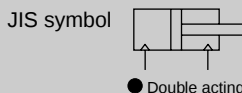


Small direct mounting cylinder, double acting single rod type

MDC2 Series

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



Specifications

Descriptions		MDC2/MDC2-L (with switch)			
Bore size	mm	φ 4 Note 1	φ6	φ8	φ10
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7			
Min. working pressure	MPa	0.2	0.15		0.1
Withstanding pressure	MPa	1.05			
Ambient temperature	℃	-10 to 60 (no freezing) Note 2			
Port size		M3			M5
Stroke tolerance	mm	+0.5			
		0			
Working piston speed	mm/s	50 to 500			
Cushion		None			
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)			
Allowable energy absorption	J	A cylinder without cushion cannot absorb an energy generated by an external load.			
		Use this with leadless or install an external shock absorber.			

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

Note 2: When proximity switch is installed, use the product at 40°C or less.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length with 2 switches (mm)		Min. stroke length with 1 switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
$\phi 4$	3, 6	6	-	-	-	-
$\phi 6$	4, 6, 8	8	6	4	4	4
$\phi 8$	4, 6, 8	8	8	4	4	4
$\phi 10$	4, 6, 10	10	6	4	4	4

Note: Other than standard stroke length is not available.

Cylinder switch specifications

Descriptions	Reed 2 wire	Proximity 2 wire	Proximity 3 wire
	F0H/V	F2H/V	F3H/V
Applications	Programmable controller		Programmable controller, relay
Output method	-		NPN output
Power voltage	-	-	10 to 28 VDC
Load voltage	24 VDC	10 to 30 VDC	30 VDC or less
Load current	5 to 20mA (Note 1)	5 to 20mA (Note 1)	50mA or less
Current consumption	-	-	10mA or less (at ON state) at 24 VDC
Internal voltage drop	4 V or less		0.5 V or less
Light	Yellow LED (ON lighting)		
Leakage current	1mA or less		10 μA or less
Lead wire length (standard)	Standard 1m (oil resistant vinyl cabtire cord 2 conductor 0.15mm ²)		Standard 1m (oil resistant vinyl cabtire cord 3 conductor 0.15mm ²)
Maximum shock resistance	294m/s ²	980m/s ²	
Insulation resistance	20MΩ and over at 500 VDC megger		
Withstand voltage	No failure at 1000 VAC for one minute.		
Ambient temperature	-10 to + 60℃		
Protective structure	IEC standards IP67, JIS C 0920 (water tight type), oil resistance		

Note 1: Max. load current 20mA is the value at 25 $^{\circ}\text{C}$.

When ambient temperature around switch is higher than 25 $^{\circ}\text{C}$, the value is lower than 20mA. (5 to 10mA at 60 $^{\circ}\text{C}$)

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

- Dust generation preventing structure for use in clean room

MDC2 P7*

MDC2 P5*

Cylinder weight

Stroke length (mm)	3		4		6		8		10		Weight per 1 switch (g)
Bore size (mm)	W/o switch	With switch	W/o switch	With switch	W/o switch	With switch	W/o switch	With switch	W/o 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

How to order

- Without switch

MDC2 - 6 - 4

- With switch

MDC2-L - 6 - 4 - F2V - R

A Model no.

B Bore size

C Stroke length

D Switch model no. Note 1
Note 2
Note 3
Note 4

! Note on model no. selection

- Note 1: For φ 4 cylinder, switches are not available.
 Note 2: Min. stroke length with two reed switches is 6mm for φ 6, 8mm for φ 8 and 6mm for φ 10.
 Note 3: MDC2 with reed switch cannot be installed on magnetic substance (iron plate, etc.). Failure to observe this may cause switch detection defective.
 Note 4: For MDC2-L-6 with reed switch, use mounting bolts that do not contain magnetic substance (stainless steel hexagon socket head cap screw etc.). Failure to observe this may cause switch detection defective.

E Switch quantity

<Example of model number>

MDC2-L-6-4-F2V-R

Model: Small direct mounting cylinder

- A Model no. : Double acting single rod type with switch
 B Bore size : φ 6mm
 C Stroke length : 6mm
 D Switch model no. : Proximity switch F2V, lead wire 1m
 E Switch quantity : 1 on rod end

Symbol		Descriptions		
A Model no.				
MDC2	Double acting, single rod type	Without switch		
MDC2-L	Double acting, single rod type	With switch		
B Bore size				
4	φ4			
6	φ6			
8	φ8			
10	φ10			
C Stroke length (mm)				
3	3 (φ 4)			
4	4 (φ 6 to φ 10)			
6	6 (φ 4 to φ 10)			
8	8 (φ 6, φ 8)			
10	10 (φ 10)			
D Switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
F0H*	F0V*	Reed	1 color indicator type	2-wire
F2H*	F2V*	Proximity		3-wire
F3H*	F3V*			
*Lead wire length				
Blank	1m (standard)			
3	3m (option)			
E Switch quantity				
R	1 on rod end			
H	1 on head end			
D	Two			

How to order switch

SW - F0H

Switch model no.
(Item D above)

