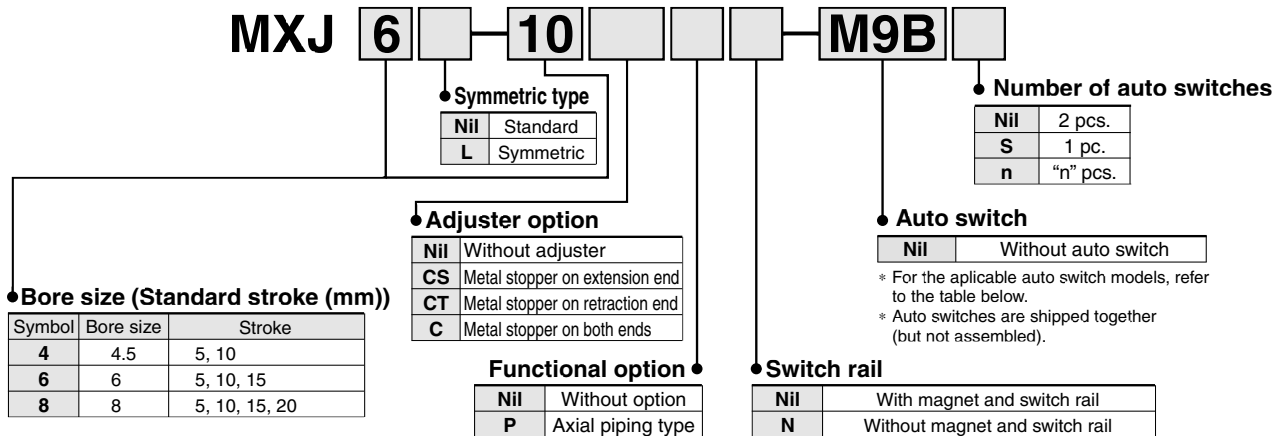


Air Slide Table

Series MXJ

∅4.5, ∅6, ∅8

How to Order



Note) Use an optional stepped positioning pin (see page 5) because the positioning pin hole of this product goes through.

Applicable Auto Switches

Refer to page 16 through to 21 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length*(m)			Pre-wired connector	Applicable load			
					DC	AC	Electrical entry direction	Perpendicular	In-line	0.5 (Nil)	3 (L)		5 (Z)	IC circuit	Relay, PLC	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	●	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	A93V	A93	●	●	—	—	—	Relay, PLC	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V	—	M9NV	M9N	●	●	○	○	IC circuit	Relay, PLC	
				3-wire (PNP)		12 V		M9PV	M9P	●	●	○	○			
				2-wire		12 V		M9BV	M9B	●	●	○	○			
				3-wire (NPN)		5 V		F8N	—	●	●	○	—	IC circuit		
				3-wire (PNP)		12 V				●	●	○		—		
				2-wire		12 V		F8B	—	●	●	○	—	—		
				Diagnostic indication (2-color indication)		3-wire (NPN)		5 V	F9NWV	F9NW	●	●	○	○		IC circuit
				3-wire (PNP)		12 V		F9PWV	F9PW	●	●	○	○	—		
				2-wire		12 V		F9B WV	F9B W	●	●	○	○	—		

* Lead wire length symbols: 0.5 m..... Nil (Example) M9N
3 m..... L (Example) M9NL
5 m..... Z (Example) M9NZ

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

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

* For details on auto switches with a pre-wired connector, refer to "SMC Best Pneumatics 2004" catalog Vol. 8, page 8-30-52.

⚠ Caution

When an auto switch is not mounted properly, it can cause a malfunction. Refer to page 15 "Auto Switch Mounting".

Clean Series

11 MXJ Standard model no.

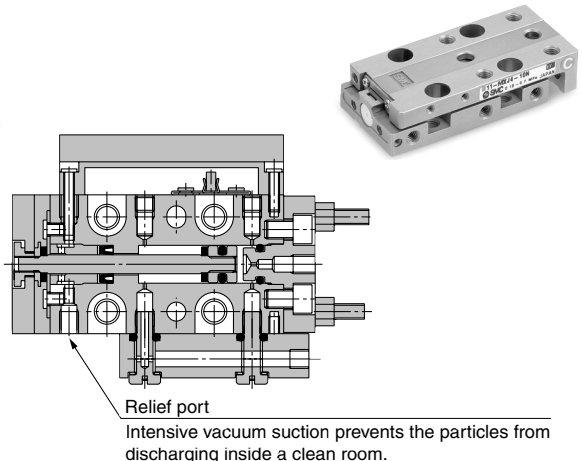
● Clean Series

11 Vacuum type * External dimensions are identical to the standard model.

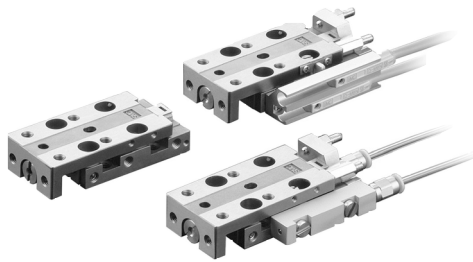
Model

Model	Adjuster option	Grade	Intake flow (ℓ/min) (ANR)*
11-MXJ4(L)	Without adjuster	Grade 3 (Class 100 or equivalent)	1
	Metal stopper	Grade 4 (Class 1000 or equivalent)	
11-MXJ6(L)	Without adjuster	Grade 3 (Class 100 or equivalent)	
	Metal stopper	Grade 4 (Class 1000 or equivalent)	
11-MXJ8(L)	Without adjuster	Grade 3 (Class 100 or equivalent)	
	Metal stopper	Grade 4 (Class 1000 or equivalent)	

* Reference value



Series MXJ



Specifications

Model	MXJ4	MXJ6	MXJ8
Bore size (mm)	4.5	6	8
Piping port size	M3 x 0.5		
Fluid	Air		
Action	Double acting		
Operating pressure	0.15 to 0.7 MPa		
Proof pressure	1.05 MPa		
Ambient and fluid temperature	-10 to 60°C		
Operating speed range	50 to 500 mm/s (Metal stopper: 50 to 200 mm/s)		
Cushion	Rubber bumper (Metal stopper: Without cushion)		
Lubrication	Non-lube		
Stroke adjuster	Standard equipment		
Stroke adjusting range (metal stopper)	Both ends each 0 to 5 mm		
Auto switch	Reed switch (2-wire, 3-wire) Solid state switch (2-wire, 3-wire) 2-color indication solid state switch (2-wire, 3-wire)		
Stroke length tolerance	+1 0 mm		

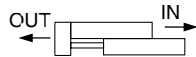
Standard Stroke

Model	Standard stroke (mm)
MXJ4	5, 10
MXJ6	5, 10, 15
MXJ8	5, 10, 15, 20

Option

Adjuster option	Metal stopper	Extension end (CS)	Stroke adjustment range 0 to 5 mm
		Retraction end (CT)	
		Both ends (C)	
Functional option	Axial piping type (P)		Stroke adjuster is mountable on the axial piping.

Theoretical Output



Model	Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)					
					0.2	0.3	0.4	0.5	0.6	0.7
MXJ4	4.5	2	OUT	16	3	5	6	8	10	11
			IN	13	3	4	5	6	8	9
MXJ6	6	3	OUT	28	6	8	11	14	17	20
			IN	21	4	6	8	11	13	15
MXJ8	8	4	OUT	50	10	15	20	25	30	35
			IN	38	8	11	15	19	23	26

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

Weight

Basic Style (Without switch rail) MXJ□□-□□N

(g)

Model	Standard stroke (mm)				Additional weight of adjuster option	
	5	10	15	20	Extension end	Retraction end
MXJ4	40	40	—	—	2	6
MXJ6	50	50	55	—	2	8
MXJ8	70	70	90	90	2	12

Axial Piping Type (Without switch rail) MXJ□□-□□PN

(g)

Model	Standard stroke (mm)				Additional weight of adjuster option	
	5	10	15	20	Extension end	Retraction end
MXJ4	50	50	—	—	2	6
MXJ6	60	60	65	—	2	8
MXJ8	85	85	110	110	2	12

Additional Weight of Switch Rail

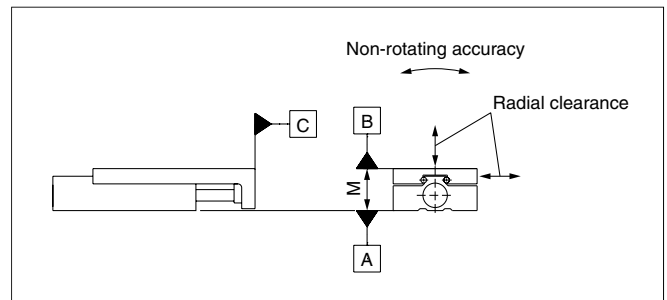
(g)

Model	Standard stroke (mm)			
	5	10	15	20
MXJ4	5	5	—	—
MXJ6	5	5	6	—
MXJ8	5	5	7	7

Table Accuracy

B side parallelism to A side	0.03
B side traveling parallelism to A side	0.005
C side perpendicularity to A side	0.01
M dimension tolerance	± 0.05
Radial clearance (μm)	0 (Note)
Non-rotating table accuracy (deg)	0 (Note)

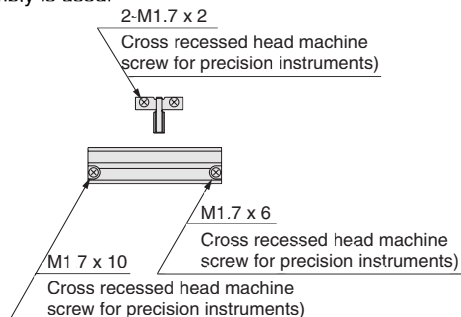
Note) In theory, radial clearance and non-rotating table accuracy are zero by the preloaded specification. However, in some actual cases, a moment can be applied and can cause deflection in an individual part. Therefore, refer to the table displacement amount on page 6.



