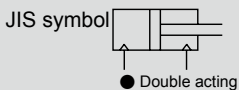


Compact direct mounting cylinder double acting/single rod

MDC2 Series

● Bore size: $\phi 4$, $\phi 6$, $\phi 8$, $\phi 10$



Specifications

Descriptions	MDC2 MDC2-L (with switch)			
	$\phi 4$ *1	$\phi 6$	$\phi 8$	$\phi 10$
Bore size mm	$\phi 4$ *1	$\phi 6$	$\phi 8$	$\phi 10$
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	0.7 (≈ 100 psi, 7 bar)			
Min. working pressure MPa	0.2 (≈ 29 psi, 2 bar)	0.15 (≈ 22 psi, 1.5 bar)		0.1 (≈ 15 psi, 1 bar)
Proof pressure MPa	1.05 (≈ 150 psi, 10.5 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing) *2			
Port size	M3			M5
Stroke tolerance mm	+0.5 0			
Working piston speed mm/s	50 to 500			
Cushion	None			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.			

*1: $\phi 4$ is not available for MDC2-L.

*2: When using the proximity switch, use the cylinder at 40 $^{\circ}\text{C}$ or less.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length with two switches (mm)		Min. stroke length with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
$\phi 4$	3/6	6	-	-	-	-
$\phi 6$	4/6/8	8	6	4(8)	4	4
$\phi 8$	4/6/8	8	8	4(8)	4	4
$\phi 10$	4/6/10	10	6	4(10)	4	4

*1: Products with stroke length other than standard stroke length are not available. *2: For F2Y, F3Y or F3P, the min. stroke length will be the dimensions in ().

Switch specifications

Descriptions	Reed 2-wire	Proximity 2-wire			Proximity 3-wire			
	FOH/V	F2H/F2V	F2S	F2YH/F2YV	F3H/F3V	F3S	F3PH/F3PV (Custom order)	F3YH/F3YV
Applications	Dedicated for programmable controller	Dedicated for programmable controller			For programmable controller, relay			
Output method	-	-			NPN output		PNP output	NPN output
Power supply voltage	-	-			10 to 28 VDC		4.5 to 28 VDC	10 to 28 VDC
Load voltage	24 VDC	10 to 30 VDC		24 VDC $\pm 10\%$	30 VDC or less			
Load current	5 to 20 mA (*1)	5 to 20 mA (*1)			50 mA or less			
Indicator lamp	Yellow LED (Lit when ON)	Yellow LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Yellow LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less	1 mA or less			10 μA or less			
Weight g					1 m:10 3 m:29			

*1 : Max. load current: 20 mA at 25 $^{\circ}\text{C}$. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$. (5 to 10 mA at 60 $^{\circ}\text{C}$)

*2: Refer to Ending Page 1 for other switch specifications.

Cylinder weight table

(Unit: g)

Stroke length (mm)	3		4		6		8		10		Weight per switch
	No switch	With switch	No switch	With switch	No switch	With switch	No switch	With switch	No switch	With switch	
φ4	6.4	-	-	-	7.3	-	-	-	-	-	-
φ6	-	-	11.4	13.1	12.4	14	13.4	15	-	-	10
φ8	-	-	16.1	18.2	17.4	19.5	18.7	20.8	-	-	10
φ10	-	-	21.4	23.3	22.6	24.5	-	-	25	26.9	10

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
φ4	Push	-	-	2.51	3.77	5.03	6.28	7.54	8.80
	Pull	-	-	1.88	2.83	3.77	4.71	5.65	6.60
φ6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	2.36	3.14	4.71	6.28	7.85	9.42	11.0
φ8	Push	-	7.54	10.1	15.1	20.1	25.1	30.2	35.2
	Pull	-	4.59	6.13	9.19	12.3	15.3	18.4	21.4
φ10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0
	Pull	5.03	7.54	10.1	15.1	20.1	25.1	30.2	35.2

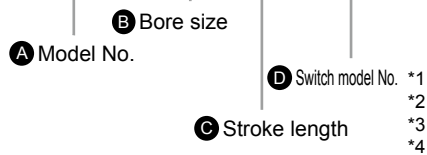
How to order

- Without switch (without magnet for switch)

MDC2 - 6 - 4

- With switch (built-in magnet for switch)

MDC2-L - 6 - 4 - F2V - R



Precautions for model No. selection

- *1 : φ4 with switch is not available.
- *2 : For MDC2 with reed switch, the cylinder cannot be mounted on a magnetic substance (iron plate, etc.). This could lead to switch detection malfunction.
- *3 : When using MDC2-L-6 with reed switch, use a non-magnetic bolt (stainless steel hexagon socket head cap screw, etc.) for cylinder mounting bolt. Failure to do so could lead to switch detection malfunction.
- *4 : Refer to page 1330 for the min. stroke length with switch.

[Example of model No.]

MDC2-L-6-4-F2V-R

Model: Compact direct mounting cylinder

- A Model No. : Double acting/single rod/with switch
- B Bore size : φ6 mm
- C Stroke length : 4 mm
- D Switch model No.: Proximity switch F2V, lead wire 1 m
- E Switch quantity: 1 on rod side

Code	Content				
A Model No.					
MDC2	Double acting/single rod	Without switch			
MDC2-L	Double acting/single rod	With switch			
B Bore size					
4	φ4				
6	φ6				
8	φ8				
10	φ10				
C Stroke length (mm)					
3	3(φ4)				
4	4(φ6 to φ10)				
6	6(φ4 to φ10)				
8	8(φ6, φ8)				
10	10(φ10)				
D Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage	Display	Lead wire
F0H*	F0V*	Reed	AC	1-color display	2-wire
F2S*			DC		
F2H*		Proximity	●	1-color display (PNP output) (custom)	3-wire
F3S*			●		
F3H*			●		
F3PH*		●	●	2-color display	2-wire
F2YH*			●		
F3YH*		●	●		3-wire
F3YV*					
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
E Switch quantity					
R	1 on rod side				
H	1 on head side				
D	2				

How to order switch

SW - F0H

Switch model No.
(Item D above)

Clean-room specifications (Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

MDC2-.....- P7*

MDC2-.....- P5*

Specifications for rechargeable battery (Catalog No. CC-1226A)

