

Small direct mounting cylinder

MDC2 Series

• Port size: M3 (For 4, 6, 8 mm bore) M5 (For 10 mm bore)

JIS symbol



CAD DATA AVAILABLE.

• Single acting spring return type • Single acting spring extend type • Double acting

Specifications

Descriptions		MDC2/MDC2-L (with switch)			
Bore size	mm	4 dia.	6 dia.	8 dia.	10 dia.
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	°C	-10 to 60 (to be unfrozen) Note 1			
Port size		M3			M5
Stroke length tolerance	mm	+0.5 0			
Working piston speed	mm/s	50 to 500			
Cushion		None			
Lubrication		Not required (when lubrication, use turbine oil Class 1 ISOVG32.)			
Allowable energy absorption	J	A cylinder without cushion cannot absorb an energy generated by an external load. Use this with loadless or install an external shock absorber later.			

Descriptions		MDC2-X, MDC2-Y, MDC2-XL, MDC2-YL (with switch)			
Bore size	mm	4 dia.	6 dia.	8 dia.	10 dia.
Actuation	MDC2-X(L)	Single acting spring return type			
	MDC2-Y(L)	Single acting spring extend type			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7			
Min. working pressure	MDC2-X(L)	0.35	0.3		0.25
	MDC2-Y(L)	0.4	0.3	0.25	
Withstanding pressure	MPa	1.05			
Ambient temperature	°C	-10 to 60 (to be unfrozen) Note 1			
Port size		M3			M5
Stroke length tolerance	mm	+0.5 0			
Working piston speed	mm/s	50 to 500			
Cushion		None			
Lubrication		Not required (when lubrication, use turbine oil Class 1 ISOVG32.)			
Allowable energy absorption	J	A cylinder without cushion cannot absorb an energy generated by an external load. Use this with loadless or install an external shock absorber later.			

Note : 4 mm bore cylinder is not available for MDC2 * L and MDC2-YL.

Note 1 : When a 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)	For 2 switches, min. stroke length (mm)		For one switch, min. stroke length (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
4 dia.	3/6	6	-	-	-	-
6 dia.	4/6/8	8	6	4	4	4
8 dia.	4/6/8	8	8	4	4	4
10 dia.	4/6/10	10	6	4	4	4

Cylinder switch specifications

Descriptions	Reed 2 wire	Proximity 2 wire	Proximity 3 wire
	FOH/V	F2H/V	F3H/V
Applications	Programmable controller		Programmable controller, relay
Power voltage	-	-	DC10 to 28V
Load voltage	DC24V	DC10 to 30V	DC30V 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 DC24V
Internal voltage drop	4V or less		0.5V or less
Light	Yellow LED (ON lighting)		
Leakage current	1mA or less		10 micron A or less
Lead wire length (standard)	Standard 1m (oil resistant vinyl cabtibre code 2 conductor 0.15mm ²)		Standard 1m (oil resistant vinyl Cabtibre code 3 conductor 0.15mm ²)
Max. shock resistance	294m/s ² (30G)	980m/s ² (100G)	
Insulation resistance	20MΩ over at DC500V megger		
Withstand voltage	No failure at AC1000V for one minute.		
Ambient temperature	-10 to +60 °C		
Protection structure	IEC standards IP67, JIS C.0920 (water tight type), oil resistance		

Note 1: Max. load current 20mA is the value at 25 °C.

When ambient temperature around switch is higher than 25 °C, the value is lower than 20mA. (5 to 10mA at 60 °C)