Optional Specifications

Rail assembly for mounting auto switch

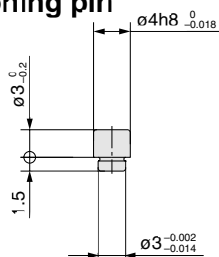
When auto switch is mounted on air slide table without rail (MXP□-□N), this assembly is used.



Applicable size	Switch rail part no.	Note
MXJ4-5	MXJ-AD4-10	With magnet and mounting screw
MXJ4-10		
MXJ6-5	MXJ-AD6-10	
MXJ6-10		
MXJ6-15	MXJ-AD6-15	
MXJ8-5	MXJ-AD6-10	
MXJ8-10		
MXJ8-15	MXJ-AD8-20	
MXJ8-20		

Stepped positioning pin

MXJ-LP



Use the optional stepped positioning pin that is provided because the positioning pin hole for the table is a through hole.

Stepped Positioning Pin

Part no.	Note
MXJ-LP	Common for all models

Series MXJ

Table Deflection (Reference values)

Table displacement due to pitch moment load

Deflection at the arrow mark when a load is applied to the arrow mark with the slide table fully extended.

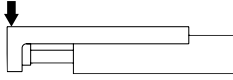


Table displacement due to yaw moment load

Deflection at the arrow mark when a load is applied to the arrow mark with the slide table fully extended.

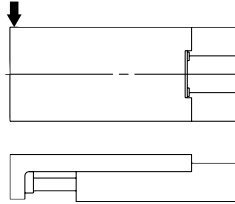
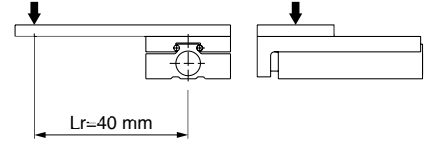
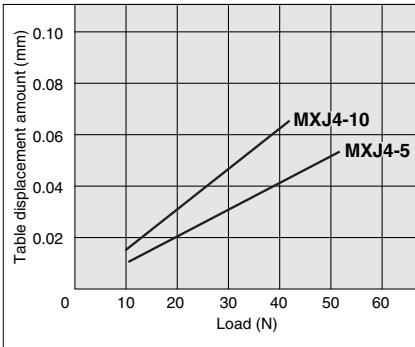


Table displacement due to roll moment load

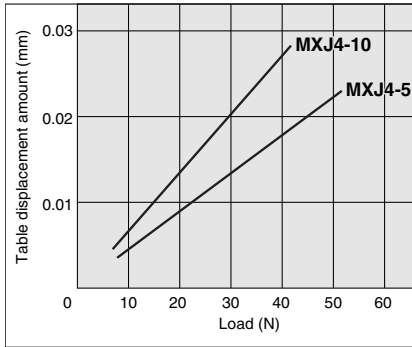
Displacement at "A" when a load is applied to "F" with the slide table retracted.



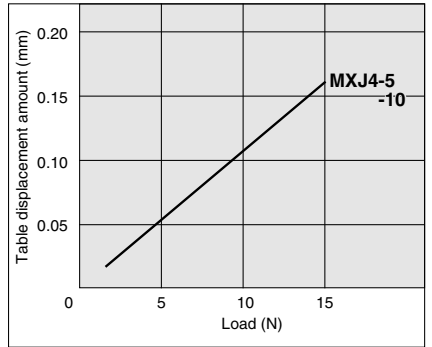
MXJ4



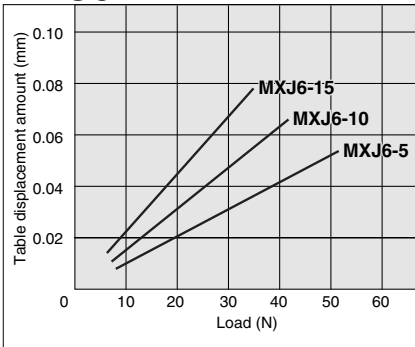
MXJ4



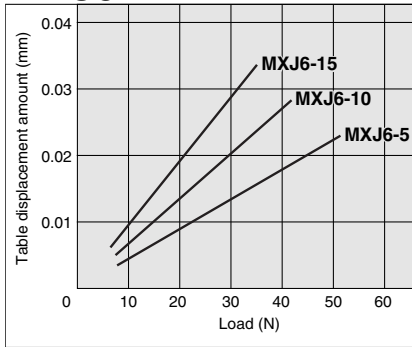
MXJ4



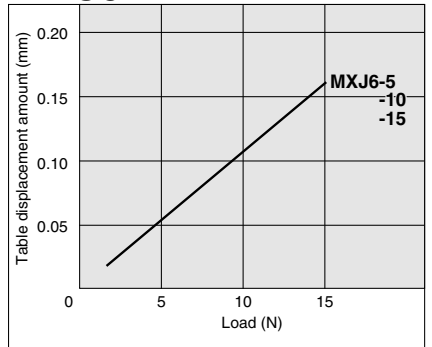
MXJ6



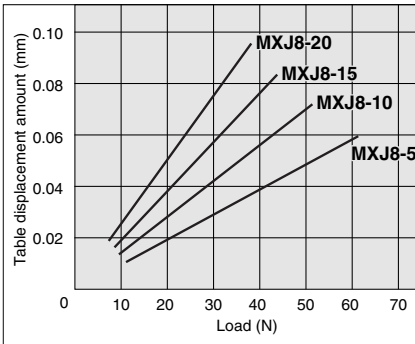
MXJ6



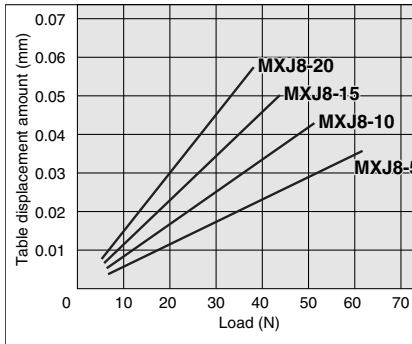
MXJ6



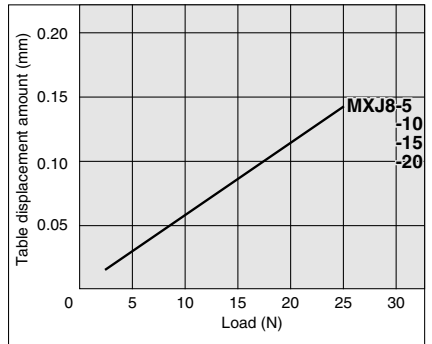
MXJ8



MXJ8



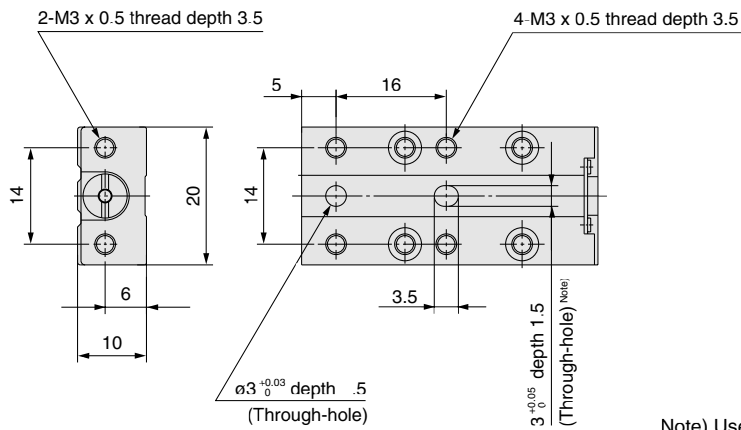
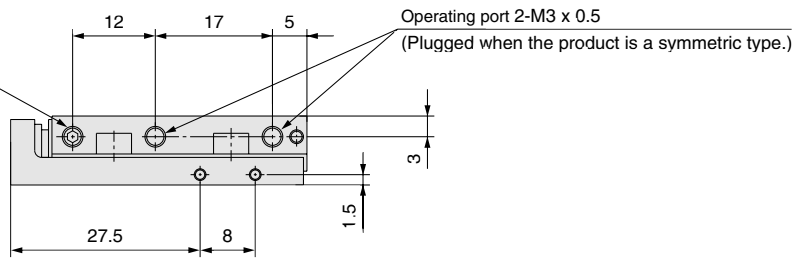
MXJ8



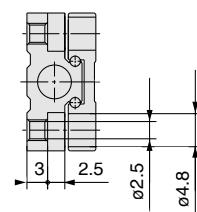
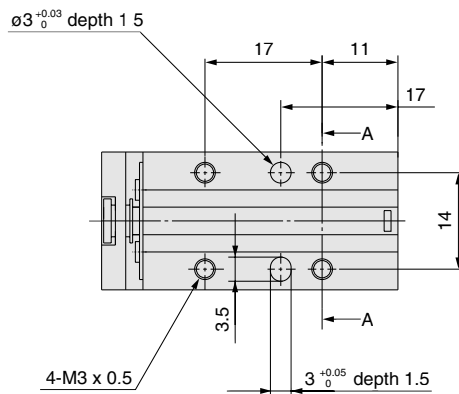
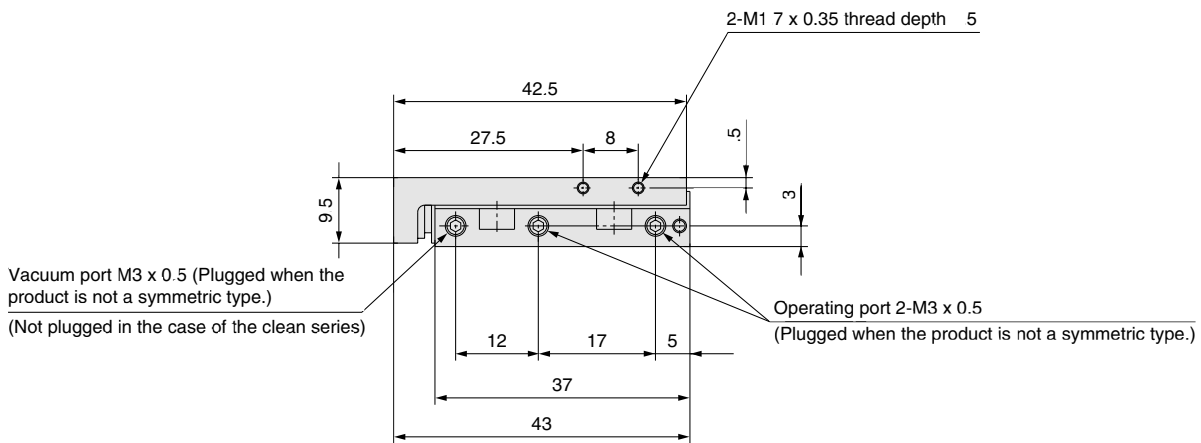
Dimensions Note) In MXJ4, there is no change in total length by stroke.

