MB

Made to Order Specifications

Please contact SMC for the detailed specifications, delivery and prices.

11 -XC10 Dual Stroke Cylinder/Double Rod

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

MB [Mounting] [Bore size] [Stroke A] [Add'l symbol] + [Stroke B] [Add'l symbol] -XC10
MBK

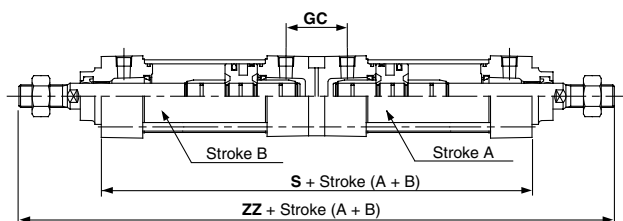
Dual stroke cylinder/
Double rod

Specifications

Action	Double acting, Single rod
Cushion	Air cushion, Rubber bumper
Mounting	B, L, F, G type (C, D, T not available)
Manufacturable max. stroke (A+B)	ø32: to 600, ø40: to 700, ø50 to ø100: to 900

The specifications other than the above are the same as those of the standard type.

Dimensions



Bore size (mm)	GC	S	ZZ
32	36	178	272
40	38	178	280
50	41	198	314
63	43	198	314
80	52	242	386
100	52	242	386

12 -XC11 Dual Stroke Cylinder/Single Rod

Two cylinders can be integrated by connecting them in line, and the cylinder stroke can be controlled in two stages in both directions.

MB [Mounting] [Bore size] [Stroke A] [Add'l symbol] + [Stroke B] [Add'l symbol] -XC11

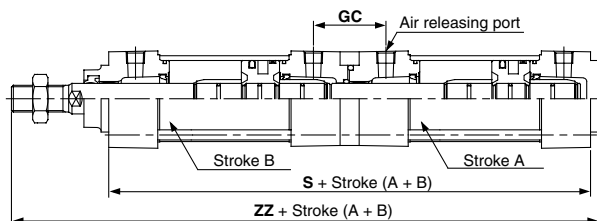
Dual stroke cylinder/
Single rod

Specifications

Action	Double acting, Single rod
Cushion	Air cushion, Rubber bumper
Mounting	B, L, F, G, C, D type (T not available)

The specifications other than the above are the same as those of the standard type.

Dimensions



Bore size (mm)	GC	S	ZZ
32	36	179	230
40	38	179	234
50	41	199	261
63	43	199	261
80	52	243	319
100	52	243	319

13 -XC12 Tandem Cylinder

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

MB [Standard model no.] -XC12

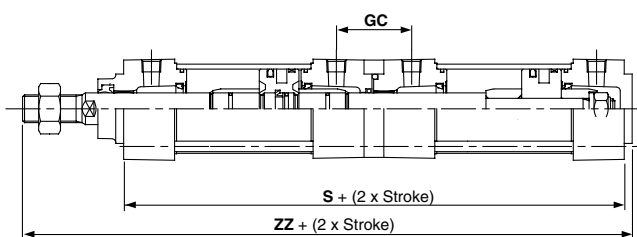
Tandem cylinder

Specifications

Action	Double acting, Single rod
Min. operating pressure	0.1MPa
Cushion	Air cushion
Mounting	B, L, F, G, C, D type (T not available)

The specifications other than the above are the same as those of the standard type.

Dimensions



Bore size (mm)	GC	S	ZZ	Bore size (mm)	GC	S	ZZ
32	36	180	231	63	43	200	262
40	38	180	235	80	52	244	320
50	41	200	262	100	52	244	320

14 -XC22 Fluorine Rubber Seals

Material for seals is changed to fluorine rubber excellent in chemical resistance.