Cylinder mass sheet

Stroke length (mm)		3		4		6		8		10		Mass per switch
Bore size (mm)	Model	No switch	With switch	No switch	With switch	No switch	With switch	No switch	With switch	No switch	With switch	
4 dia.	MDC2	6.4	-	-	-	7.3	-	-	-	-	-	-
	MDC2-X	4.9	-	-	-	6.9	-	-	-	-	-	
	MDC2-Y	7.4	-	-	-	9.4	-	-	-	-	-	
6 dia.	MDC2	-	-	11.4	13.1	12.4	14	13.4	15	-	-	10.2
	MDC2-X	-	-	10.9	12.6	11.2	14.4	15.1	16.8	-	-	
	MDC2-Y	-	-	13.3	15	15	16.7	17.5	19.2	-	-	
8 dia.	MDC2	-	-	16.1	18.2	17.4	19.5	18.7	20.8	-	-	10.2
	MDC2-X	-	-	16	18	18.4	20.5	20.7	22.8	-	-	
	MDC2-Y	-	-	19	21	21.4	23.5	23.7	25.8	-	-	
10 dia.	MDC2	-	-	21.4	23.3	22.6	24.5	-	-	25	26.9	10.2
	MDC2-X	-	-	19.6	22	22	24.4	-	-	26.9	29.3	
	MDC2-Y	-	-	21.2	23.4	23.6	25.8	-	-	28.5	30.7	

MDC2-X/MDC2-Y spring load

(N)

Bore size (mm)	Stroke length (mm)	Spring load	
		Set time	During operation
4 dia.	3, 6	1.8	2.9
6 dia.	4, 6, 8	2.3	5.0
8 dia.	4, 6, 8	4.0	7.0
10 dia.	4, 6, 10	4.1	7.4

SCP * 2
CMK2
CMA2
SCM
SCA2
SCS
CKV2
GAN/COV * 2
CAT
MDC2
MVC
SMD2
MSD/MSDG
SSD
SSD (large)
FC *
ULKP/ULK
JSK2/JSM2
JSC3 (medium)
JSC3 (large)
JSB3
UCAC
STS/STL
LCS
LCY
STR2
UCA2
STK
USSD
USC
MFC
GLC
SHC
CAC3
HCM
HCA
MRL2
SRL2
SRG
SRM
SRT
SRB2

Space saving structure
Small direct mounting cylinder

How to order

• Without switch

MDC2 - 6 - 4

• With switch

MDC2-L - 6 - 4 - F2V - R

A Model

B Bore size

C Stroke length

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

E Switch quantity

Cautions for model No. selection

Note : For 4 mm bore cylinder, switches are not available.

Note 1: Minimum stroke length with two reed switches is 6mm for 6 mm bore, 8 mm for 8 mm bore, and 6mm for 10 mm bore.

Note 2: MDC2 with reed switch cannot be installed on magnetic substance (iron plate etc.).
May cause switch detection defective.

Note 3: MDC2 with proximity switch should be used at ambient temperature 40 °C or less.
May cause switch detection defective.

Note 4: For MDC2-L, XL and YL-6 with reed switch, please use mounting bolts that do not contain magnetic substance (stainless steel hexagon socket head cap screw etc.).
May cause switch detection defective.

Symbol	Descriptions	
A Model		
MDC2	Double acting/single rod type	Without switch
MDC2-X	Single acting/extend type	
MDC2-Y	Single acting/retract type	
MDC2-L	Double acting/single rod type	With switch
MDC2-XL	Single acting/extend type	
MDC2-YL	Single acting/retract type	

B Bore size

4	4 dia.
6	6 dia.
8	8 dia.
10	10 dia.

C Stroke length (mm)

3	3 (For 4 dia.)
4	4 (For 6 to 10 dia.)
6	6 (For 4 to 10 dia.)
8	8 (For 6, 8 dia.)
10	10 (For 10 dia.)

D Switch model No.

Lead wire Straight type	Lead wire Radial type	Contact	Display	Lead wire
F0H *	F0V *	Reed	1 color indicator	2 wire
F2H *	F2V *	Proximity		3 wire
F3H *	F3V *			

*Lead wire length

Blank	1m (standard)
3	3m (option)