- Design compatible with rechargeable battery manufacturing process

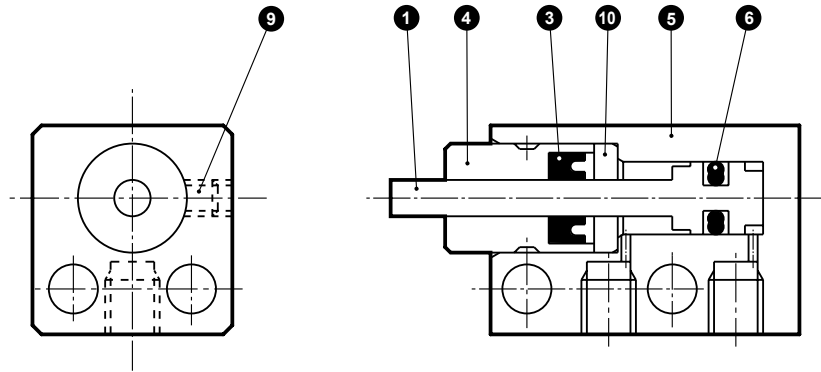
MDC2-.....- P4*

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

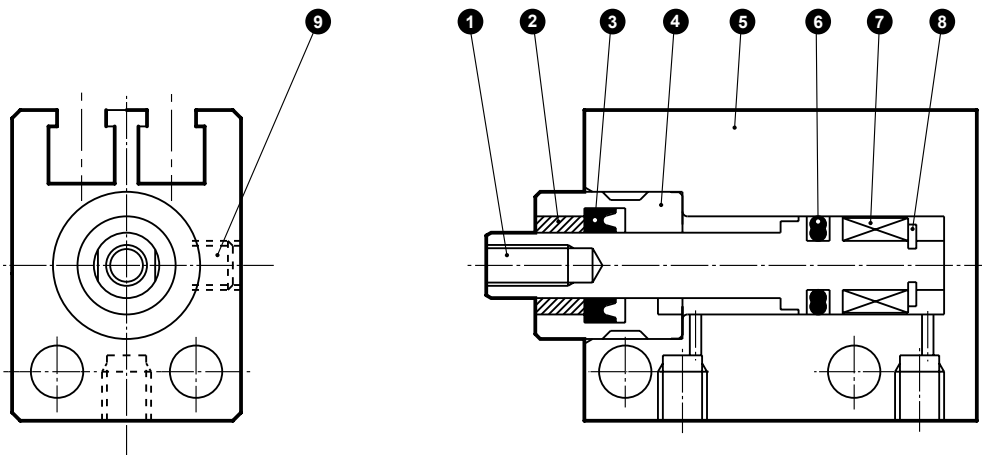
MDC2 Series

Internal structure and parts list

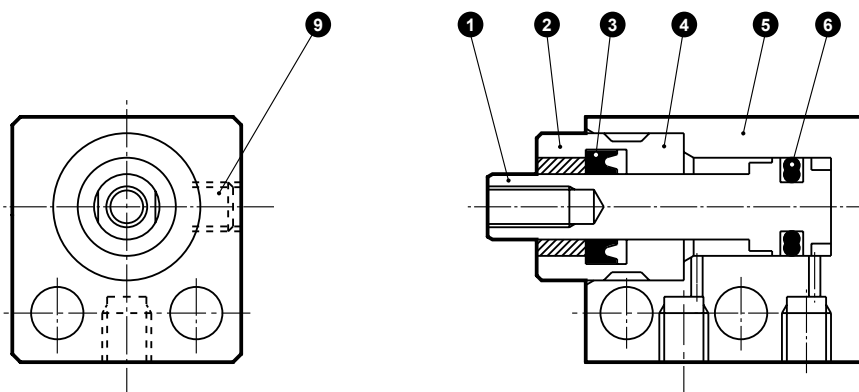
● MDC2-4 (double acting single rod)



● MDC2-L-6, 8, 10 (double acting single rod/with switch)



● MDC2-6,8,10 (double acting single rod)

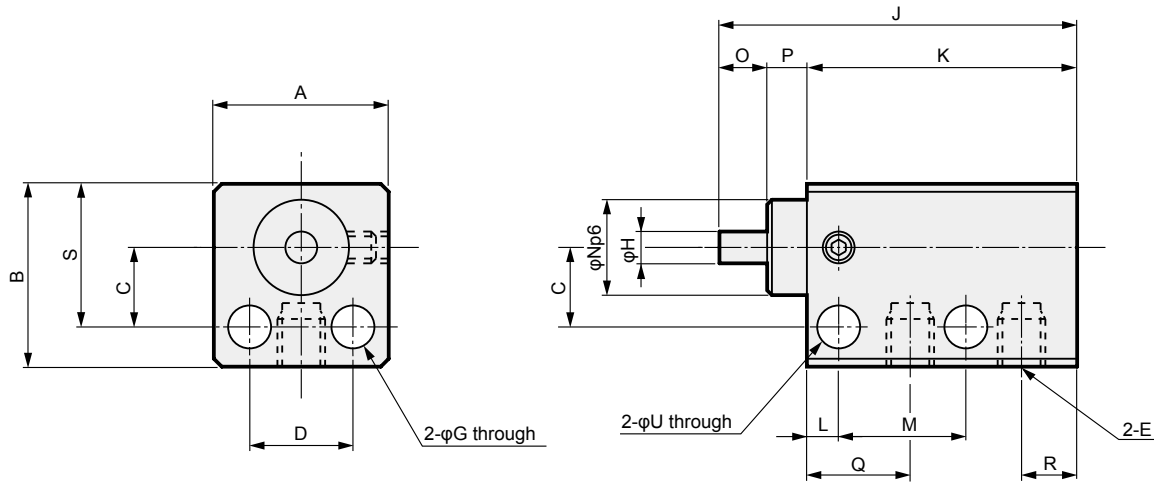


Cannot be disassembled

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston	Stainless steel		6	Piston packing	Nitrile rubber	
2	Bush	Oil-impregnated copper alloy		7	Magnet	Plastic	
3	Rod packing	Nitrile rubber		8	E type snap ring	Stainless steel	
4	Rod metal	φ4: Phosphor bronze φ6 to φ10: Stainless steel		9	Hexagon socket set screw	Stainless steel	
5	Cylinder body	Aluminum alloy	Hard alumite	10	Collar	Stainless steel	

Dimensions

- MDC2-4-3,6 (double acting/single rod/without switch)



Model No.	A	B	C	D	E	G	H	J	K	L	M	N	O	P	Q	R	S	U
MDC2-4-3	11	11.5	5	6.5	M3	2.7	2	22.5	17	2	8	6	3	2.5	6.5	3.5	9	2.7
MDC2-4-6	11	11.5	5	6.5	M3	2.7	2	25.5	20	2	11	6	3	2.5	6.5	3.5	9	2.7

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

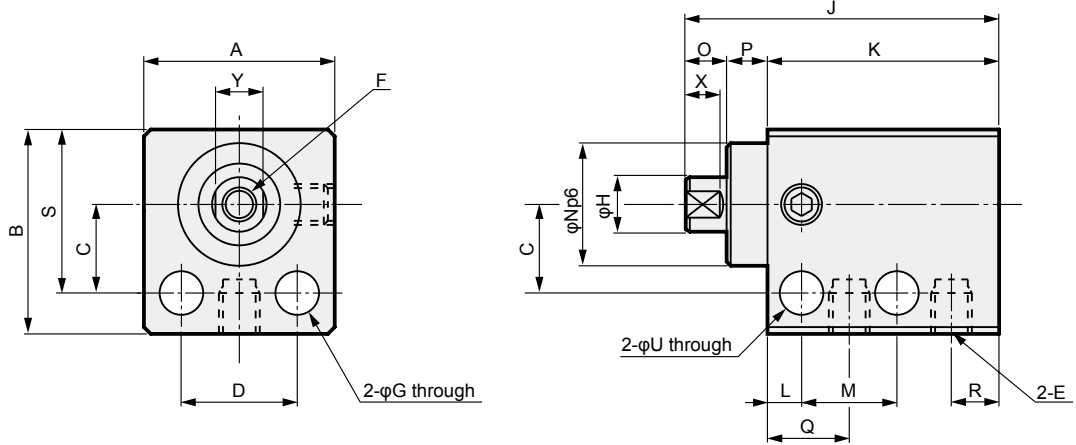
Ending

MDC2 Series

Dimensions



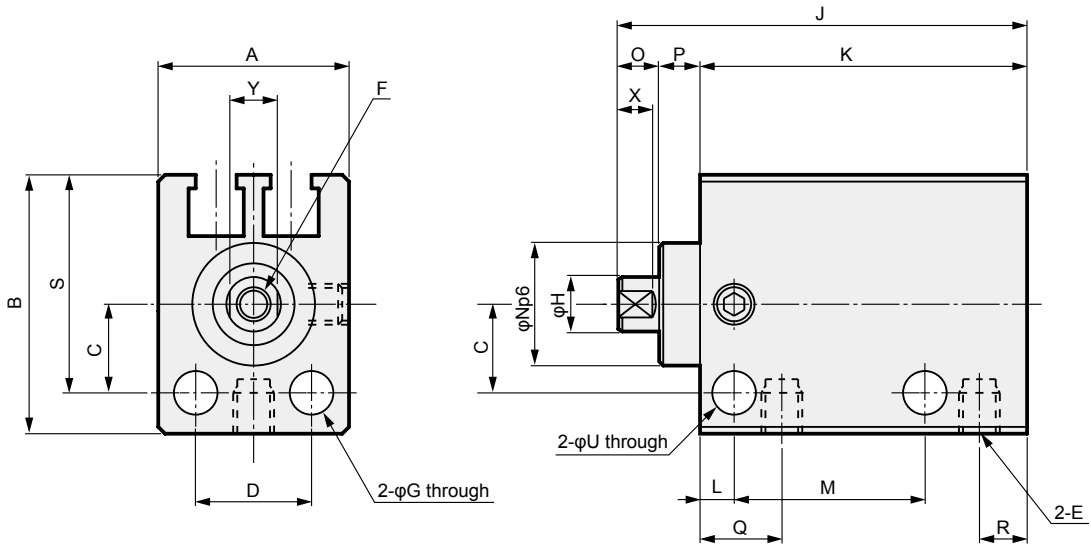
● MDC2-6, 8, 10 (double acting/single rod/without switch)



Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	U	X	Y
MDC2-6	4	14	15	6.5	8.5	M3	M2.5 ×	3.2	4	23	17	2.5	7.5	9	3	3	6	3.5	12	3.2	2.5	3.5
	0.45						25			19	9											
	Depth 4						27			21	11											
MDC2-8	4	16	17	7.5	10	M3	M3 ×	3.2	5	23	17	2.5	7.5	11	3	3	6	3.5	14	3.2	2.5	4.5
	0.5						25			19	9											
	Depth 5						27			21	11											
MDC2-10	4	16	17.5	8	10	M5	M3 ×	3.2	6	28	22	2.5	9.5	11	3	3	7	5	14.5	3.2	2.5	5
	0.5						30			24	11.5											
	Depth 5						34			28	15.5											

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

● MDC2-L-6, 8, 10 (double acting single rod/with switch)



Note) Refer to page 1348 for switch mounting dimensions.

Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	U	X	Y
MDC2-L-6	4	14	19	6.5	8.5	M3	M2.5 ×	3.2	4	28	22	2.5	12.5	9	3	3	6	3.5	16	3.2	2.5	3.5
	0.45						30			24	14											
	Depth 4						32			26	16											
MDC2-L-8	4	16	22	7.5	10	M3	M3 ×	3.2	5	28	22	2.5	12.5	11	3	3	6	3.5	18.5	3.2	2.5	4.5
	0.5						30			24	14											
	Depth 5						32			26	16											
MDC2-L-10	4	16	22	8	10	M5	M3 ×	3.2	6	31	25	2.5	12.5	11	3	3	7	5	19	3.2	2.5	5
	0.5						33			27	14.5											
	Depth 5						37			31	18.5											

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

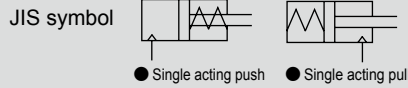
Ending



Compact direct mounting cylinder
Single acting/push single acting/pull

MDC2-X Series

● Bore size: $\phi 4$, $\phi 6$, $\phi 8$, $\phi 10$



Specifications

Descriptions		MDC2-X MDC2-XL (with switch)		MDC2-Y MDC2-YL (with switch)	
Bore size	mm	$\phi 4$ *1	$\phi 6$	$\phi 8$	$\phi 10$
Actuation	MDC2-X(L)	Single acting push			
	MDC2-Y(L)	Single acting pull			
Working fluid		Compressed air			
Max. working pressure MPa		0.7 (≈ 100 psi, 7 bar)			
Min. working pressure MPa	MDC2-X(L)	0.35 (≈ 51 psi, 3.5 bar)	0.3 (≈ 44 psi, 3 bar)	0.25 (≈ 36 psi, 2.5 bar)	0.25 (≈ 36 psi, 2.5 bar)
	MDC2-Y(L)	0.4 (≈ 58 psi, 4 bar)	0.3 (≈ 44 psi, 3 bar)	0.25 (≈ 36 psi, 2.5 bar)	0.25 (≈ 36 psi, 2.5 bar)
Proof pressure MPa		1.05 (≈ 150 psi, 10.5 bar)			
Ambient temperature $^{\circ}\text{C}$		-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing) *2			
Port size		M3			M5
Stroke tolerance mm		+0.5			
		0			
Working piston speed mm/s		50 to 500			
Cushion		None			
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J		This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.			

*1: $\phi 4$ is not available for MDC2-XL and MDC2-YL.

*2: When using the proximity switch, use the cylinder at 40 $^{\circ}\text{C}$ or less.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length with two switches (mm)		Min. stroke length with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
$\phi 4$	3/6	6	-	-	-	-
$\phi 6$	4/6/8	8	6	4(8)	4	4
$\phi 8$	4/6/8	8	8	4(8)	4	4
$\phi 10$	4/6/10	10	6	4(10)	4	4

*1: Products with stroke length other than standard stroke length are not available. *2: For F2Y, F3Y or F3P, the min. stroke length will be the dimensions in ().

Switch specifications

Descriptions	Reed 2-wire	Proximity 2-wire			Proximity 3-wire			
	FOH/V	F2H/F2V	F2S	F2YH/F2YV	F3H/F3V	F3S	F3PH/F3PV (Custom order)	F3YH/F3YV
Applications	Dedicated for programmable controller	Dedicated for programmable controller			For programmable controller, relay			
Output method	-	-			NPN output	PNP output	NPN output	
Power supply voltage	-	-			10 to 28 VDC	4.5 to 28 VDC	10 to 28 VDC	
Load voltage	24 VDC	10 to 30 VDC		24 VDC $\pm 10\%$	30 VDC or less			
Load current	5 to 20 mA (*1)	5 to 20 mA (*1)	5 to 20 mA	5 to 20 mA (*1)	50 mA or less			
Indicator lamp	Yellow LED (Lit when ON)	Yellow LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Yellow LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less	1 mA or less			10 μA or less			
Weight g		1 m:10 3 m:29						

*1: Max. load current: 20 mA at 25 $^{\circ}\text{C}$. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$. (5 to 10 mA at 60 $^{\circ}\text{C}$)

*2: Refer to Ending Page 1 for other switch specifications.

Cylinder weight table

Stroke length (mm)		3		4		6		8		10		Weight per switch
Bore size (mm)	Model No.	No switch	With switch	No switch	With switch	No switch	With switch	No switch	With switch	No switch	With switch	
φ4	MDC2-X	4.9	-	-	-	6.9	-	-	-	-	-	-
	MDC2-Y	7.4	-	-	-	9.4	-	-	-	-	-	
φ6	MDC2-X	-	-	10.9	12.6	11.2	14.4	15.1	16.8	-	-	10
	MDC2-Y	-	-	13.3	15	15	16.7	17.5	19.2	-	-	
φ8	MDC2-X	-	-	16	18	18.4	20.5	20.7	22.8	-	-	10
	MDC2-Y	-	-	19	21	21.4	23.5	23.7	25.8	-	-	
φ10	MDC2-X	-	-	19.6	22	22	24.4	-	-	26.9	29.3	10
	MDC2-Y	-	-	21.2	23.4	23.6	25.8	-	-	28.5	30.7	

Spring load

(Unit: N)

Bore size (mm)	Stroke length (mm)	Spring load	
		Set	Operating
φ4	3/6	1.8	2.9
φ6	4/6/8	2.3	5.0
φ8	4/6/8	4.0	7.0
φ10	4/6/10	4.1	7.4

Theoretical thrust table

● MDC2-X

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa						
		0.25	0.3	0.35	0.4	0.5	0.6	0.7
φ4	Push	-	-	1.50	2.13	3.38	4.64	5.90
	Pull	-	-	Refer to the spring load value.				
φ6	Push	-	3.48	4.90	6.31	9.1	12.0	14.8
	Pull	-	Refer to the spring load value.					
φ8	Push	-	8.08	10.6	13.1	18.1	23.2	28.2
	Pull	-	Refer to the spring load value.					
φ10	Push	12.2	16.2	20.1	24.0	31.9	39.7	47.6
	Pull	Refer to the spring load value.						

● MDC2-Y

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa						
		0.25	0.3	0.35	0.4	0.5	0.6	0.7
φ4	Push	-	-	-	Refer to the spring load value.			
	Pull	-	-	-	0.87	1.81	2.75	3.70
φ6	Push	-	-	-	Refer to the spring load value.			
	Pull	-	-	-	1.28	2.85	4.42	6.0
φ8	Push	-	Refer to the spring load value.					
	Pull	-	2.19	3.72	5.25	8.3	11.4	14.4
φ10	Push	Refer to the spring load value.						
	Pull	5.17	7.68	10.2	12.7	17.7	22.8	27.8

MDC2-X⁻Y Series

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

How to order

● Without switch (without magnet for switch)

MDC2-X - **6** - **4**

● With switch (built-in magnet for switch)

MDC2-XL - **6** - **4** - **F2V** - **R**

A Model No.

B Bore size

C Stroke length

D Switch model No. *1
*2
*3
*4

E Switch quantity

⚠ Precautions for model No. selection

- *1 : φ4 with switch is not available.
- *2 : For MDC2 with reed switch, the cylinder cannot be mounted on a magnetic substance (iron plate, etc.). This could lead to switch detection malfunction.
- *3 : When using MDC2-XL or YL-6 with reed switch, use the non-magnetic bolt (stainless steel hexagon socket head cap screw, etc.) for cylinder mounting bolt. Failure to do so could lead to switch detection malfunction.
- *4 : Refer to page 1336 for the min. stroke length with switch.

