Air Slide Table
MXJ Series
ø12, ø16

RoHS

How to Order

MXJ 12 □ – 10 Z □ □ – M9BW □

Bore size

12	12 mm
16	16 mm

Number of auto switches

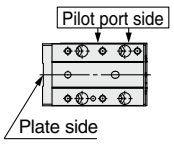
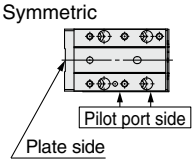
Nil	2
S	1
n	n

Auto switch

Nil	Without auto switch

∗ For applicable auto switches, refer to the table below.

Symmetric type

Nil	Standard 
L	Symmetric 

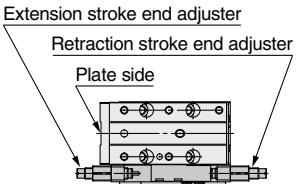
Stroke [mm]

Bore size	Stroke
12	10, 20, 30, 50
16	10, 20, 30, 50

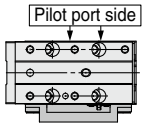
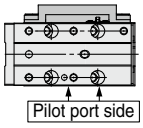
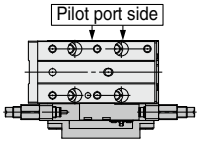
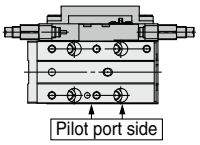
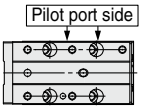
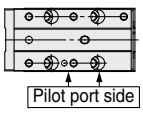
Adjuster

Symbol	Adjuster type	Adjuster mounting position	
		Extension stroke end	Retraction stroke end
Nil	Without adjuster	—	—
A	Metal stopper with bumper	●	●
B		●	—
C		—	●
D	Rubber stopper	●	●
E		●	—
F		—	●
G	Shock absorber	●	●
H		●	—
J		—	●
K	Metal stopper	●	●
L		●	—
M		—	●

Adjuster mounting position



Switch rail

		Standard	Symmetric
Nil	With switch rail (With magnet)		
	With switch rail and adjuster (With magnet)		
N	Without switch rail (Without magnet)		

∗ Adjuster shown is the shock absorber type.

Applicable Auto Switches/Refer to the **Web Catalog** or Best Pneumatics Catalog for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model: Electrical entry direction: Perpendicular	Auto switch model: Electrical entry direction: In-line	Lead wire length [m]∗2: 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○		
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	—	

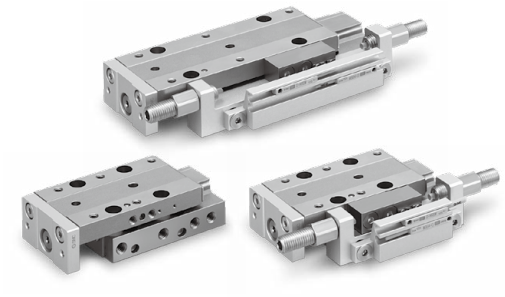
∗1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

∗2 Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

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

∗ Since there are applicable auto switches other than those listed above, refer to page 13 for details.
∗ Auto switches are shipped together, but not assembled.

⚠ Caution
When an auto switch is not mounted properly, it can cause a malfunction. Refer to "Auto Switch Mounting" on page 12.



Specifications

Model	MXJ12	MXJ16
Bore size [mm]	12	16
Piping port size	M5 x 0.8	
Fluid	Air	
Action	Double acting	
Operating pressure∗1	0.1 to 0.7 MPa	
Proof pressure	1.05 MPa	
Ambient and fluid temperatures	–10 to 60°C	
Piston speed (Average speed)∗2	50 to 500 mm/s (Metal stopper: 50 to 200 mm/s) (Metal stopper with bumper: 50 to 300 mm/s)	
Cushion (Without adjuster)	Rubber bumper	
Cushion (With adjuster)	Metal stopper, Metal stopper with bumper, Rubber stopper, Shock absorber	
Lubrication	Non-lube	
Auto switch	Solid state auto switch (2-wire, 3-wire), 2-color indicator solid state auto switch (2-wire, 3-wire)	
Stroke length tolerance	+2 to 0 mm (When no pressure is applied)	

∗1 Refer to page 24 for the minimum operating pressure of the metal stopper with bumper. If the operating pressure is lower than the minimum operating pressure, the repeated accuracy will decline.
Minimum operating pressure of the metal stopper with bumper: Pressure required to fully compress the protrusion of the bumper to get in contact with the metal part

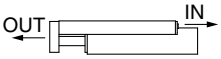
∗2 Set the piston speed so that the allowable kinetic energy of piston speed on page 6 is not exceeded. Please consider the weight of the moving parts. For some product models, the allowable kinetic energy can be exceeded only by the weight of the moving parts.