E Switch quantity

R	One on rod side
H	One on head side
D	Two

How to order switch

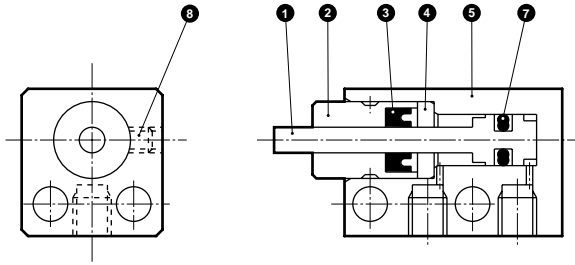
SW - F0H *

D

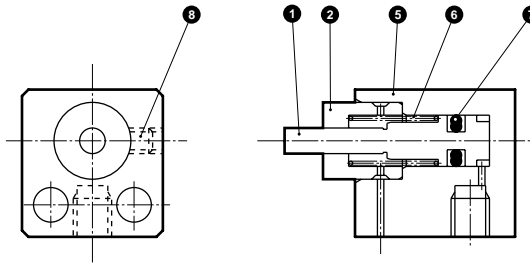
Switch model No.
(Above **D**)

Internal structure and parts list

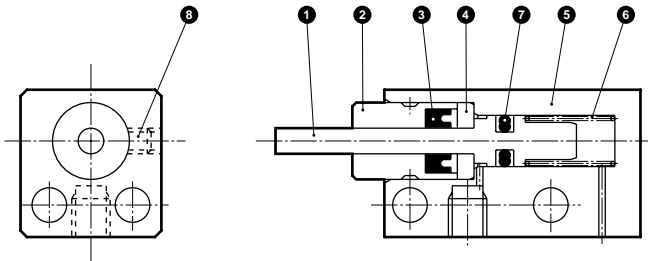
- MDC2-4 (double acting single rod type)



- MDC2-X-4 (single acting/extend type)



- MDC2-Y-4 (single acting/retract type)



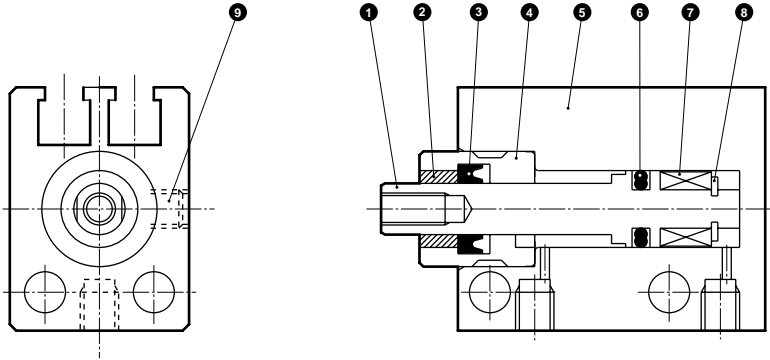
SCP * 2
 CMK2
 CMA2
 SCM
 SCA2
 SCS
 CKV2
 CAV2/
 COV * 2
 CAT
MDC2
 MVC
 SMD2
 MSD/
 MSDG
 SSD
 SSD
 (large)
 FC *
 ULKP/
 ULK
 JSK2/
 JSM2
 JSC3
 (medium)
 JSC3
 (large)
 JSB3
 UCAC
 STS/
 STL
 LCS
 LCY
 STR2
 UCA2
 STK
 USSD
 USC
 MFC
 GLC
 SHC
 CAC3
 HCM
 HCA
 MRL2
 SRL2
 SRG
 SRM
 SRT
 SRB2

Space saving structure
 Small direct mounting
 cylinder

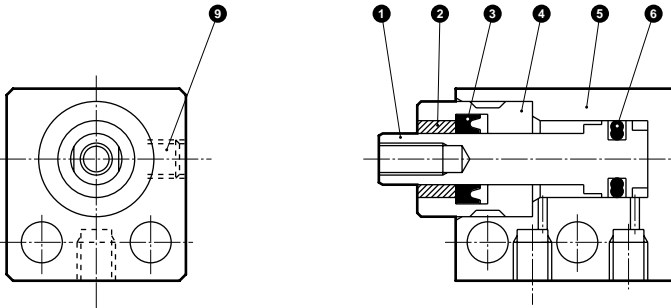
No.	Parts name	Material	Comment	No.	Parts name	Material	Comment
1	Piston	Stainless steel		5	Main body	Aluminum alloy	Hard alumite disposal
2	Rod bushing	Phosphor bronze		6	Cylinder spring	Steel	Electrodeposition coating
3	Rod packing	Nitrile rubber		7	Piston seal	Nitrile rubber	
4	Collar	Stainless steel		8	Set screw with hexagon socket	Stainless steel	