Basic style (Without switch rail)
MXJ4-□□□□N

Vacuum port M3 x 0.5 (Plugged when the product is a symmetric type.)
(Not plugged in the case of the clean series)



Note) Use an optional stepped positioning pin. (See page 5.)

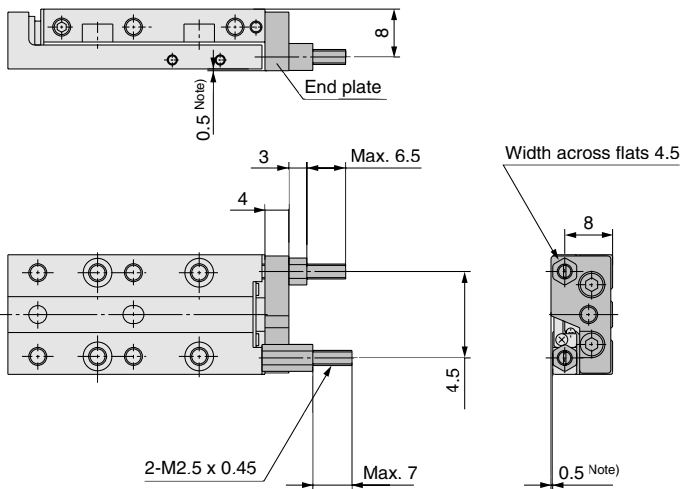


A-A

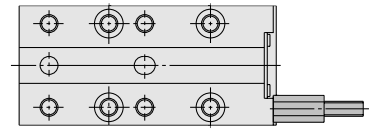
Series MXJ

Dimensions

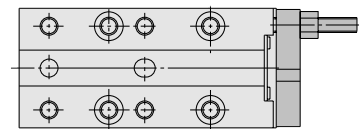
With stroke adjuster
With adjuster on both ends
MXJ4-□C□N



With adjuster on extension end
MXJ4-□CSN

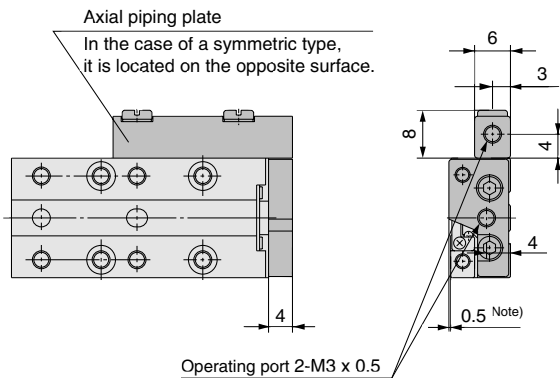


With adjuster on retraction end
MXJ4-□CTN

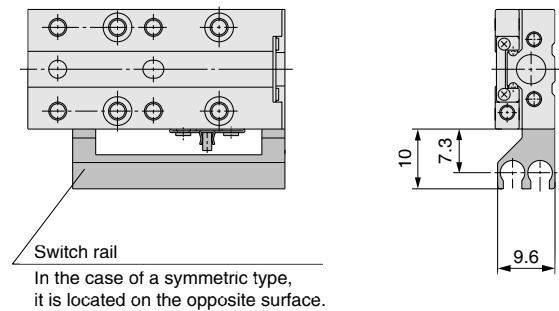


Note) Use caution because the height of the end plate's top surface will be higher than the table's top surface.

Axial piping
MXJ4-□□PN



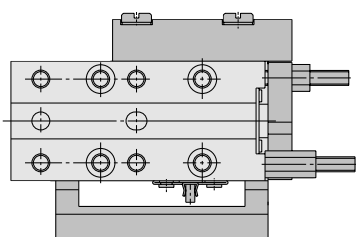
With switch rail
MXJ4



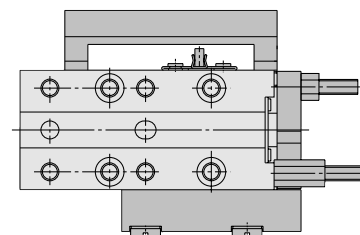
Note) Use caution because the height of the end plate's top surface will be higher than the table's top surface.

When all the available options are mounted (switch rail, stroke adjuster with axial piping).

Standard type
MXJ4-□CP



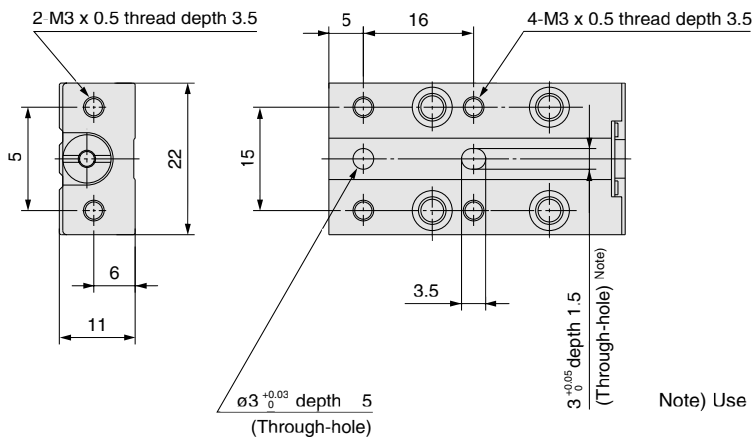
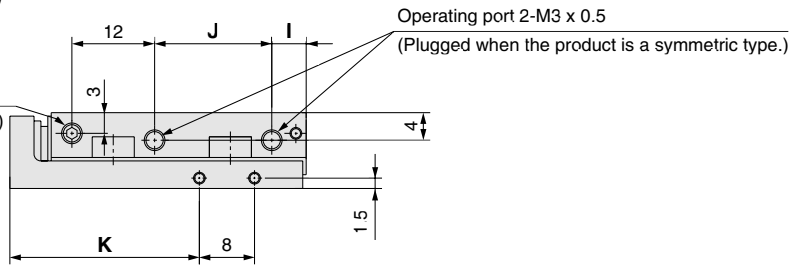
Symmetric type
MXJ4L-□CP



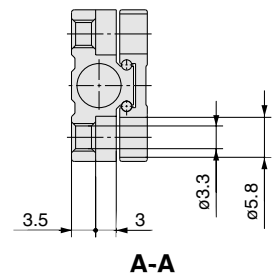
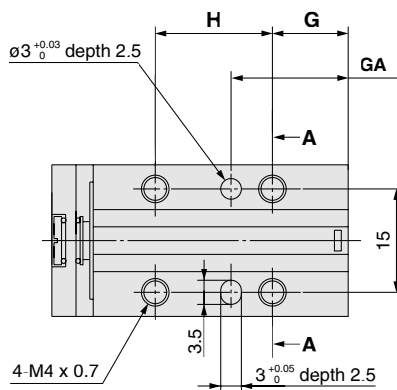
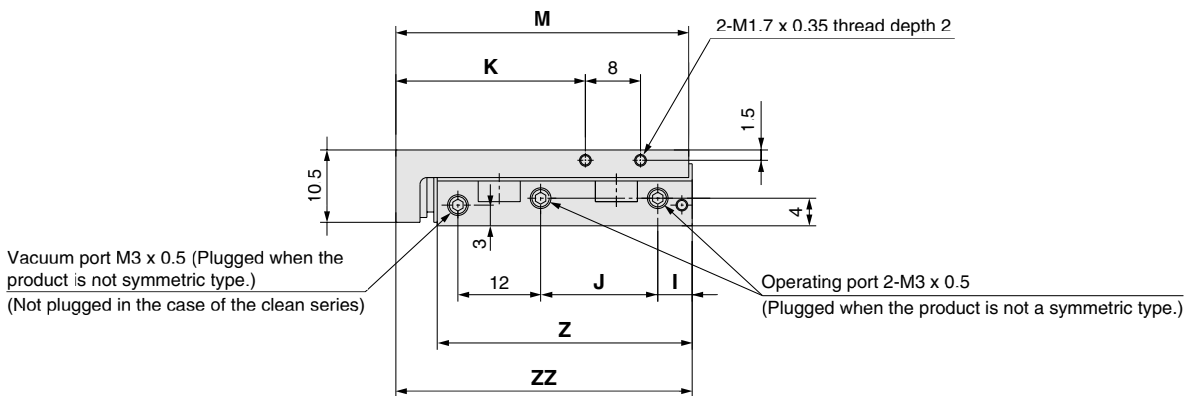
Dimensions Note) In MXJ4, there is no change in total length by stroke.