[Example of model No.]

MDC2-XL-6-4-F2V-R

Model: Compact direct mounting cylinder

- A** Model No. : Single acting/push/with switch
- B** Bore size : φ6 mm
- C** Stroke length : 4 mm
- D** Switch model No.: Proximity switch F2V, lead wire 1 m
- E** Switch quantity : 1 on rod side

Code		Content				
A Model No.						
MDC2-X	Single acting/push	Without switch				
MDC2-Y	Single acting/pull					
MDC2-XL	Single acting/push	With switch				
MDC2-YL	Single acting/pull					
B Bore size						
4	φ4					
6	φ6					
8	φ8					
10	φ10					
C Stroke length (mm)						
3	3(φ4)					
4	4(φ6 to φ10)					
6	6(φ4 to φ10)					
8	8(φ6,φ8)					
10	10(φ10)					
D Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
F0H*	F0V*	Reed		●	1-color display	2-wire
F2S*		Proximity		●		
F2H*	F2V*			●		
F3S*				●		
F3H*	F3V*	Proximity		●	1-color display (PNP output) (Custom order)	3-wire
F3PH*	F3PV*			●		
F2YH*	F2YV*			●	2-color display	2-wire
F3YH*	F3YV*		●	3-wire		
* Lead wire length						
Blank		1 m (standard)				
3		3 m (option)				
E Switch quantity						
R		1 on rod side				
H		1 on head side				
D		2				

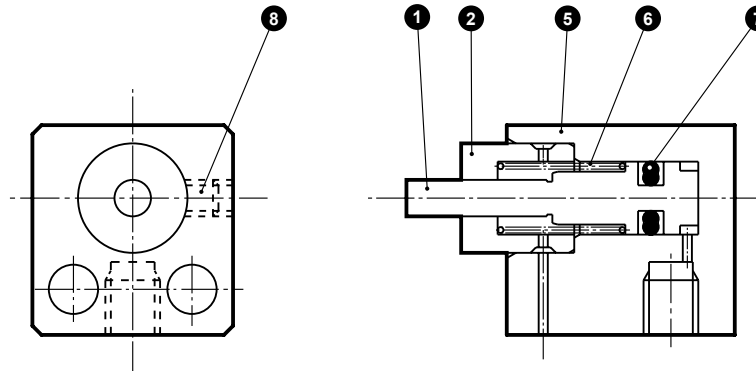
How to order switch

SW - **F0H**

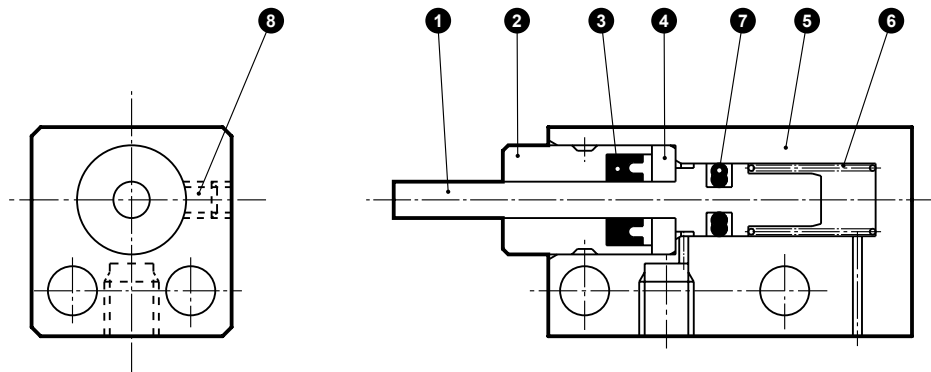
Switch model No.
(Item **D** above)

Internal structure and parts list

● MDC2-X-4 (single acting/push)



● MDC2-Y-4 (single acting/pull)



Cannot be disassembled

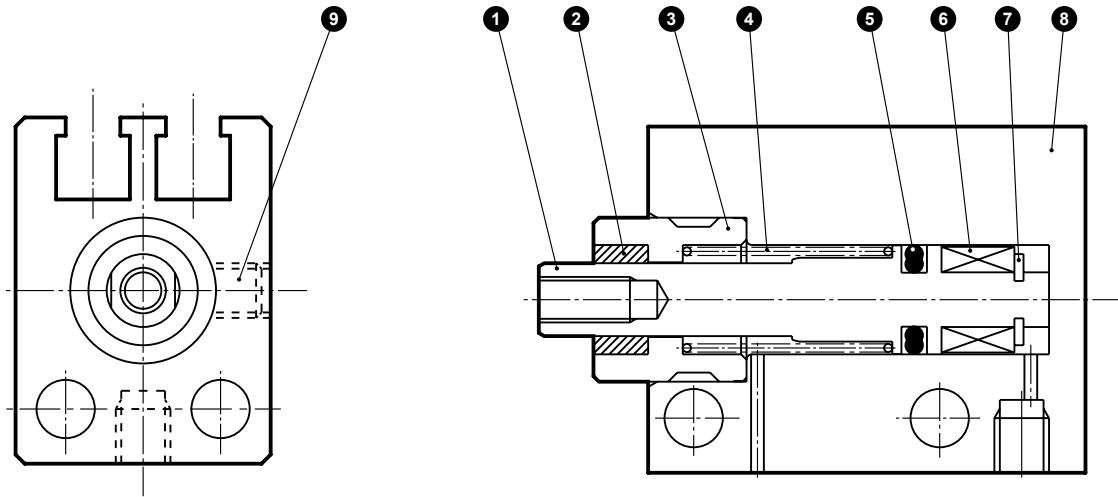
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston	Stainless steel		5	Cylinder body	Aluminum alloy	Hard alumite
2	Rod metal	Phosphor bronze		6	Coil spring	Steel	Electrodeposition
3	Rod packing	Nitrile rubber		7	Piston packing	Nitrile rubber	
4	Collar	Stainless steel		8	Hexagon socket set screw	Stainless steel	

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

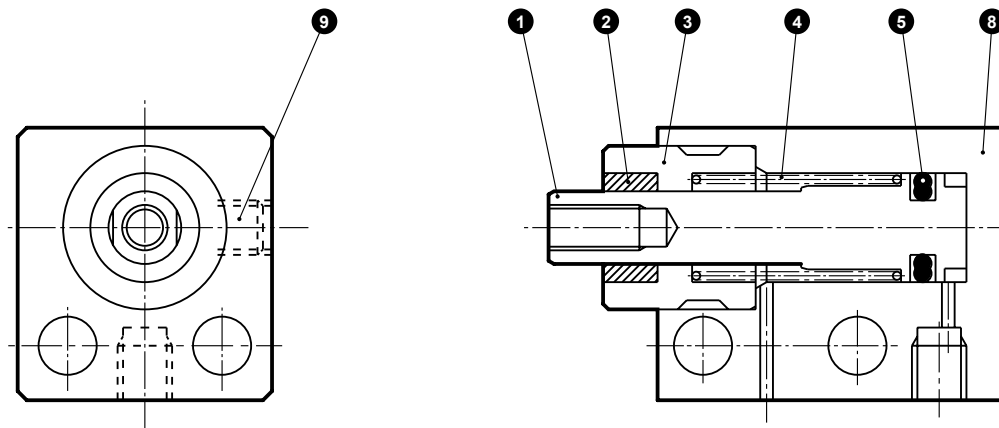
MDC2-X Series

Internal structure and parts list

● MDC2-XL-6, 8, 10 (single acting/push/with switch)



● MDC2-X-6, 8, 10 (single acting/push)