Internal structure and parts list

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



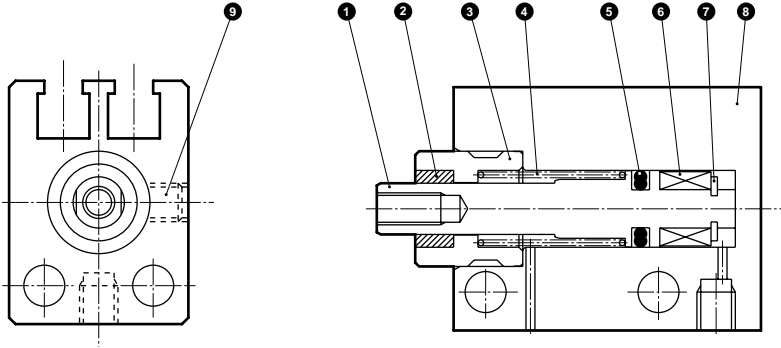
- MDC2-6,8,10 (double acting single rod type)



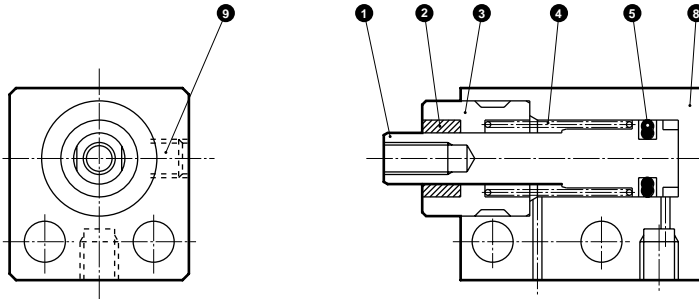
No.	Parts name	Material	Comment	No.	Parts name	Material	Comment
1	Piston	Stainless steel		6	Piston seal	Nitrile rubber	
2	Bush	Oil impregnated copper alloy		7	Piston magnet	Plastic magnet	
3	Rod packing	Nitrile rubber		8	E type snap ring	Stainless steel	
4	Rod bushing	Stainless steel		9	Set screw with hexagon socket	Stainless steel	
5	Main body	Aluminum alloy	Hard alumite disposal				

Internal structure and parts list

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



- MDC2-X-6,8,10 (single acting/extend type)



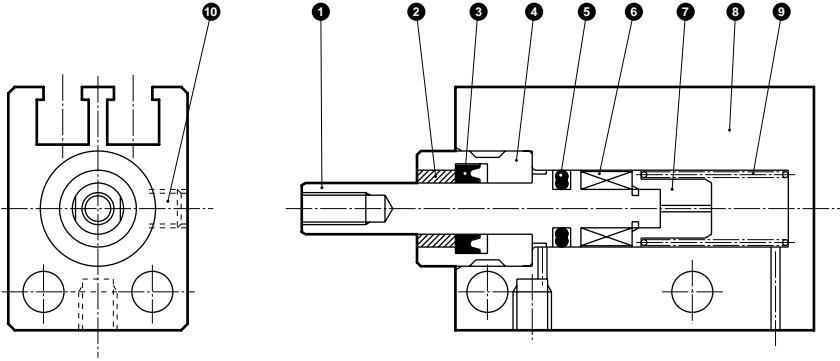
SCP * 2
 CMK2
 CMA2
 SCM
 SCA2
 SCS
 CKV2
 CAV2/
 COV * 2
 CAT
MDC2
 MVC
 SMD2
 MSD/
 MSDG
 SSD
 SSD
 (large)
 FC *
 ULKP/
 ULK
 JSK2/
 JSM2
 JSC3
 (medium)
 JSC3
 (large)
 JSB3
 UCAC
 STS/
 STL
 LCS
 LCY
 STR2
 UCA2
 STK
 USSD
 USC
 MFC
 GLC
 SHC
 CAC3
 HCM
 HCA
 MRL2
 SRL2
 SRG
 SRM
 SRT
 SRB2