Basic style (Without switch rail)
MXJ6-□□□N

Vacuum port M3 x 0.5 (Plugged when the product is a symmetric type.)
(Not plugged in the case of the clean series)



Note) Use an optional stepped positioning pin. (See page 5.)

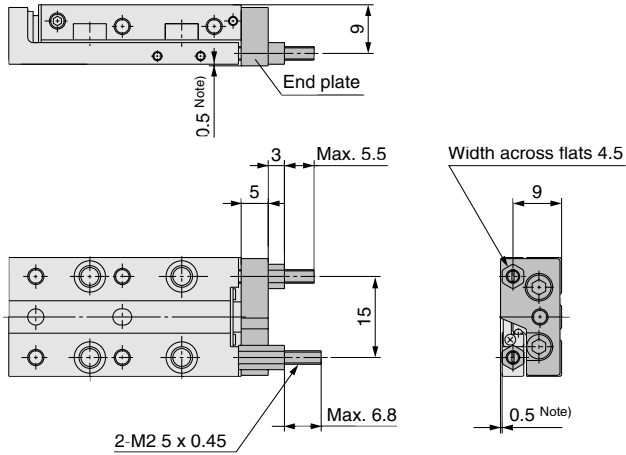


Model	G	GA	H	I	J	K	M	Z	ZZ
MXJ6-5	11	17	17	5	17	27.5	42.5	37	43
MXJ6-10	11	17	17	5	17	27.5	42.5	37	43
MXJ6-15	13	22	20	7	20	31.5	47.5	42	48

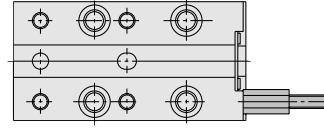
Series MXJ

Dimensions

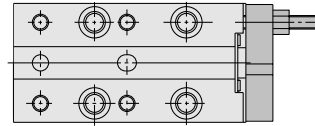
With stroke adjuster
With adjuster on both ends
MXJ6-□C□N



With adjuster on extension end
MXJ6-□CS□N

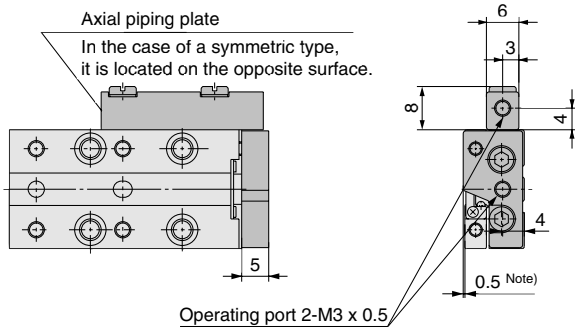


With adjuster on retraction end
MXJ6-□□CTN

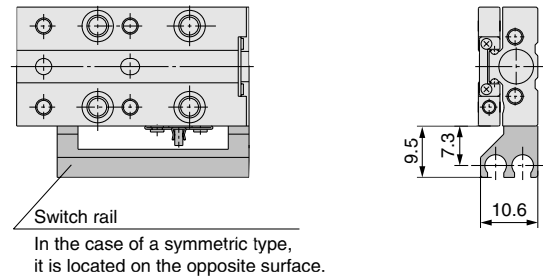


Note) Use caution because the height of the end plate's top surface will be higher than the table's top surface.

Axial piping
MXJ6-□□PN



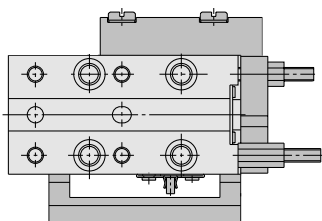
With switch rail
MXJ6



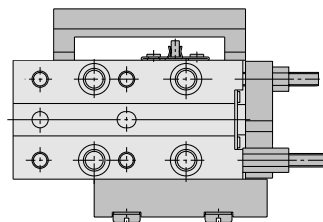
Note) Use caution because the height of the end plate's top surface will be higher than the table's top surface.

When all the available options are mounted (switch rail, stroke adjuster, with axial piping)

Standard type
MXJ6-□CP



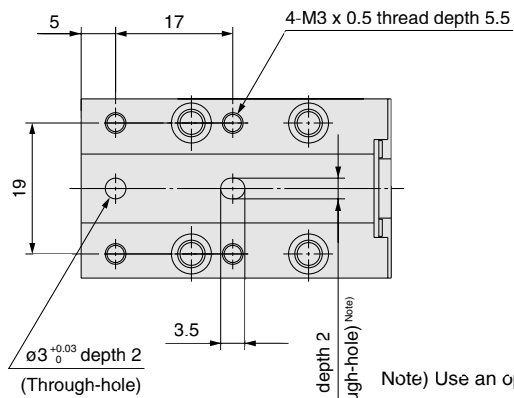
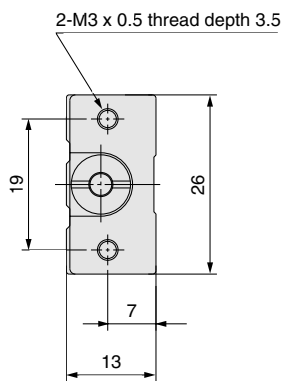
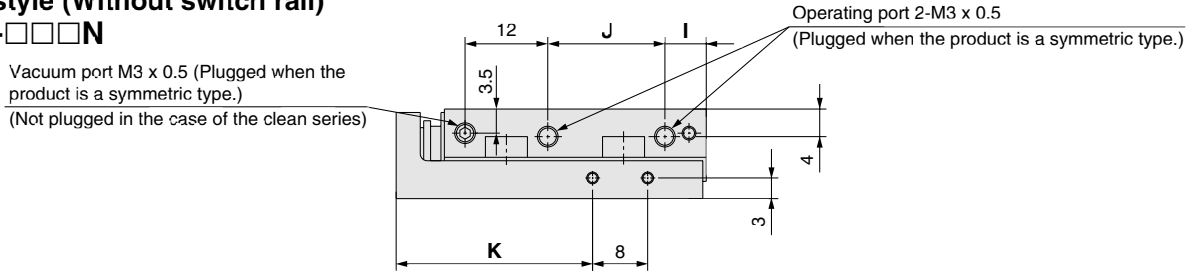
Symmetric type
MXJ6L-□CP



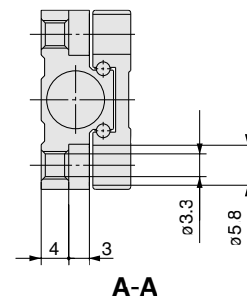
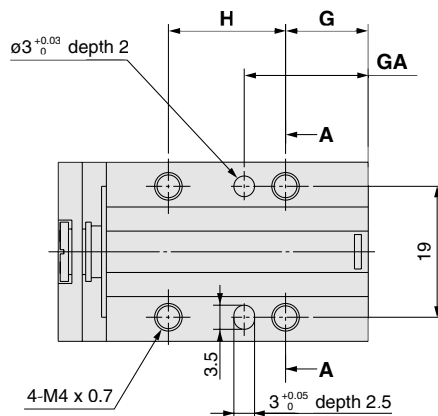
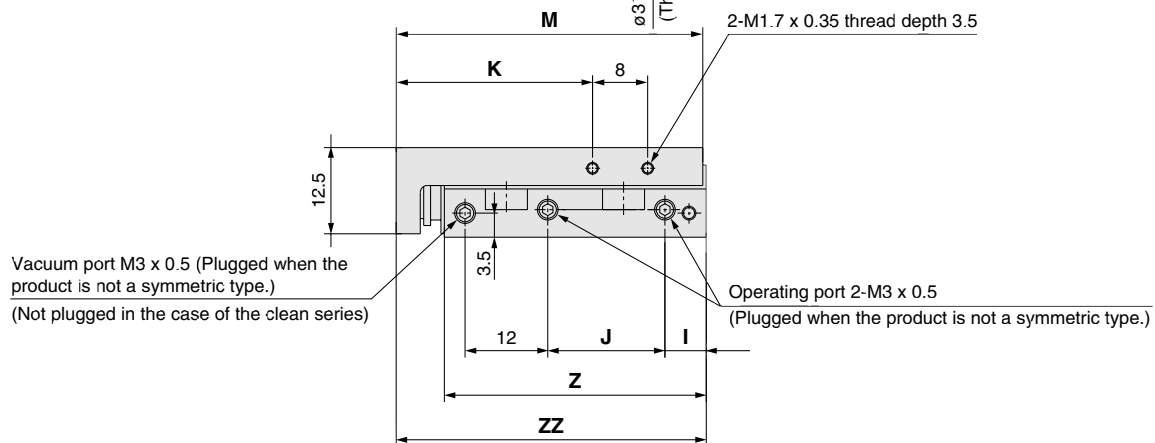
Dimensions

Basic style (Without switch rail) MXJ8-□□□N

Vacuum port M3 x 0.5 (Plugged when the product is a symmetric type.)
(Not plugged in the case of the clean series)



Note) Use an optional stepped positioning pin. (See page 5.)