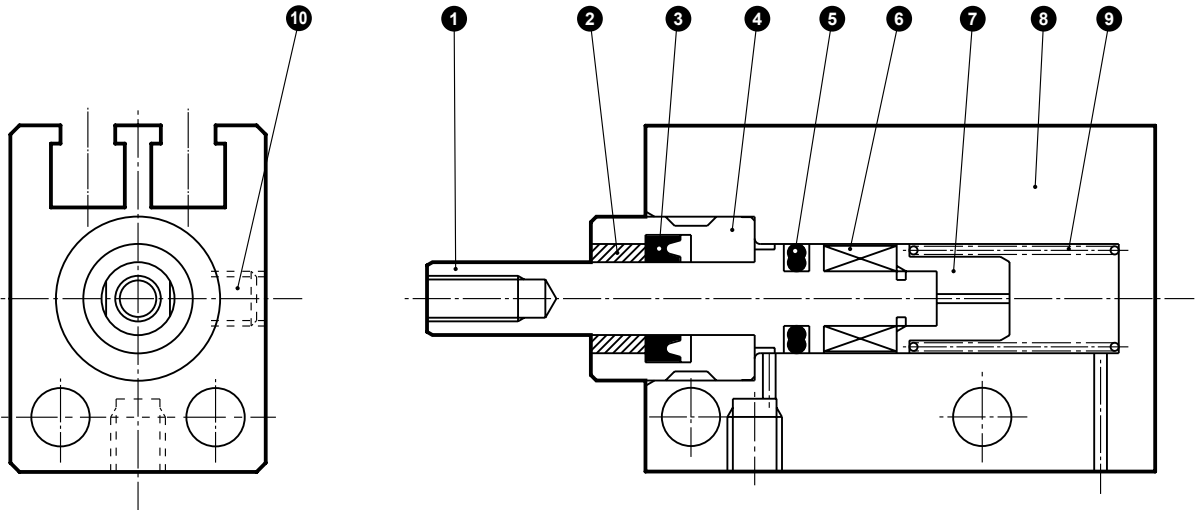


Cannot be disassembled

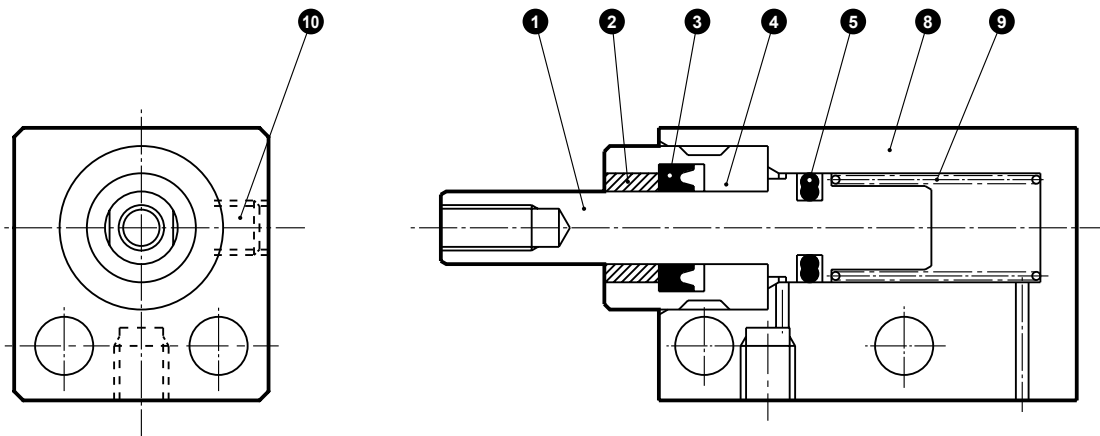
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston	Stainless steel		6	Magnet	Plastic	
2	Bush	Oil-impregnated copper alloy		7	E snap ring	Stainless steel	
3	Rod metal	Stainless steel		8	Cylinder body	Aluminum alloy	Hard alumite
4	Coil spring	Steel	Electrodeposition	9	Hexagon socket set screw	Stainless steel	
5	Piston packing	Nitrile rubber					

Internal structure and parts list

- MDC2-YL-6, 8, 10 (single acting/pull/with switch)



- MDC2-Y-6, 8, 10 (single acting/pull)



Cannot be disassembled

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston	Stainless steel		6	Magnet	Plastic	
2	Bush	Oil-impregnated copper alloy		7	Spring holder	Stainless steel	
3	Rod packing	Nitrile rubber		8	Cylinder body	Aluminum alloy	Hard alumite
4	Rod metal	Stainless steel		9	Coil spring	Steel	Electrodeposition
5	Piston packing	Nitrile rubber		10	Hexagon socket set screw	Stainless steel	

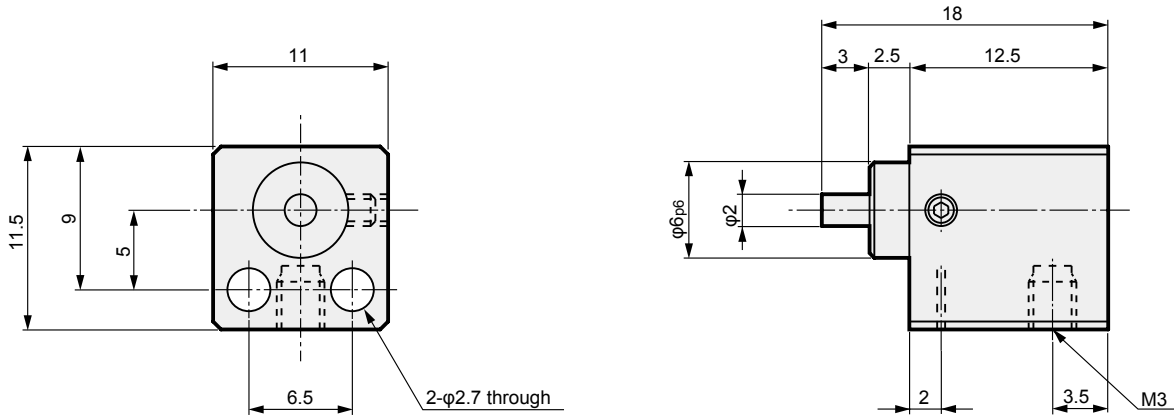
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/IN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

MDC2-X Series

Dimensions

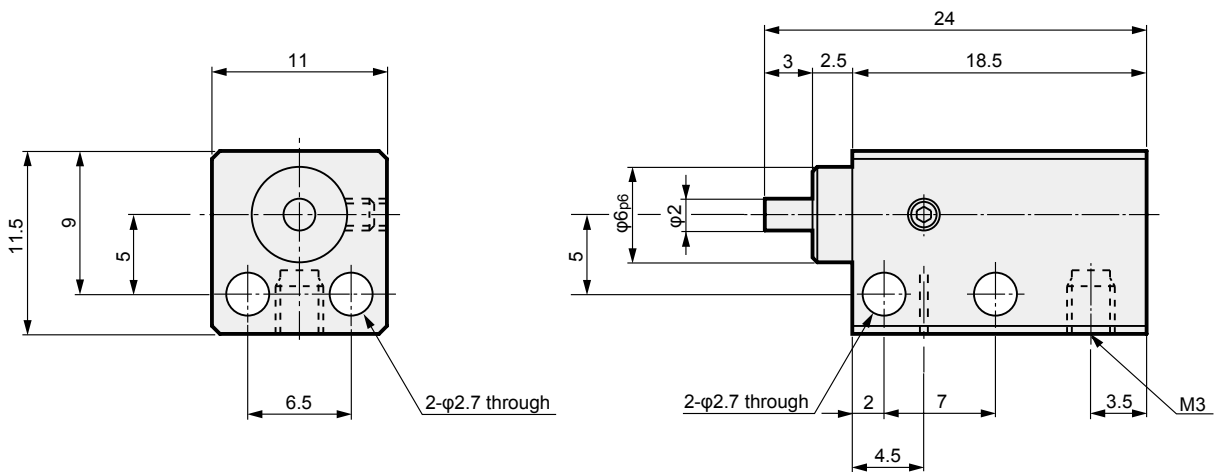


● MDC2-X-4-3 (single acting/push)



Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

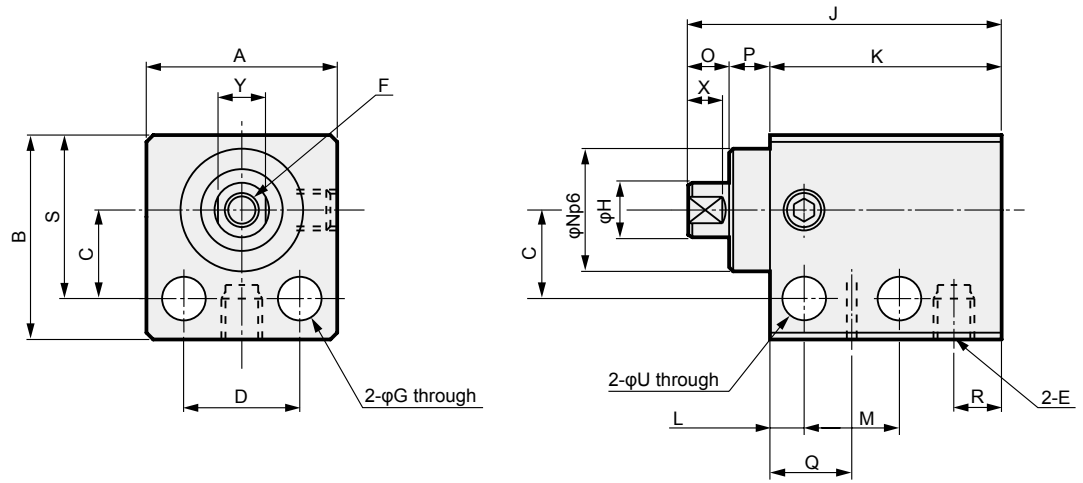
● MDC2-X-4-6 (single acting/push)



Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

Dimensions

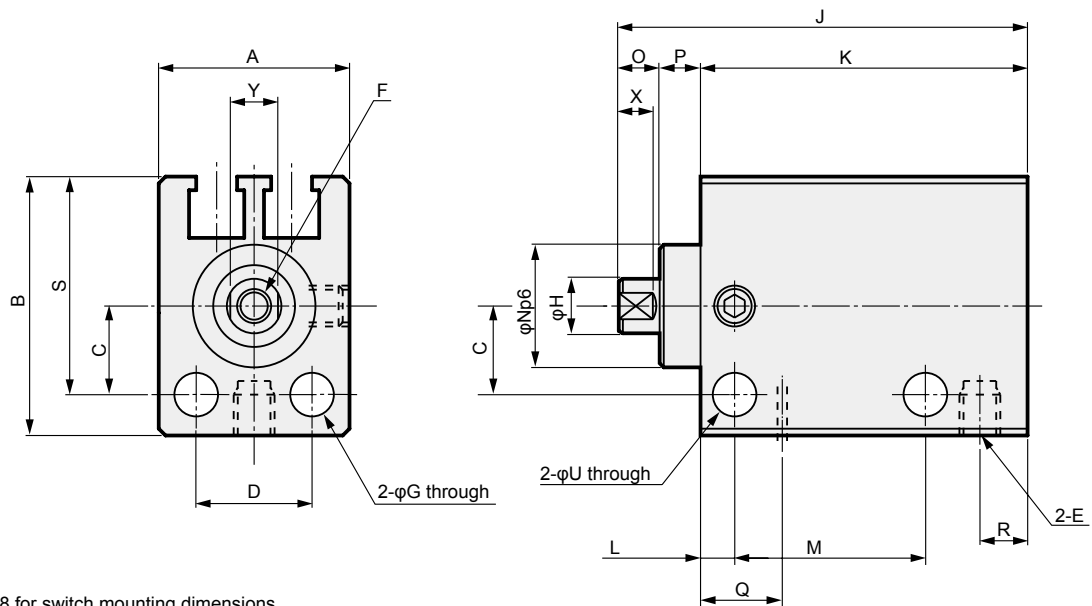
- MDC2-X-6, 8, 10 (single acting/push/without switch)



Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	U	X	Y
MDC2-X-6	4	14	15	6.5	8.5	M3	M2.5×	3.2	4	22	16	2.5	6.5	9	3	3	6	3.5	12	3.2	2.5	3.5
	0.45						25			19	8.5											
	Depth 4						29			23	10.5											
MDC2-X-8	4	16	17	7.5	10	M3	M3×	3.2	5	23	17	2.5	7.5	11	3	3	7	3.5	14	3.2	2.5	4.5
	0.5						26			20	9											
	Depth 5						29			23	11											
MDC2-X-10	4	16	17.5	8	10	M5	M3×	3.2	6	26	20	2.5	7.5	11	3	3	7.5	5	14.5	3.2	2.5	5
	0.5						29			23	9.5											
	Depth 5						35			29	13.5											

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

- MDC2-XL-6, 8, 10 (single acting/push/with switch)



Note) Refer to page 1348 for switch mounting dimensions.

Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	U	X	Y
MDC2-XL-6	4	14	19	6.5	8.5	M3	M2.5×	3.2	4	27	21	2.5	11.5	9	3	3	6	3.5	16	3.2	2.5	3.5
	0.45						30			24	13.5											
	Depth 4						34			28	15.5											
MDC2-XL-8	4	16	22	7.5	10	M3	M3×	3.2	5	28	22	2.5	12.5	11	3	3	7	3.5	18.5	3.2	2.5	4.5
	0.5						31			25	14											
	Depth 5						34			28	16											
MDC2-XL-10	4	16	22	8	10	M5	M3×	3.2	6	31	25	2.5	12.5	11	3	3	7.5	5	19	3.2	2.5	5
	0.5						34			28	14.5											
	Depth 5						40			34	18.5											

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

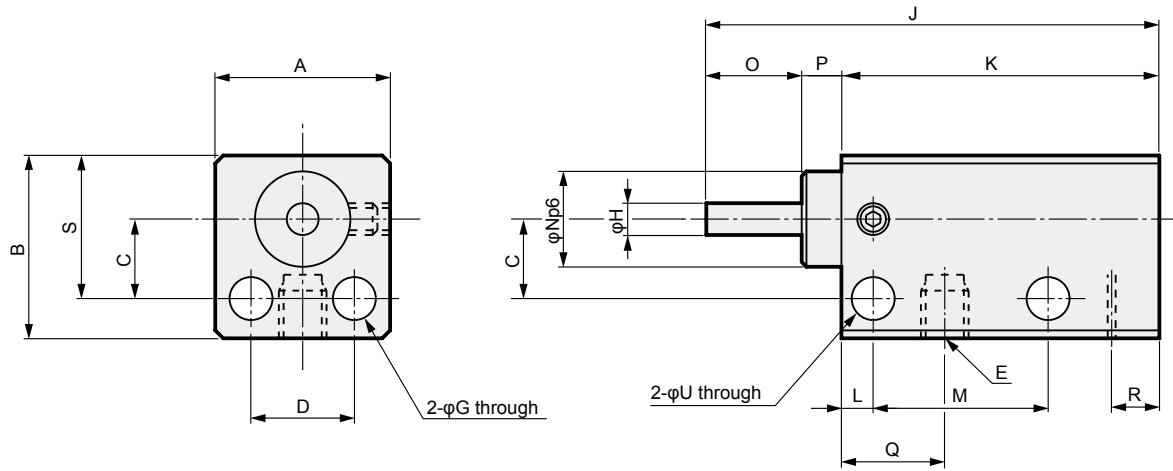
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

MDC2-Y Series

Dimensions



- MDC2-Y-4-3, 6 (single acting/pull)

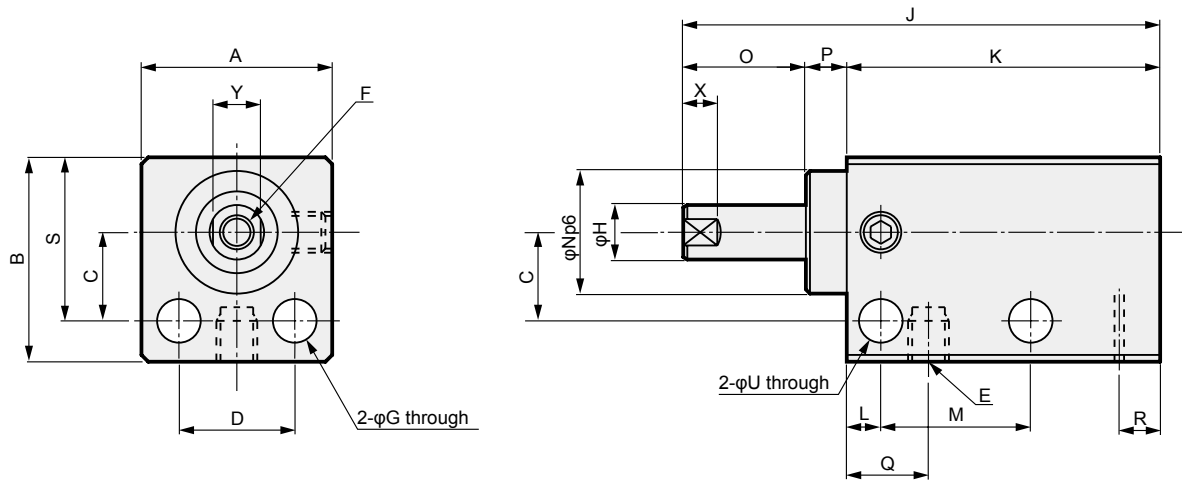


Model No.	A	B	C	D	E	G	H	J	K	L	M	N	O	P	Q	R	S	U
MDC2-Y-4-3	11	11.5	5	6.5	M3	2.7	2	28.5	20	2	11	6	6	2.5	6.5	3.5	9	2.7
MDC2-Y-4-6	11	11.5	5	6.5	M3	2.7	2	37.5	26	2	14	6	9	2.5	6.5	3.5	9	2.7