Space saving structure
 Small direct mounting cylinder

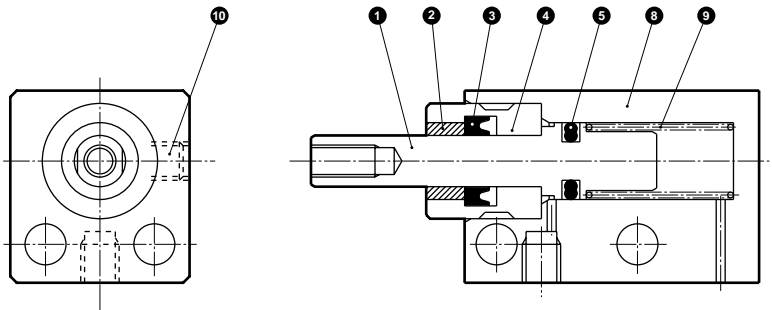
No.	Parts name	Material	Comment	No.	Parts name	Material	Comment
1	Piston	Stainless steel		6	Piston magnet	Plastic magnet	
2	Bush	Oil impregnated copper alloy		7	E type snap ring	Stainless steel	
3	Rod bushing	Stainless steel		8	Main body	Aluminum alloy	Hard alumite disposal
4	Cylinder spring	Steel	Electrodeposition coating	9	Set screw with hexagon socket	Stainless steel	
5	Piston seal	Nitrile rubber					

Internal structure and parts list

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



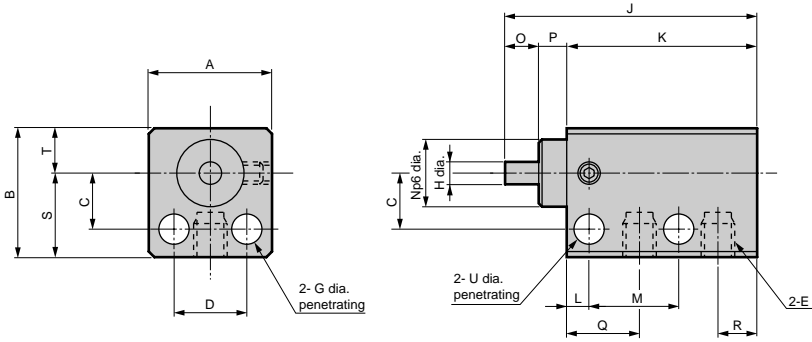
- MDC2-Y-6,8,10 (single acting/retract type)



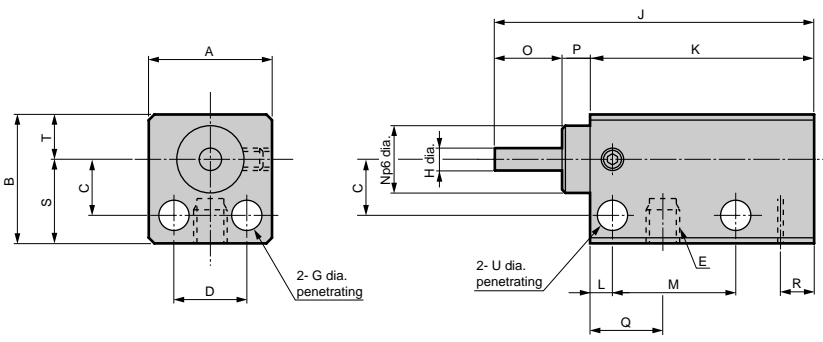
No.	Parts name	Material	Comment	No.	Parts name	Material	Comment
1	Piston	Stainless steel		6	Piston magnet	Plastic magnet	
2	Bush	Oil impregnated copper alloy		7	Spring holder	Stainless steel	
3	Rod packing	Nitrile rubber		8	Main body	Aluminum alloy	Hard alumite disposal
4	Rod bushing	Stainless steel		9	Cylinder spring	Steel	Electrodeposition coating
5	Piston seal	Nitrile rubber		10	Set screw with hexagon socket	Stainless steel	

Dimensions

- MDC2-4-3,6 (single acting/retract type/with switch)  (File name: Page 531 or Ending 120)



- MDC2-Y-4-3,6 (single acting/retract type)  (File name: Page 531 or Ending 120)