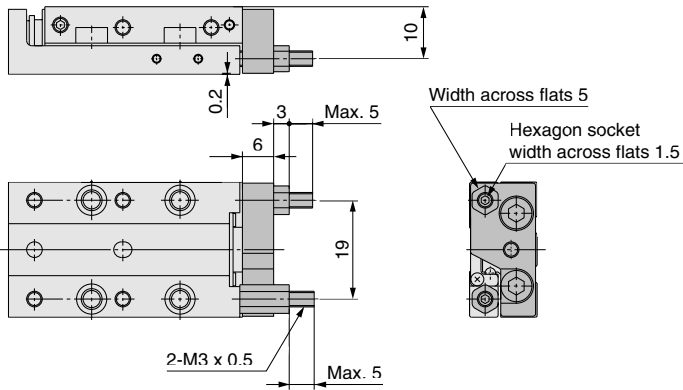


Model	G	GA	H	I	J	K	M	Z	ZZ
MXJ8-5	12	18	17	6	17	28.5	44.5	38	45
MXJ8-10	12	18	17	6	17	28.5	44.5	38	45
MXJ8-15	19	28	20	8	25	39.5	54.5	48	55
MXJ8-20	19	28	20	8	25	39.5	54.5	48	55

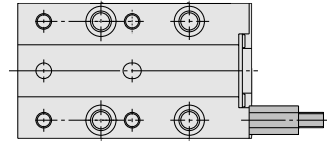
Series MXJ

Dimensions

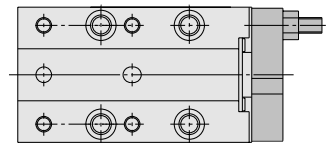
With stroke adjuster
With adjuster on both ends
MXJ8-□C□N



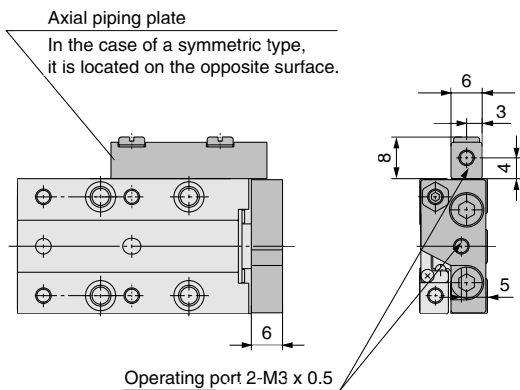
With adjuster on extension end
MXJ8-□CS□N



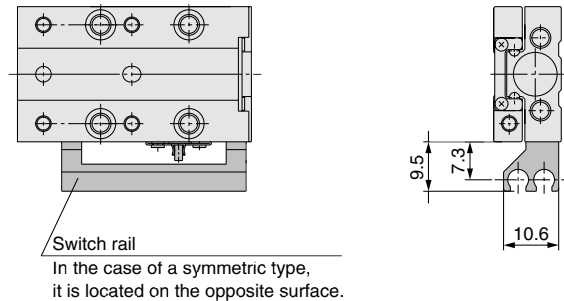
With adjuster on retraction end
MXJ8-□CTN



Axial piping
MXJ8-□□PN

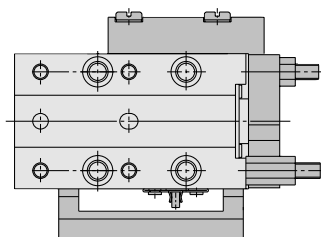


With switch rail
MXJ8

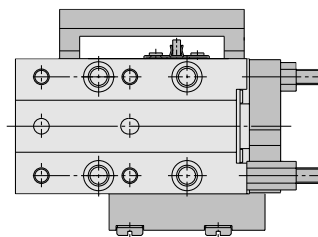


When all the available options are mounted (switch rail, stroke adjuster with axial piping)

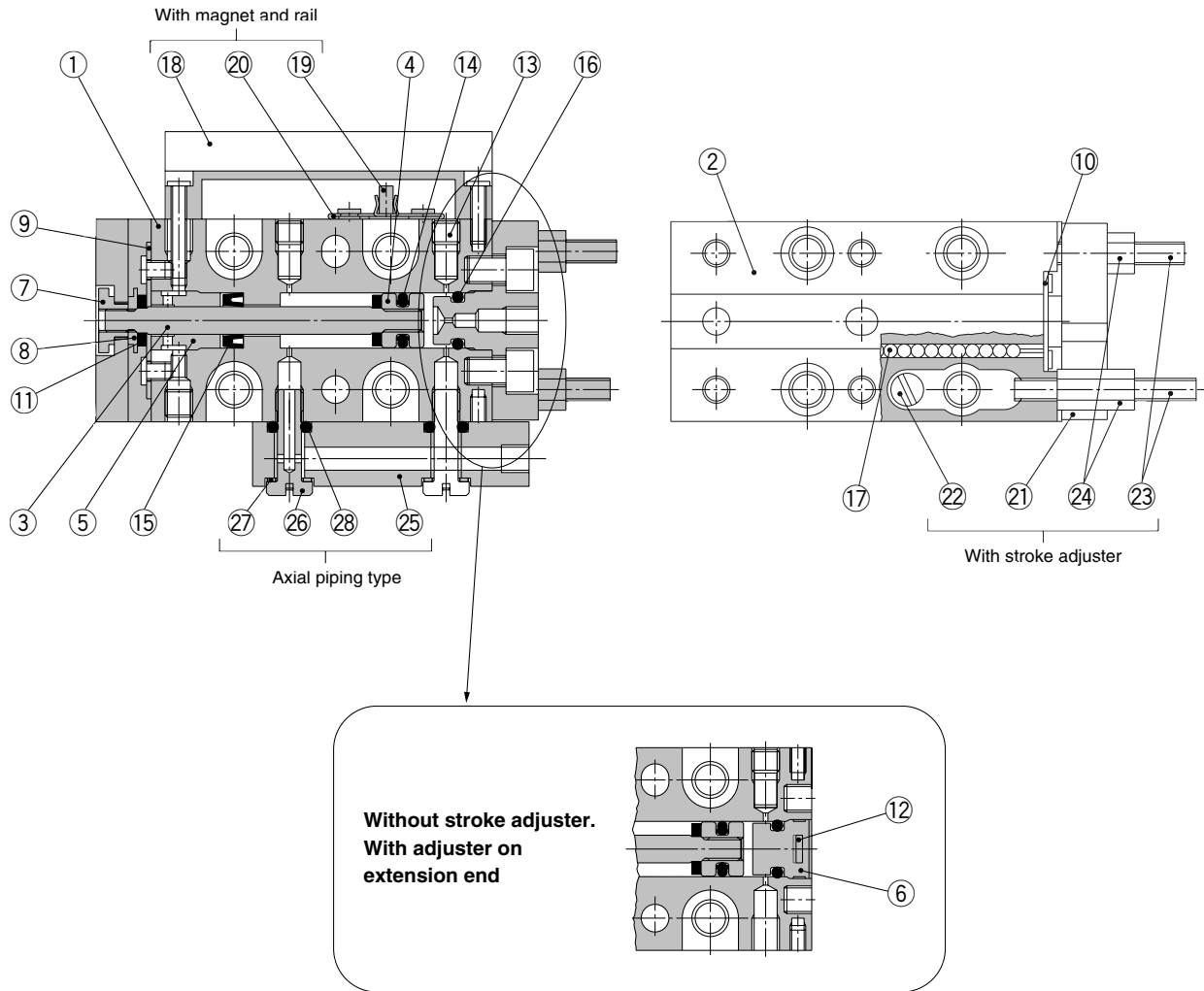
Standard type
MXJ8-□CP



Symmetric type
MXJ8L-□CP



Construction



Component Parts

No.	Description	Material	Note
	Body	Martensitic stainless steel ^{Note)}	Heat treated
2	Table	Martensitic stainless steel ^{Note)}	Heat treated
3	Rod	Stainless steel	
4	Piston	Brass	Electroless nickel plated
5	Rod cover	Resin	
6	Head cap	Resin	
7	Floating bushing A	Stainless steel	
8	Floating bushing B	Stainless steel	
9	Roller stopper A	Stainless steel	
10	Roller stopper B	Stainless steel	
	Rod bumper	Polyurethane	
12	Plate	Stainless steel	
13	Plug	Steel + Fluorine	Nickel plated
14	Piston seal	NBR	
15	Rod seal	NBR	
16	O-ring	NBR	
17	Steel balls	High carbon chrome bearing steel	

Note) Use caution because the martensitic stainless steel is inferior in corrosiveness when compared with austenitic stainless steel

Component Parts: With Magnet, Rail

No.	Description	Material	Note
18	Switch rail	Aluminum alloy	Hard anodized
19	Magnet	Rare earth	
20	Magnet holder	Stainless steel	

Component Parts: With Stroke Adjuster

No.	Description	Material	Note
21	End plate	Stainless steel	
22	Stopper pin	Steel	Heat treated, Trivalent chromated
23	Adjustment bolt	Steel	Heat treated, Nickel plated
24	Adjustment nut	Steel	Nickel plated

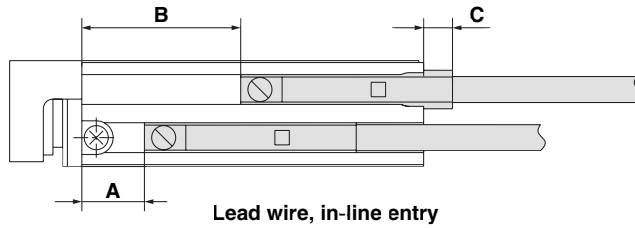
Component Parts: Axial Piping Type

No.	Description	Material	Note
25	Axial piping plate	Aluminum alloy	Hard anodized
26	Stud	Brass	Electroless nickel plated
27	Gasket	Stainless steel + NBR	
28	O-ring	NBR	

Series MXJ

Proper Position for Auto Switch Mounting (Detection at stroke end)

Reed switch **Solid state switch**
D-A9□ **D-M9□**
 D-F9□W



* Figures in the table above are used as a reference when mounting the auto switches for stroke end detection. In the case of actually setting the auto switches, adjust them after confirming their operation.