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

Dimensions

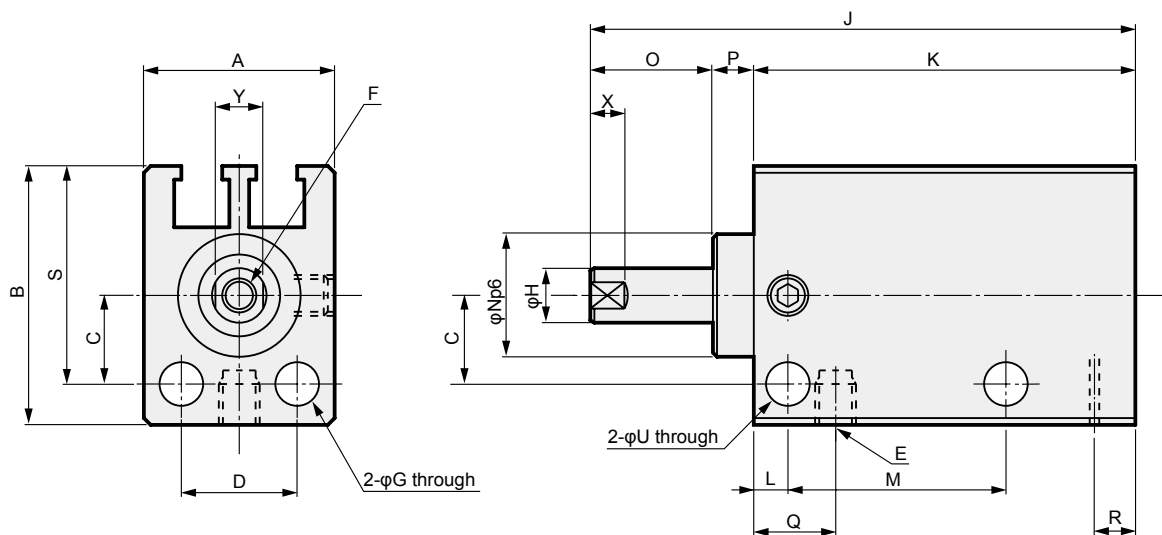
● MDC2-Y-6,8,10 (single acting/pull/without switch)



Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	U	X	Y	
MDC2-Y-6	4	14	15	6.5	8.5	M3	M2.5X	3.2	4	30	20	2.5	9	9	7	3	6	3	12	3.2	2.5	3.5	
	6						0.45			35	23		11		9								11
	8						Depth 4			41	27		13		11								11
MDC2-Y-8	4	16	17	7.5	10	M3	M3X	3.2	5	31	21	2.5	9.5	11	7	3	6	3	14	3.2	2.5	4.5	
	6						0.5			36	24		11.5		9								9
	8						Depth 5			41	27		13.5		11								11
MDC2-Y-10	4	16	17.5	8	10	M5	M3X	3.2	6	32	22	2.5	9.5	11	7	3	7	3.5	14.5	3.2	2.5	5	
	6						0.5			37	25		11.5		9								9
	10						Depth 5			47	31		15.5		13								13

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

● MDC2-YL-6, 8, 10 (single acting/pull/with switch)



Note) Refer to page 1348 for switch mounting dimensions.

Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	U	X	Y	
MDC2-YL-6	4	14	19	6.5	8.5	M3	M2.5X	3.2	4	35	25	2.5	14	9	7	3	6	3	16	3.2	2.5	3.5	
	6						0.45			40	28		16		9								9
	8						Depth 4			46	32		18		11								11
MDC2-YL-8	4	16	22	7.5	10	M3	M3X	3.2	5	36	26	2.5	14.5	11	7	3	6	3	18.5	3.2	2.5	4.5	
	6						0.5			41	29		16.5		9								9
	8						Depth 5			46	32		18.5		11								11
MDC2-YL-10	4	16	22	8	10	M5	M3X	3.2	6	36	26	2.5	13.5	11	7	3	7	3.5	19	3.2	2.5	5	
	6						0.5			41	29		15.5		9								9
	10						Depth 5			51	35		19.5		13								13

Note: Width and height dimensions of the body have positive tolerance. When used in parallel, pay attention to the position setting and to interference with external parts.

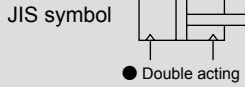
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending



Compact direct mounting cylinder double acting/fine speed

MDC2-F Series

- Bore size $\phi 6$, $\phi 8$, $\phi 10$



Specifications

Descriptions	MDC2-F/ MDC2-LF (with switch)		
Bore size mm	$\phi 6$	$\phi 8$	$\phi 10$
Actuation	Double acting		
Working fluid	Compressed air		
Max. working pressure MPa	0.7 (≈ 100 psi, 7 bar)		
Min. working pressure MPa	0.15 (≈ 22 psi, 1.5 bar)	0.1 (≈ 15 psi, 1 bar)	
Proof pressure MPa	1.05 (≈ 150 psi, 10.5 bar)		
Ambient temperature $^{\circ}\text{C}$	5 (41°F) to 60 (140°F) *1		
Port size	M3		M5
Stroke tolerance mm	+0.5 0		
Working piston speed mm/s	1 to 200		
Cushion	None		
Lubrication	Lubrication not possible		
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.		

*1: 40°C when proximity switch is provided.

Stroke length

Model No.	Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length with two switches (mm)		Min. stroke length with one switch (mm)	
				Reed switch	Proximity switch	Reed switch	Proximity switch
MDC2-F	$\phi 6$	4/6/8	8	6	4(8)	4	4
MDC2-LF	$\phi 8$	4/6/8	8	8	4(8)	4	4
	$\phi 10$	4/6/10	10	6	4(10)	4	4

*1: Products with stroke length other than standard stroke length are not available. *2: For F2Y, F3Y or F3P, the min. stroke length will be the dimensions in ().

Switch specifications

Descriptions	Reed 2-wire	Proximity 2-wire			Proximity 3-wire			
	FOH/V	F2H/F2V	F2S	F2YH/F2YV	F3H/F3V	F3S	F3PH/F3PV (Custom order)	F3YH/F3YV
Applications	Dedicated for programmable controller	Dedicated for programmable controller			For programmable controller, relay			
Output method	-	-			NPN output		PNP output	NPN output
Power supply voltage	-	-			10 to 28 VDC		4.5 to 28 VDC	10 to 28 VDC
Load voltage	24 VDC	10 to 30 VDC		24 VDC $\pm 10\%$	30 VDC or less			
Load current	5 to 20 mA (*1)	5 to 20 mA (*1)	5 to 20 mA	5 to 20 mA (*1)	50 mA or less			
Indicator lamp	Yellow LED (Lit when ON)	Yellow LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Yellow LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less	1 mA or less			10 μA or less			
Weight g				1 m:10	3 m:29			

*1 :Max. load current: 20 mA at 25°C . The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C . (5 to 10 mA at 60°C)

*2: Refer to Ending Page 1 for other switch specifications.