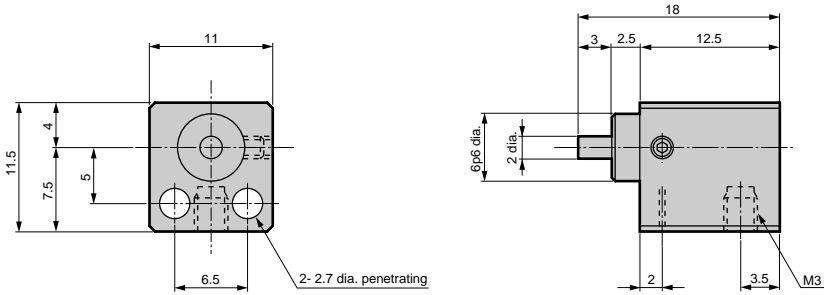
Model No.	A	B	C	D	E	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
MDC2-4-3	11	11.5	5	6.5	M3	2.7	2	22.5	17	2	8	6	3	2.5	6.5	3.5	7.5	4	2.7
MDC2-4-6	11	11.5	5	6.5	M3	2.7	2	25.5	20	2	11	6	3	2.5	6.5	3.5	7.5	4	2.7
MDC2-Y-4-3	11	11.5	5	6.5	M3	2.7	2	28.5	20	2	11	6	6	2.5	6.5	3.5	7.5	4	2.7
MDC2-Y-4-6	11	11.5	5	6.5	M3	2.7	2	37.5	26	2	14	6	9	2.5	6.5	3.5	7.5	4	2.7


- SCP * 2
- CMK2
- CMA2
- SCM
- SCA2
- SCS
- CKV2
- CAV2/COV * 2
- CAT
- MDC2**
- MVC
- SMD2
- MSD/MSDG
- SSD
- SSD (large)
- FC *
- ULKP/ULK
- JSK2/JSM2
- JSC3 (medium)
- JSC3 (large)
- JSB3
- UCAC
- STS/STL
- LCS
- LCY
- STR2
- UCA2
- STK
- USSD
- USC
- MFC
- GLC
- SHC
- CAC3
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- HCA
- MRL2
- SRL2
- SRG
- SRM
- SRT
- SRB2

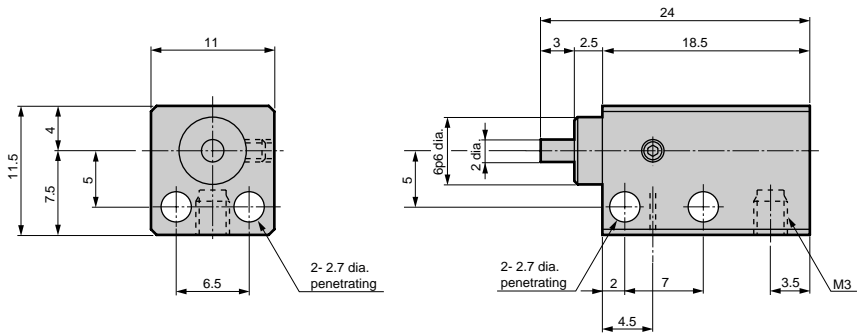
Space saving structure
Small direct mounting cylinder

Dimensions


- MDC2-X-4-3  (File name: Page 531 or Ending 120)

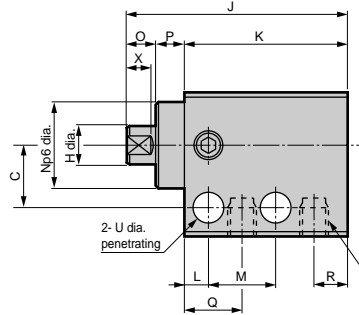
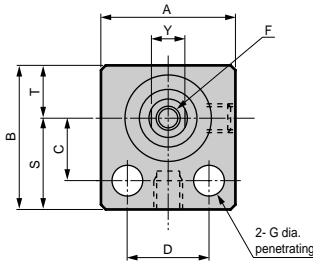


- MDC2-X-4-6  (File name: Page 531 or Ending 120)