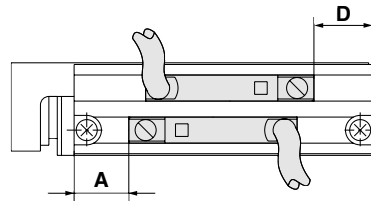
Reed Switch D-A9□ (mm)

Model	A				B				C			
	Stroke				Stroke				Stroke			
	5	10	15	20	5	10	15	20	5	10	15	20
MXJ4	9	4	—	—	14	14	—	—	0.5	0.5	—	—
MXJ6	9	4	3	—	14	14	18	—	0.5	0.5	-0.5	—
MXJ8	9	4	10	5	14	14	25	25	-0.5	-0.5	0.5	0.5

Solid State Switch, 2-color Indication Solid State Switch D-M9□, D-F9□W (mm)

Model	A				B				C			
	Stroke				Stroke				Stroke			
	5	10	15	20	5	10	15	20	5	10	15	20
MXJ4	13	8	—	—	18	18	—	—	4.5	4.5	—	—
MXJ6	13	8	7	—	18	18	22	—	4.5	4.5	3.5	—
MXJ8	13	8	14	9	18	18	29	29	3.5	3.5	4.5	4.5

Reed switch **Solid state switch**
D-A9□V **D-M9□V**
 D-F9□WV
 D-F8□



* Figures in the table above are used as a reference when mounting the auto switches for stroke end detection. In the case of actually setting the auto switches, adjust them after confirming their operation.

Reed Switch D-A9□V (mm)

Model	A				D			
	Stroke				Stroke			
	5	10	15	20	5	10	15	20
MXJ4	9	4	—	—	1.5	1.5	—	—
MXJ6	9	4	3	—	1.5	1.5	2.5	—
MXJ8	9	4	10	5	2.5	2.5	1.5	1.5

Solid State Switch, 2-color Indication Solid State Switch: D-M9□V, D-F9□WV (mm)

Model	A				D			
	Stroke				Stroke			
	5	10	15	20	5	10	15	20
MXJ4	13	8	—	—	5.5	5.5	—	—
MXJ6	13	8	7	—	5.5	5.5	6.5	—
MXJ8	13	8	14	9	6.5	6.5	5.5	5.5

Solid State Switch: D-F8□ (mm)

Model	A				D			
	Stroke				Stroke			
	5	10	15	20	5	10	15	20
MXJ4	11	6	—	—	3.5	3.5	—	—
MXJ6	11	6	5	—	3.5	3.5	4.5	—
MXJ8	11	6	12	7	4.5	4.5	3.5	3.5

Operating Range

Auto switch model	Applicable bore size (mm)
D-A9□/A9□V	4
D-M9□/M9□V	2
D-F8□	2
D-F9W□/F9W□V	2.5

* The operating range is a guide including hysteresis, but is not guaranteed. There may be varied substantially depending on the surrounding environment (assuming approximately 30% dispersion).

Auto Switch Mounting

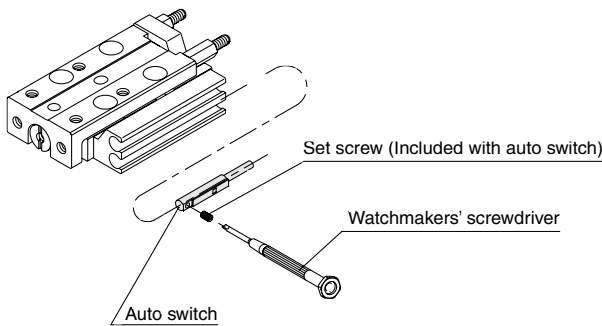
Caution

Auto Switch Mounting Tool

- When tightening the auto switch mounting screw (included with auto switch), use a watchmakers' screwdriver with a handle about 5 to 6 mm in diameter.

Tightening Torque

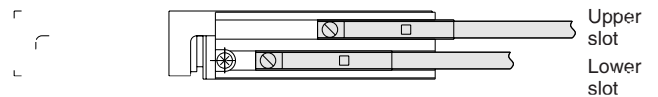
- Use a torque of 0.10 to 0.20 N·m.



When using the following solid state switches (D-M9□(V), F9□W(V), F8□), mount them in the illustrated direction. The lower slot is for extension end detection.

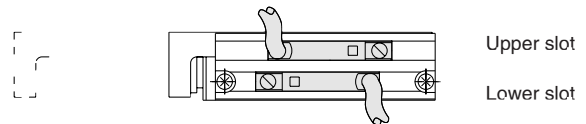
• Lead wire, in-line entry (D-M9□, F9□W)

Extension end Retraction end



• Lead wire, perpendicular entry (D-M9□V F9□WV F8□)

Extension end Retraction end

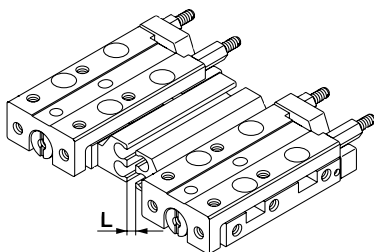


Caution on handling symmetric type

Caution

- Maintain a minimum space if standard type and symmetric type are used side by side.

If the space is insufficient, it may cause auto switches to malfunction.



L Dimension

Without shielding plate	8 mm
With shielding plate	3 mm

Placing in the shield plate (0.2 to 0.3 mm iron plate) between the products allows the distance to be smaller.

Other than the applicable auto switches listed in "How to Order" the following auto switches can be mounted. For detailed specifications, refer to "SMC Best Pneumatics 2004" catalog Vol 8, page 8-30-31

Type	Model	Electrical entry (direction)	Output	Features
Reed switch	D-F9G	Grommet (In-line)	NPN	Normally closed (NC=b contact)
	D-F9H		PNP	

Auto Switch Specifications

Auto Switch Common Specifications

Type	Reed switch	Solid state switch
Leakage current	None	3-wire: 100 μ A or less 2-wire: 0.8 mA or less
Operating time	1.2 ms	1 ms or less
Impact resistance	300 m/s ²	1000 m/s ²
Insulation resistance	50 M Ω or more at 500 VDC Mega (between lead wire and case)	
Withstand voltage	1000 VAC for 1 minute (between lead wire and case)	
Ambient temperature	-10 to 60°C	
Enclosure	IEC529 standard IP67, JIS C 0920 waterproof construction	

Lead Wire Length

Lead wire length indication

(Example) D-M9P□L

Lead wire length

Nil	0.5 m
L	3 m
Z	5 m

Note 1) Applicable auto switch with 5 m lead wire "Z"
Reed switch: None

Solid state switch: Manufactured upon receipt of order as standard.

Note 2) To designate solid state switches with flexible specifications, add "-61" after the lead wire length.

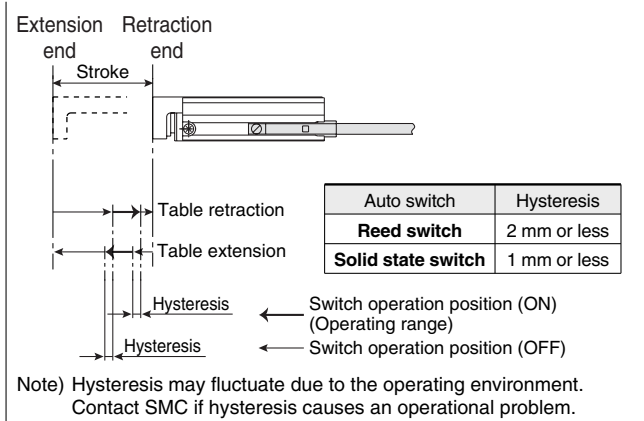
* Oilproof flexible heavy-duty cable is used for D-M9□ as standard. There is no need to add the suffix -61 to the end of part number.

(Example) D-F9PWVL- [61]

Flexible specification

Auto Switch Hysteresis

The hysteresis is the difference between the position of the auto switch as it turns "on" and as it turns "off". A part of operating range (one side) includes this hysteresis.



Contact Protection Boxes: CD-P11, CD-P12

<Applicable switch model>

D-A9/A9□V

The auto switches above do not have a built-in contact protection circuit. Therefore, please use a contact protection box with the switch for any of the following cases.

- ① Where the operation load is an inductive load.
- ② Where the wiring length to load is greater than 5 m.
- ③ Where the load voltage is 100 VAC.

The contact life may be shortened (Due to permanent energizing conditions.)

Specifications

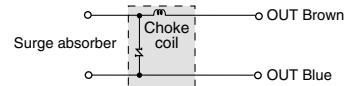
Part no.	CD-P11		CD-P12
Load voltage	100 VAC	200 VAC	24 VDC
Maximum load current	25 mA	12.5 mA	50 mA

* Lead wire length — Switch connection side 0.5 m
Load connection side 0.5 m

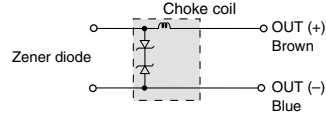


Internal Circuit

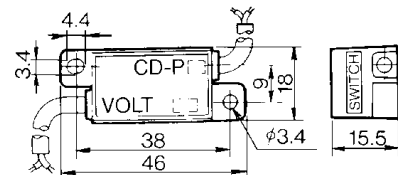
CD-P11



CD-P12



Dimensions



Connection

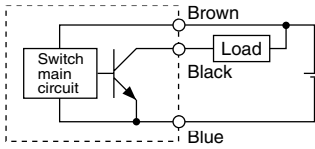
To connect a switch unit to a contact protection box, connect the lead wire from the side of the contact protection box marked SWITCH to the lead wire coming out of the switch unit. Keep the switch as close as possible to the contact protection box, with a lead wire length of no more than 1 meter.