Clean-room specifications (Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

MDC2-F **P7***

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
φ6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	2.36	3.14	4.71	6.28	7.85	9.42	11.0
φ8	Push	-	7.54	10.1	15.1	20.1	25.1	30.2	35.2
	Pull	-	4.59	6.13	9.19	12.3	15.3	18.4	21.4
φ10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0
	Pull	5.03	7.54	10.1	15.1	20.1	25.1	30.2	35.2

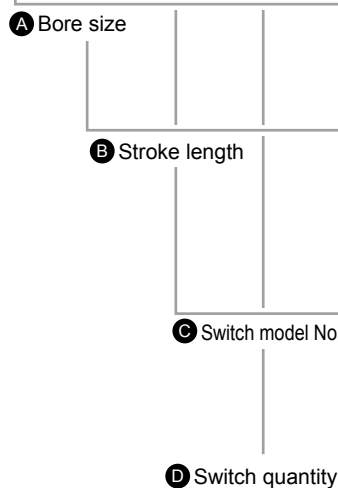
How to order

- Without switch (without magnet for switch)

MDC2-F - 6 - 4

- With switch (built-in magnet for switch)

MDC2-LF - 6 - 4 - F2V - R



Code	Content						
A Bore size							
6	φ6						
8	φ8						
10	φ10						
B Stroke length (mm)							
		Bore size			φ6	φ8	φ10
4	4	●	●	●			
6	6	●	●	●			
8	8	●	●	—			
10	10	—	—	●			
C Switch model No.							
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire	
F0H*	F0V*	Reed	AC	DC			
F2S*	F2V*	Proximity		●	1-color display	2-wire	
F2H*	F2V*			●			
F3S*	F3V*			●			
F3H*	F3V*			●		3-wire	
F3PH*	F3PV*			●			1-color display (PNP output) (Custom order)
F2YH*	F2YV*			●			2-wire
F3YH*	F3YV*		●	2-color display	3-wire		
* Lead wire length							
Blank	1 m (standard)						
3	3 m (option)						
D Switch quantity							
R	1 on rod side						
H	1 on head side						
D	2						

⚠ Precautions for model selection

- *1 : When using MDC2 with reed switch, the cylinder cannot be mounted on a magnetic substance (iron sheet, etc.). This could lead to switch detection malfunction.
- *2 : When using MDC2-LF-6 with reed switch, use a non-magnetic bolt (stainless steel hexagon socket head cap screw, etc.) for cylinder mounting bolt. Failure to do so could lead to switch detection malfunction
- *3 : Refer to page 1346 for the min. stroke length with switch.

[Example of model No.]

MDC2-LF-6-4-F2V-R

Model: Compact direct mounting cylinder, fine speed

- A** Bore size : φ6 mm
- B** Stroke length : 4 mm
- C** Switch model No.: Proximity switch F2V, lead wire 1 m
- D** Switch quantity : 1 on rod side

How to order switch

SW - F0H

Switch model No.
(Item **C** above)

Dimensions

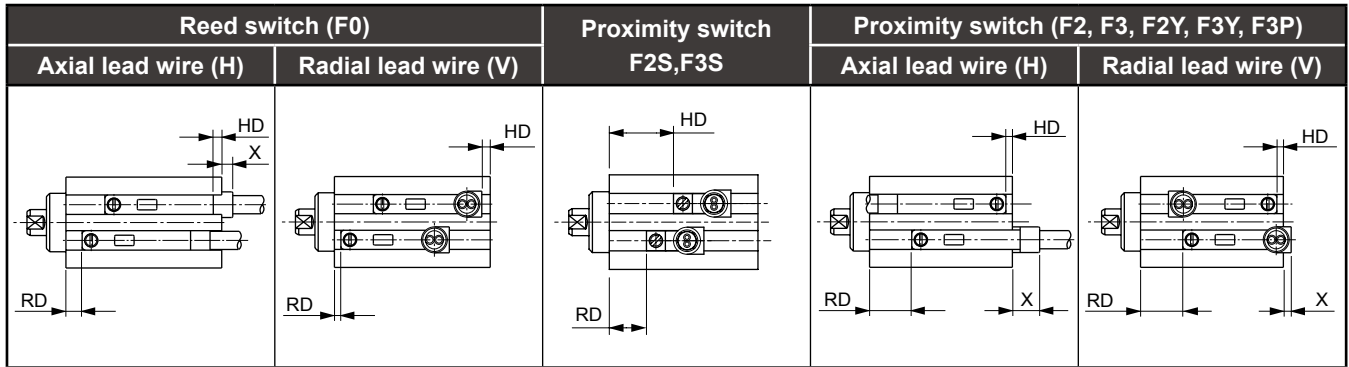
Same as MDC2 Series (double acting/single rod). Refer to page 1334.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

MDC2 Series

Switch installation dimensions

● Switch mounting position



● Switch mounting dimensions

·Reed switch

(mm)

Switch mounting method		F0 _H								
		RD			HD			X (*4)		
Bore size (mm)	Actuation	Stroke length (mm)			Stroke length (mm)			Stroke length (mm)		
		4	6	8(10)	4	6	8(10)	4	6	8(10)
φ6	Double acting	1	1	1	-0.5	0	0	3.5 0.5	3	3
	Single acting push (X)	0	1	3	-1	0	0	4 1	3	3
	Single acting pull (Y)	2.5	2.5	2.5	1.5	2.5	4.5	1.5	0.5	-
φ8	Double acting	1	1	1	-1.5	0	0	4.5 1.5	3	3
	Single acting push (X)	1	2	3	-1.5	0	0	4.5 1.5	3	3
	Single acting pull (Y)	2.5	2.5	2.5	2.5	3.5	4.5	0.5	-	-
φ10	Double acting	3.5	3.5	3.5	0.5	0.5	0.5	2.5 -	2.5	2.5
	Single acting push (X)	4	5	7	0	0	0	3 -	3	3
	Single acting pull (Y)	3.5	3.5	3.5	1.5	2.5	4.5	1.5	0.5	-

·Proximity switch

(mm)

Switch mounting method		F2S, F3S						F2 _H F3 _H F2Y _H F3Y _H F3P _H											
		RD			HD			RD			HD			X1 (*4, *5)			X2 (*4, *5)		
Bore size (mm)	Actuation	Stroke length (mm)						Stroke length (mm)						Stroke length (mm)					
		4	6	8(10)	4	6	8(10)	4	6	8(10)	4	6	8(10)	4	6	8(10)	4	6	8(10)
φ6	Double acting	5.5	5.5	5.5	9.5	11.5	13.5	6.5	6.5	6.5	1	1	1	4.2	2.2	0.2	8.7	6.7	4.7
	Single acting push (X)	5	6	8	9	12	16	6	7	9	0.5	0.5	0.5	4.7	2.7	0.7	9.2	6.2	5.2
	Single acting pull (Y)	5.5	5.5	5.5	9.5	11.5	13.5	6.5	6.5	6.5	4	5	7	1.7	-	-	5.7	2.7	-
φ8	Double acting	5.5	5.5	5.5	9.5	11.5	13.5	6.5	6.5	6.5	1	1	1	4.2	2.2	0.2	8.7	6.7	4.7
	Single acting push (X)	5.5	6.5	7.5	9.5	12.5	15.5	6.5	7.5	8.5	1	1	1	4.2	2.2	0.2	8.7	6.7	4.7
	Single acting pull (Y)	5.5	5.5	5.5	9.5	11.5	13.5	6.5	6.5	6.5	5	6	7	0.2	-	-	4.7	1.7	-
φ10	Double acting	7	7	7	11	13	17	8	8	8	2.5	2.5	2.5	2.7	0.7	-	7.2	5.2	1.2
	Single acting push (X)	7.5	8.5	10.5	11.5	14.5	20.5	8.5	9.5	11.5	2	2	2	3.2	1.2	-	7.7	5.7	1.7
	Single acting pull (Y)	7	7	7	11	13	17	8	8	8	3.5	4.5	6.5	1.7	-	-	6.2	3.2	-

*1: Min. stroke length with two switches is as shown in the table below.

*2: X dimension indicates the protruding dimension from the end surface of the switch body. The upper column indicates X dimension when axial lead wire is used and the lower column indicates X dimension when radial lead wire is used.

*3: X1 indicates dimensions for F2_H, or F3_H, and X2 indicates dimensions for F2Y_H, F3Y_H, or F3P_H.

Min. stroke length (with 2 switches) (mm)

Bore size (mm)	Reed switch	Proximity switch
φ6	6	4(8)
φ8	8	4(8)
φ10	6	4(10)

Note: For F2Y, F3Y or F3P, the min. stroke length is the dimensions in ().