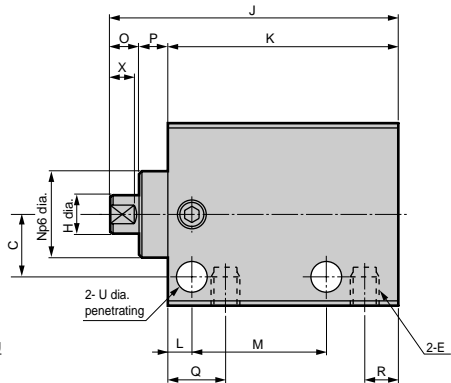
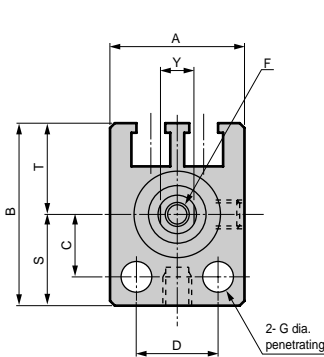
Dimensions

- MDC2-6,8,10  (File name: Page 531 or Ending 120)
- MDC2-X-6,8,10



Model No.	Stroke length	A	B	C	D	E	F	G	H	N	P	Q	R	S	T	U	X	Y	Double acting type					Single acting spring return type (X)				
																			J	K	L	M	O	J	K	L	M	O
MDC2-6	4	14	15	6.5	8.5	M3	M2.5 X 0.45 Depth 4	3.2	4	9	3	6	3.5	9.5	5.5	3.2	2.5	3.5	23	17	2.5	7.5	22	16	6.5	3		
	6																		25	19	2.5	9	25	19	2.5		8.5	
	8																		27	21	11	29	23	10.5				
MDC2-8	4	16	17	7.5	10	M3	M3 X 0.5 Depth 5	3.2	5	11	3	6	3.5	10.5	6.5	3.2	2.5	4.5	23	17	2.5	7.5	23	17	7.5	3		
	6																		25	19	2.5	9	26	20	2.5		9	
	8																		27	21	11	29	23	11				
MDC2-10	4	16	17.5	8	10	M5	M3 X 0.5 Depth 5	3.2	6	11	3	7	5	11	6.5	3.2	2.5	5	28	22	9.5	9.5	26	20	7.5	3		
	6																		30	24	2.5	11.5	29	23	2.5		9.5	
	10																		34	28	15.5	35	29	13.5				

- MDC2-6,8,10  (File name: Page 531 or Ending 120)
- MDC2-XL-6, 8, 10




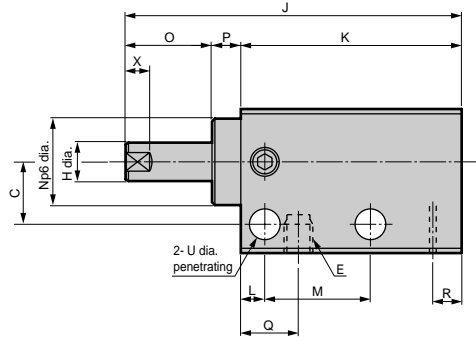
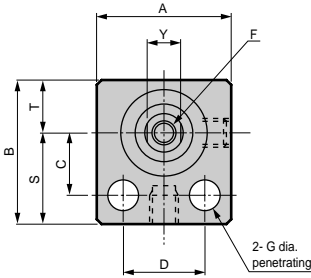
Model No.	Stroke length	A	B	C	D	E	F	G	H	N	P	Q	R	S	T	U	X	Y	Double acting type					Single acting spring return type (X)				
																			J	K	L	M	O	J	K	L	M	O
MDC2-L-6	4	14	19	6.5	8.5	M3	M2.5 X 0.45 Depth 4	3.2	4	9	3	6	3.5	9.5	9.5	3.2	2.5	3.5	28	22	12.5	27	21	11.5	3			
	6																		30	24	2.5	14	30	24		2.5	13.5	
	8																		32	26	16	34	28	15.5				
MDC2-L-8	4	16	22	7.5	10	M3	M3 X 0.5 Depth 5	3.2	5	11	3	6	3.5	11	11	3.2	2.5	4.5	28	22	12.5	28	22	12.5	3			
	6																		30	24	2.5	14	31	25		2.5	14	
	8																		32	26	16	34	28	16				
MDC2-L-10	4	16	22	8	10	M5	M3 X 0.5 Depth 5	3.2	6	11	3	7	5	11	11	3.2	2.5	5	31	25	12.5	31	25	12.5	3			
	6																		33	27	2.5	14.5	34	28		2.5	14.5	
	10																		37	31	18.5	40	34	18.5				