Series MXJ

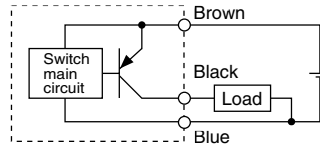
Auto Switch Connections and Examples

Basic Wiring

Solid state 3-wire, NPN

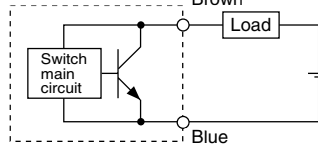


Solid state 3-wire, PNP



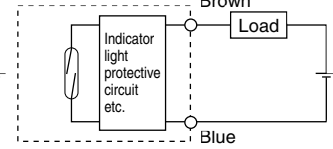
2-wire

(Solid state)

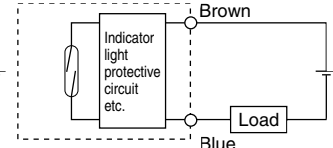
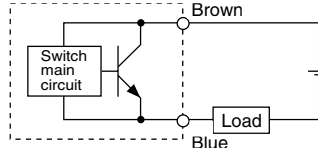
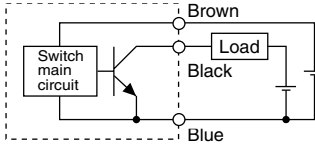


2-wire

(Reed switch)



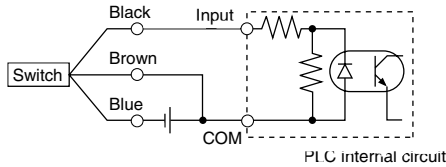
(Power supplies for switch and load are separate.)



Example of Connection to PLC (Programmable Logic Controller)

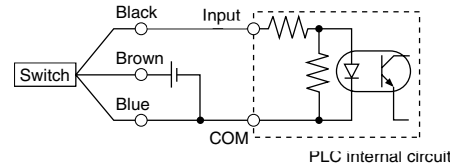
• Sink input specifications

3-wire, NPN



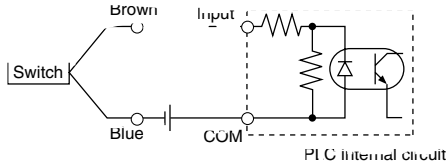
• Source input specifications

3-wire, PNP

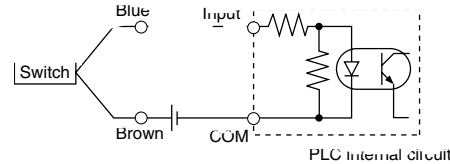


Connect according to the applicable PLC input specifications, since the connection method will vary depending on the PLC input specifications.

2-wire



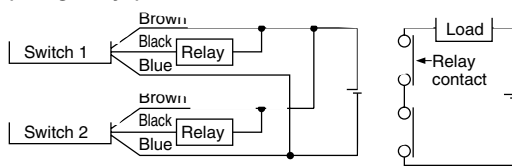
2-wire



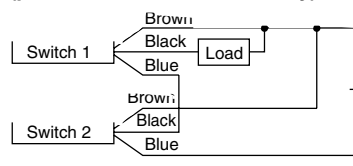
Example of AND (Serial) and OR (Parallel) Connection

• 3-wire

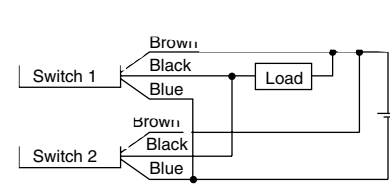
AND connection for NPN output (using relays)



AND connection for NPN output (performed with switches only)

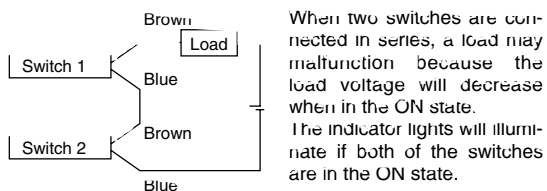


OR connection for NPN output



The indicator lights will illuminate when both switches are turned ON.

2-wire with 2-switch AND connection

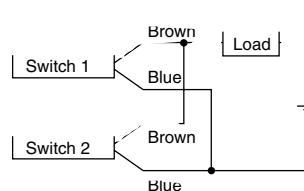


When two switches are connected in series, a load may malfunction because the load voltage will decrease when in the ON state. The indicator lights will illuminate if both of the switches are in the ON state.

$$\begin{aligned} \text{Load voltage at ON} &= \frac{\text{Power supply voltage}}{\text{Internal voltage drop} \times 2 \text{ pcs.}} \\ &= \frac{24 \text{ V}}{4 \text{ V} \times 2 \text{ pcs.}} \\ &= 16 \text{ V} \end{aligned}$$

Example: Power supply is 24 VDC.
Internal voltage drop in switch is 4 V.

2-wire with 2-switch OR connection



(Solid state)

When two switches are connected in parallel, a malfunction may occur because the load voltage will increase when in the OFF state.

$$\begin{aligned} \text{Load voltage at OFF} &= \text{Leakage current} \times 2 \text{ pcs.} \\ &\quad \times \text{Load impedance} \\ &= 1 \text{ nA} \times 2 \text{ pcs.} \times 3 \text{ k}\Omega \\ &= 6 \text{ V} \end{aligned}$$

Example: Load impedance is 3 k Ω .
Leakage current from switch is 1 nA.

(Reed switch)

Because there is no current leakage, the load voltage will not increase when turned OFF. However, depending on the number of switches in the ON state, the indicator lights may sometimes dim or not light because of the dispersion and reduction of the current flowing to the switches.

Reed Switch: Direct Mounting Style

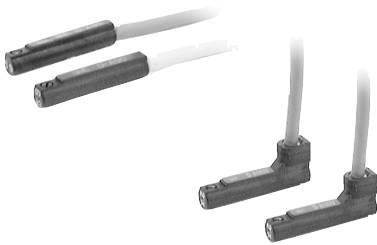
D-A90(V)/D-A93(V)/D-A96(V) C €

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Auto Switch Specifications

PLC: Programmable Logic Controller

Grommet
Electrical entry direction: In-line



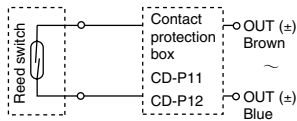
Caution

Operating Precautions

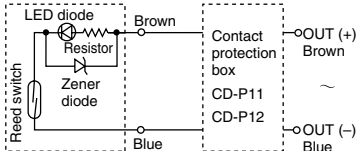
Fix the switch with the existing screw installed on the switch body. The switch may be damaged if a screw other than the one supplied, is used.

Auto Switch Internal Circuit

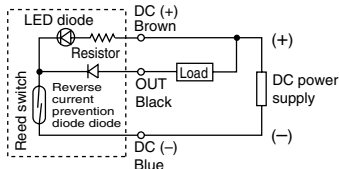
D-A90(V)



D-A93(V)



D-A96(V)



- Note) ① In a case where the operation load is an inductive load.
 ② In a case where the wiring load is greater than 5 m.
 ③ In a case where the load voltage is 100 VAC.

Use the auto switch with a contact protection box in any of the above mentioned cases. (For details about the contact protection box, refer to page 16.)

D-A90/D-A90V (Without indicator light)			
Auto switch part no.	D-A90/D-A90V		
Applicable load	IC circuit, Relay, PLC		
Load voltage	24 V AC/DC or less	48 V AC/DC or less	100 V AC/DC or less
Maximum load current	50 mA	40 mA	20 mA
Contact protection circuit	None		
Internal resistance	1 Ω or less (including lead wire length of 3 m)		
D-A93/D-A93V/D-A96/D-A96V (With indicator light)			
Auto switch part no.	D-A93/D-A93V		D-A96/D-A96V
Applicable load	Relay, PLC		IC circuit
Load voltage	24 VDC	100 VAC	4 to 8 VDC
Load current range and max. load current	Note 3) 5 to 40 mA	5 to 20 mA	20 mA
Contact protection circuit	None		
Internal voltage drop	D-A93 — 2.4 V or less (to 20 mA)/3 V or less (to 40 mA) D-A93V — 2.7 V or less		0.8 V or less
Indicator light	Red LED illuminates when ON		

Lead wires

D-A90(V)/D-A93(V) Oilproof heavy-duty vinyl cable: $\phi 2.7$, 0.18 mm² x 2 cores (Brown, Blue), 0.5 m
 D-A96(V) Oilproof heavy-duty vinyl cable: $\phi 2.7$, 0.15 mm² x 3 cores (Brown, Black, Blue), 0.5 m

Note 1) Refer to page 16 for reed switch common specifications.

Note 2) Refer to page 16 for lead wire lengths

Note 3) In less than 5 mA condition, the indicating light visibility becomes low, and it may be unreadable in less than 2.5 mA condition. However, as long as the contact output is over a 1 mA condition, there will be no problem.

Weight

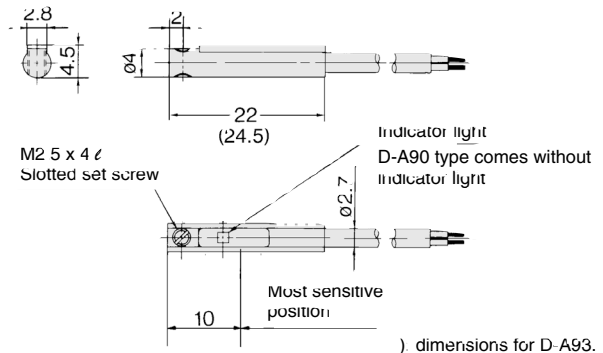
(g)

Auto switch part no.	D-A90	D-A90V	D-A93	D-A93V	D-A96	D-A96V
Lead wire length: 0.5 m	6	6	6	6	8	8
Lead wire length: 3 m	30	30	30	30	41	41

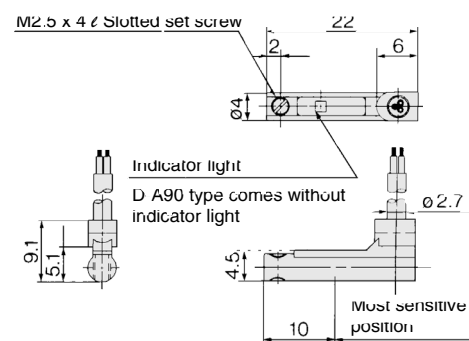
Dimensions

(mm)

D-A90/D-A93/D-A96



D-A90V/D-A93V/D-A96V



Solid State Switch: Direct Mounting Style D-M9N(V)/D-M9P(V)/D-M9B(V) C €

For details about certified products conforming to international standards, visit us at www.smcworld.com.