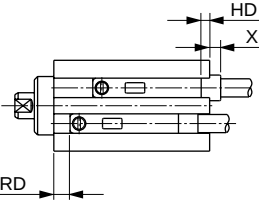
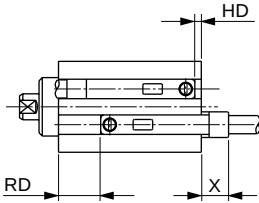
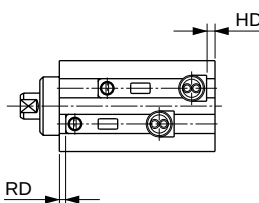
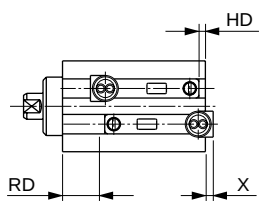
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CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Small direct mounting cylinder
Space saving structure

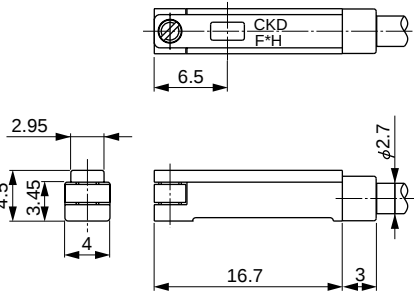
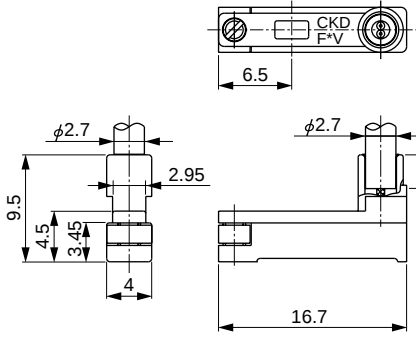
MDC2 Series

Switch dimensions

● MDC2 switch installation position

Axial lead wire (H)	Reed switch (F0)	Proximity switch (F2, F3)	Radial lead wire (V)	Reed switch (F0)	Proximity switch (F2, F3)
					

Note: This indicates switch installation position at shipment.

F*H Series (axial lead wire)	F*V Series (radial lead wire)
	

Note 1: Min. stroke length of 2 switches is as the below table.

Note 2: MDC2 with reed switch cannot be installed on magnetic substance (iron plate, etc.). Failure to observe this may cause switch detection defective.

Note 3: MDC2 with proximity switch should be used at ambient temperature 40°C or less. Failure to observe this may cause switch detection defective.

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

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

(mm)

Installation of switch		Reed switch									Proximity switch								
		FOH									F2H F3H								
		RD			HD			X (Note 1)			RD			HD			X (Note 1)		
Bore size (mm)	Actuation	Stroke length (mm)			Stroke length (mm)			Stroke length (mm)			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	1	1	1	-0.5	0	0	3.5	0.5	3	6.5	6.5	6.5	1	1	1	4.2	2.2	0.2
	Single acting extend type (X)	0	1	3	-1	0	0	4	3	3	6	7	9	0.5	0.5	0.5	4.7	2.7	0.7
	Single acting retract type (Y)	2.5	2.5	2.5	1.5	2.5	4.5	1.5	0.5	-1.5	6.5	6.5	6.5	4	5	7	1.7	-1.3	-5.3
φ8	Double acting	1	1	1	-1.5	0	0	4.5	1.5	3	6.5	6.5	6.5	1	1	1	4.2	2.2	0.2
	Single acting extend type (X)	1	2	3	-1.5	0	0	4.5	1.5	3	6.5	7.5	8.5	1	1	1	4.2	2.2	0.2
	Single acting retract type (Y)	2.5	2.5	2.5	2.5	3.5	4.5	0.5	-0.5	-1.5	6.5	6.5	6.5	5	6	7	0.2	-2.8	-5.8
φ10	Double acting	3.5	3.5	3.5	0.5	0.5	0.5	2.5	2.5	2.5	8	8	8	2.5	2.5	2.5	2.7	0.7	-3.3
	Single acting extend type (X)	4	5	7	0	0	0	3	3	3	8.5	9.5	11.5	2	2	2	3.2	1.2	-2.8
	Single acting retract type (Y)	3.5	3.5	3.5	1.5	2.5	4.5	1.5	0.5	-1.5	8	8	8	3.5	4.5	6.5	1.7	-1.3	-7.3

Note 1: X dimension shows projecting section of switch from the edge of groove. (A negative value shows hollowed dimensions.)

The upper row shows X dimension of axial lead wire type, while the lower row shows X dimension of radial lead wire type.