MB [Standard model no.] -XC22

MBW

Fluorine rubber seals

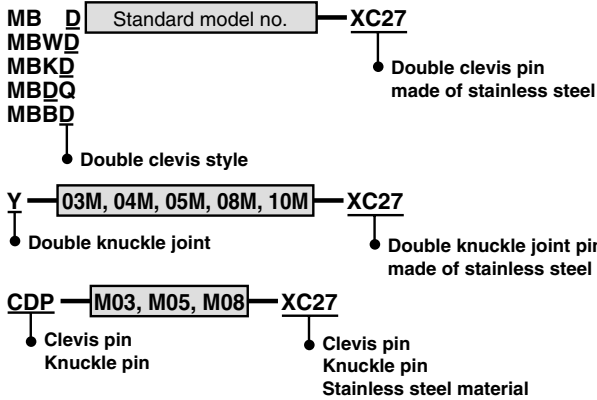
Specifications

Action	Double acting, Single/Double rod
Seal	Fluorine rubber

The specifications and dimensions other than the above are the same as those of the standard type.

15-XC27 Double Clevis Pin and Double Knuckle Pin Made of Stainless Steel

To prevent the oscillating portion of the double clevis or the double knuckle joint from rusting, the material of the pin and the snap ring (split pin) has been changed to stainless steel. The double clevis style is one way of installation support for standard air cylinders and the double knuckle joint is one of the pieces of hardware that are provided.



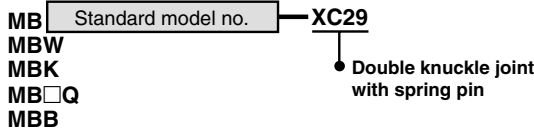
Specifications

Mounting	Only double clevis style (D)
Pin material	Stainless steel 304

The specifications other than the above are the same as those of the standard type. Cotter pin, clevis pin and knuckle joint pin are attached to mounting bracket.

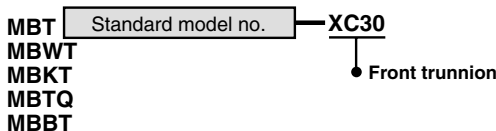
16-XC29 Double Knuckle Joint with Spring Pin

To prevent loosening of the double knuckle joint of standard air cylinder.



17-XC30 Front Trunnion

When a standard double acting single rod cylinder with a front trunnion bracket has a long stroke, the distance from the fulcrum to the rod end is reduced by mounting the trunnion on the front of the cylinder's rod cover.

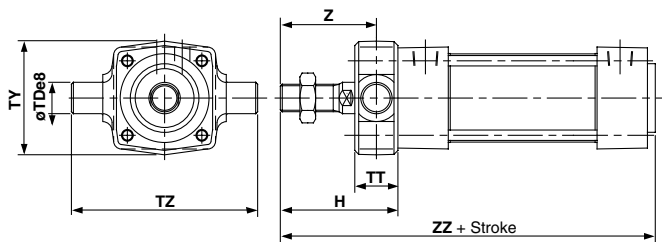


Specifications

Action	Double acting, Single/Double rod
Mounting	T bracket only

The specifications other than the above are the same as those of the standard type.

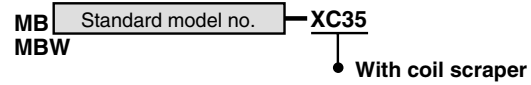
Dimensions



Bore size (mm)	TDe8	TT	TY	TZ	H	Z	ZZ
32	12 ^{-0.032} _{-0.059}	17	49	74	47	38.5	135
40	16 ^{-0.032} _{-0.059}	22	58	95	60	49	148
50	16 ^{-0.032} _{-0.059}	22	71	107	66	55	164
63	20 ^{-0.040} _{-0.073}	28	87	130	72	58	170
80	20 ^{-0.040} _{-0.073}	34	110	150	86	69	204
100	25 ^{-0.040} _{-0.073}	40	136	182	92	72	210

18-XC35 With Coil Scraper

Scraper removes frost, weld spatter, cutting dust, and etc., and it protects the seals.

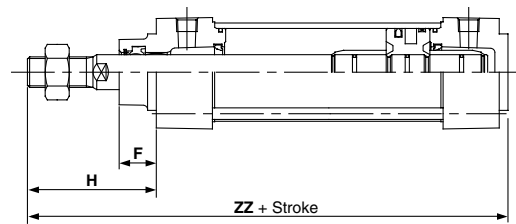


Specifications

Action	Double acting, Single/Double rod
Cushion	Air cushion, Rubber bumper
Scraper	Coil scraper (Metal)

The specifications other than the above are the same as those of the standard type.

Dimensions



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

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data