- SCP * 2
- CMK2
- CMA2
- SCM
- SCA2
- SCS
- CKV2
- CAV2/COV * 2
- CAT
- MDC2**
- MVC
- SMD2
- MSD/MSDG
- SSD
- SSD (large)
- FC *
- ULKP/ULK
- JSK2/JSM2
- JSC3 (medium)
- JSC3 (large)
- JSB3
- UCAC
- STS/STL
- LCS
- LCY
- STR2
- UCA2
- STK
- USSD
- USC
- MFC
- GLC
- SHC
- CAC3
- HCM
- HCA
- MRL2
- SRL2
- SRG
- SRM
- SRT
- SRB2


Space saving structure
Small direct mounting cylinder

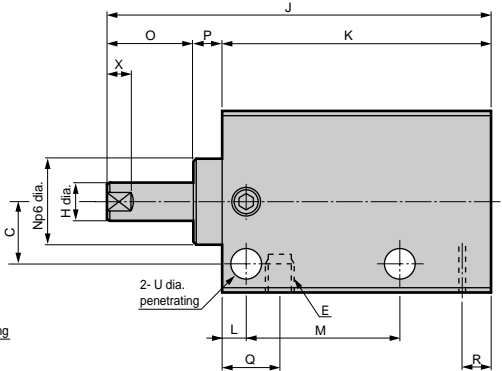
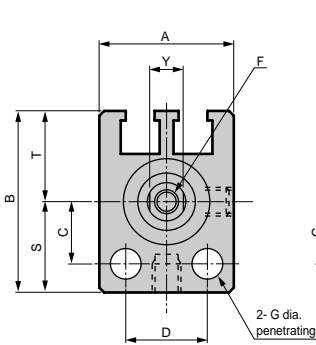
Dimensions

- MDC2-Y-6,8,10  (File name: Page 531 or Ending 120)



Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	X	Y
MDC2-Y-6	4	14	15	6.5	8.5	M3	M2.5 X 0.45	3.2	4	30	20	2.5	9	9	7	3	6	3	9.5	5.5	3.2	2.5	3.5
	6						35			23	11		9										
	8						41			27	13		11										
MDC2-Y-8	4	16	17	7.5	10	M3	M3 X	3.2	5	31	21	2.5	9.5	11	7	3	6	3	10.5	6.5	3.2	2.5	4.5
	6						36			24	11.5		9										
	8						41			27	13.5		11										
MDC2-Y-10	4	16	17.5	8	10	M5	M3 X	3.2	6	32	22	2.5	9.5	11	7	3	7	3.5	11	6.5	3.2	2.5	5
	6						37			25	11.5		9										
	10						47			31	15.5		13										

- MDC2-YL-6,8,10  (File name: Page 531 or Ending 120)



Note) Please refer to Page 530 about switch installation dimensions.

Model No.	Stroke length	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	X	Y
MDC2-YL-6	4	14	19	6.5	8.5	M3	M2.5 X	3.2	4	35	25	2.5	14	9	7	3	6	3	9.5	9.5	3.2	2.5	3.5
	6						40			28	16		9										
	8						46			32	18		11										
MDC2-YL-8	4	16	22	7.5	10	M3	M3 X	3.2	5	36	26	2.5	14.5	11	7	3	6	3	11	11	3.2	2.5	4.5
	6						41			29	16.5		9										
	8						46			32	18.5		11										
MDC2-YL-10	4	16	22	8	10	M5	M3 X	3.2	6	36	26	2.5	13.5	11	7	3	7	3.5	11	11	3.2	2.5	5
	6						41			29	15.5		9										
	10						51			35	19.5		13										