Max. sensitive position (RD, HD), operating range, hysteresis

(mm)

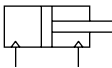
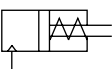
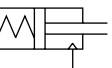
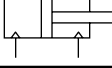
Descriptions		Proximity switch (F2H/V, F3H/V)				Reed switch (FOH/V)							
Bore size (mm)	Actuation	Maximum sensitive position		Operating range	Hysteresis	Maximum sensitive position		Operating range	Hysteresis				
		RD	HD			RD	HD						
ϕ6	Double acting single rod	6.5	1	1.5 to 3.5	1.0 or less	1	-0.5	3.5 to 6.0	1.0 or less				
	Single acting extend	7	1			1	-1						
	Single acting retract	7	5			2.5	2.5						
ϕ8	Double acting single rod	6.5	1	2.0 to 3.5		1.0 or less	1	-1.5		5.5 to 7.5	1.0 or less		
	Single acting extend	7.5	1				2	-1.5					
	Single acting retract	6.5	6				2.5	3.5					
ϕ10	Double acting single rod	8	2.5	1.5 to 3.5			1.0 or less	3.5		0.5		4.5 to 6.0	1.0 or less
	Single acting extend	9.5	2					5		0			
	Single acting retract	8	5					3.5		2.5			

Series variation



Small direct mounting cylinder MDC2 Series

●: Standard, ◎: Option, ■: Not available

Variation	Model no. JIS symbol	Bore size (mm)	Standard stroke length (mm)					Min. stroke length (mm)	Max. stroke length (mm)	Switch	Page
			3	4	6	8	10				
Double acting single rod type with switch	MDC2 MDC2-L 	φ4	●	■	●	■	■	3	6	◎	966
		φ6	■	●	●	●	■	4	8	◎	
		φ8	■	●	●	●	■		10	◎	
		φ10	■	●	●	■	●		10	◎	
Single acting extend type with switch	MDC2-X MDC2-XL 	φ4	●	■	●	■	■	3	6	■	972
		φ6	■	●	●	●	■	4	8	◎	
		φ8	■	●	●	●	■		10	◎	
		φ10	■	●	●	■	●		10	◎	
Single acting retract type with switch	MDC2-Y MDC2-YL 	φ4	●	■	●	■	■	3	6	■	972
		φ6	■	●	●	●	■	4	8	◎	
		φ8	■	●	●	●	■		10	◎	
		φ10	■	●	●	■	●		10	◎	
Double acting fine speed type with switch	MDC2-F MDC2-LF 	φ6	■	●	●	●	■	4	8	◎	982
		φ8	■	●	●	●	■		10	◎	
		φ10	■	●	●	■	●		10	◎	

Variation/option selection table

◎ : Option

○ : Available (custom order)

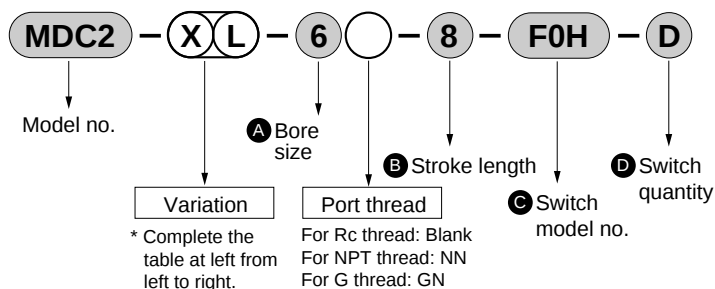
△ : Available depending on conditions (consult with CKD)

X : Not available

Code		Code	Variation					Port thread		Option		
			Double acting basic type	Single acting extend type	Single acting retract type	With cylinder switch	Fine speed type	NPT	G	Copper and PTFE free type	Clean room specifications (exhaust treatment)	Clean room specifications (vacuum treatment)
		Symbol	None	X	Y	L	F	N	G	P6	P7	P71
Variation	Double acting basic type	Blank						X	X	○	◎	◎
	Single acting extend type	X			X	◎	X	X	X	○	X	X
	Single acting retract type	Y				◎	X	X	X	○	X	X
	With cylinder switch	L					◎	X	X	○	◎	◎
	Fine speed type	F						X	X	X	◎	◎
Port thread	NPT	N							X	X	X	X
	G	G								X	X	X
Option	Copper and PTFE free type	P6									X	X
	Clean room specifications (exhaust treatment)	P7										X
	Clean room specifications (vacuum treatment)	P71										
Accessory	Cylinder switch	Listed on Ending	◎	◎	◎	◎	◎	X	X	○	◎	◎

Note 1: Refer to the Clean Component System (Catalog No. CB-O33SA) for clean room specifications P7 and P71.

<Example of model number>



Model no.: Small direct mounting cylinder

● Variation: Single acting extend type with switch

A Bore size : ϕ 6mm

B Stroke length : 8mm

C Switch model no. : Reed FO switch, lead wire 1m

D Switch quantity : 2

 SCP*2
 CMK2
 CMA2
 SCM
 SCG
 SCA2
 SCS
 CKV2
 CA/OV2
 SSD
 CAT
 MDC2
 MVC
 SMD2
 MSD*
 FC*
 STK
 ULK*
 JSK/M2
 JSG
 JSC3
 USSD
 USC
 JSB3
 LMB
 STG
 STS/L
 LCS
 LCG
 LCM
 LCT
 LCY
 STR2
 UCA2
 HCM
 HCA
 SRL2
 SRG
 SRM
 SRT
 MRL2
 MRG2
 SM-25
 CAC3
 UCAC
 RCC2
 MFC
 SHC
 GLC
 Ending

 Small direct mounting cylinder
 Space saving structure