Auto Switch Specifications

PLC: Programmable Logic Controller

Grommet

- 2-wire load current is reduced (2.5 to 40 mA)
- Lead-free
- UL certified (style 2844) lead cable is used.



D-M9□/D-M9□V (With indicator light)						
Auto switch part no.	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when ON.					

- Lead wires
Oilproof heavy-duty vinyl cable: $\varnothing 2.7 \times 3.2$ ellipse
D-M9B(V) 0.15 mm² x 2 cores
D-M9N(V), D-M9P(V) 0.15 mm² x 3 cores

Note 1) Refer to page 16 for solid state switch common specifications.
Note 2) Refer to page 16 for lead wire lengths.

⚠ Caution

Operating Precautions

Fix the switch with the existing screw installed on the switch body. The switch may be damaged if a screw other than the one supplied, is used.

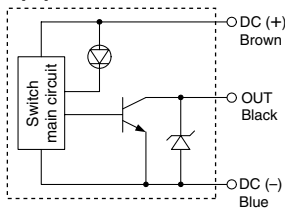
Weight

(g)

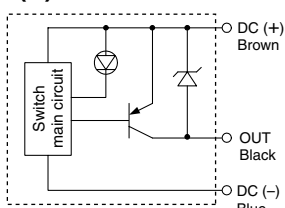
Auto switch part no.	D-M9N(V)	D-M9P(V)	D-M9B(V)	
Lead wire length (m)	0.5	8	8	7
	3	41	41	38
	5	68	68	63

Auto Switch Internal Circuit

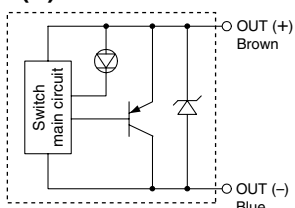
D-M9N(V)



D-M9P(V)



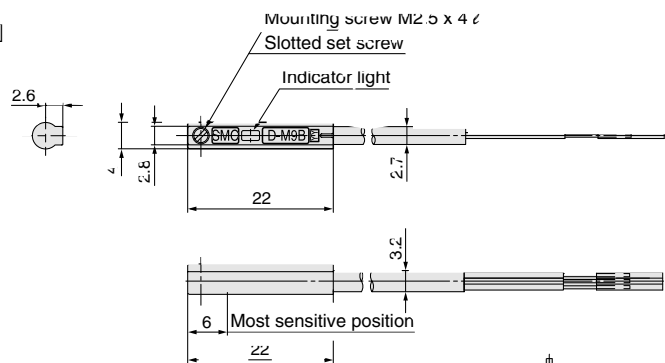
D-M9B(V)



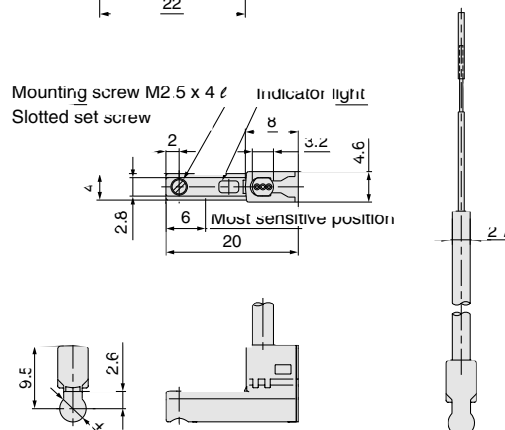
Dimensions

(mm)

D-M9□



D-M9□V



Solid State Switch: Direct Mounting Style

D-F8N/D-F8P/D-F8B



For details about certified products conforming to international standards, visit us at www.smcworld.com.

Auto Switch Specifications

PLC: Programmable Logic Controller

Auto switch part no.	D-F8N	D-F8P	D-F8B
Electrical entry direction	Perpendicular	Perpendicular	Perpendicular
Wiring type	3-wire		2-wire
Output type	NPN	PNP	—
Applicable load	IC circuit, 24 VDC relay, PLC		24 VDC relay, PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)		
Current consumption	10mA or less		
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less	80 mA or less	2.5 to 40 mA
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)	0.8 V or less	4 V or less
Leakage current	100 μ A or less at 24 VDC		0.8 mA or less at 24 VDC
Indicator light	Red LED illuminates when ON.		

Grommet



Caution

Operating Precautions

Fix the switch with the existing screw installed on the switch body. The switch may be damaged if a screw other than the one supplied, is used.

Lead wires

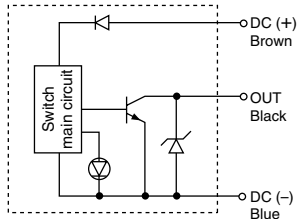
- Oilproof heavy-duty vinyl cable: $\phi 2.7 \times 0.5$ m
- D-F8N, D-F8P 0.15 mm² x 3 cores (Brown, Black, Blue)
- D-F8B 0.18 mm² x 2 cores (Brown, Blue)

Note 1) Refer to page 16 for solid state switch common specifications.

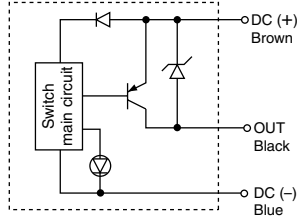
Note 2) Refer to page 16 for lead wire lengths.

Auto Switch Internal Circuit

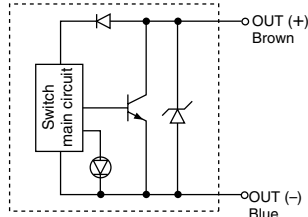
D-F8N



D-F8P



D-F8B



Weight

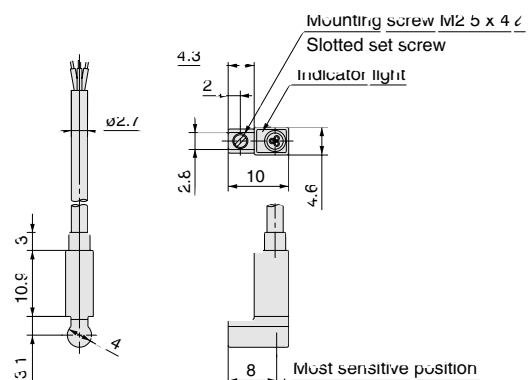
(g)

Auto switch part no.	D-F8N	D-F8P	D-F8B
Lead wire length (m)	0.5	7	7
	3	32	32
	5	52	52

Dimensions

(mm)

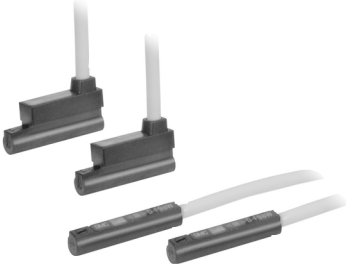
D-F8N/D-F8P/D-F8B



2-color Indication Solid State Switch: Direct Mounting Style

D-F9NW(V)/D-F9PW(V)/D-F9BW(V) C €

Grommet



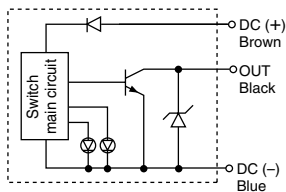
⚠ Caution

Operating Precautions

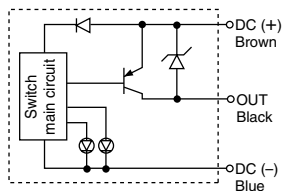
Fix the switch with the existing screw installed on the switch body. The switch may be damaged if a screw other than the one supplied, is used.

Auto Switch Internal Circuit

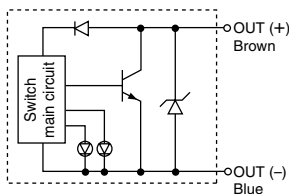
D-F9NW(V)



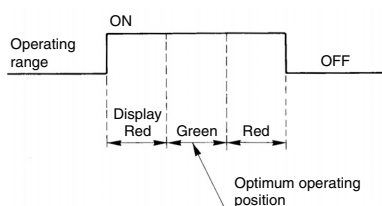
D-F9PW(V)



D-F9BW(V)



Indicator light/Display method



Auto Switch Specifications



For details about certified products conforming to international standards, visit us at www.smcworld.com.

PLC Programmable Logic Controller

D-F9□W/D-F9□WV (With indicator light)						
Auto switch part no.	D-F9NW	D-F9NWV	D-F9PW	D-F9PWV	D-F9BW	D-F9BWV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire			2-wire		
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay IC, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less		80 mA or less		5 to 40 mA	
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)		0.8 V or less		4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating position Red LED illuminates. Optimum operating position Green LED illuminates.					

• Lead wires

Oilproof heavy-duty vinyl cable: $\phi 2.7$, 0.15 mm² x 3 cores (Brown, Black, Blue), 0.18 mm² x 2 cores (Brown, Blue), 0.5 m

Note 1) Refer to page 16 for solid state switch common specifications.

Note 2) Refer to page 16 for lead wire lengths.

Weight

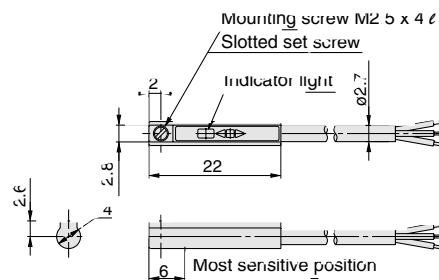
(g)

Auto switch part no.	D-F9NW(V)	D-F9PW(V)	D-F9BW(V)
Lead wire length (m)	0.5	7	7
	3	34	32
	5	56	52

Dimensions

(mm)

D-F9□W



D-F9□WV