Made to Order

Made to Order
(For details, refer to pages 15 to 18.)

Symbol	Specifications
-X11	Long adjustment bolt (10 mm longer adjustment range)
-X12	Long adjustment bolt (20 mm longer adjustment range)
-X39	Fluororubber seal
-X42	Anti-corrosive guide unit
-X45	EPDM seal
-X53	Reed auto switch
-X2128	Heat-resistant specification (–10 to 100°C)
-X2410	Low-speed specification (15 to 50 mm/s)

Theoretical Output



[N]

Model	Bore size [mm]	Rod size [mm]	Operating direction	Piston area [mm²]	Operating pressure [MPa]					
					0.2	0.3	0.4	0.5	0.6	0.7
MXJ12	12	6	OUT	113	23	34	45	57	68	79
			IN	85	17	25	34	42	51	59
MXJ16	16	6	OUT	201	40	60	80	101	121	141
			IN	173	35	52	69	86	104	121

Weight

Basic Model (Without switch rail)

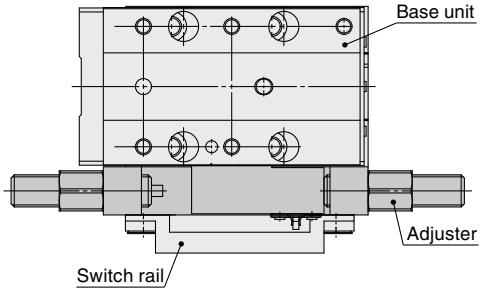
[g]

Model	Standard stroke [mm]			
	10	20	30	50
MXJ12	227	230	267	342
MXJ16	340	353	404	506

Additional Weight of Switch Rail

[g]

Model	Standard stroke [mm]			
	10	20	30	50
MXJ12	10	10	11	13
MXJ16	12	13	14	18



Additional Weight of Adjustment Unit

[g]

Model	Standard stroke [mm]				Additional weight of adjuster∗1			
	10	20	30	50	Metal stopper with bumper	Rubber stopper	Shock absorber	Metal stopper
MXJ12	36	39	41	46	9	9	9	9
MXJ16	63	67	71	78	17	17	20	18

∗1 Weights shown are for one adjuster. Double the weight in the table when the adjuster is used for both ends (extension/retraction).

For details on cylinders with auto switches ⇨ pp. 12, 13

- Auto Switch Proper Mounting Position (Detection at stroke end)
- Operating Range
- Auto Switch Mounting
- Switch Rail Assembly

⚠ Caution
Refer to "Prior to Use" on page 14.

Maximum Allowable Load Mass: m max

[kg]

Model	Maximum load mass	
	Without adjuster Rubber stopper Shock absorber	Metal stopper with bumper Metal stopper
MXJ12	0.8	0.5
MXJ16	1.5	1

Maximum Allowable Moment (Reference Values)

[N·m]

Model	Pitch, Yaw	Roll
MXJ12	4.5	5.3
MXJ16	6.4	9.2

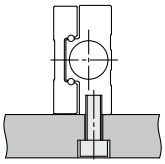
∗ A model cannot be selected with the maximum allowable moment. Select a model according to the model selection steps on page 19.

Allowable Kinetic Energy: J

[J]

Model	Without adjuster	Metal stopper with bumper	Rubber stopper	Shock absorber	Metal stopper
MXJ12	0.05	0.015	0.05	0.245	0.012
MXJ16	0.069	0.023 (0.017)∗1	0.069	0.49	0.02 (0.014)∗1

∗1 When the MXJ16 is side mounted and used with metal stoppers or metal stoppers with bumper, keep the kinetic energy below the value shown in brackets ( ).



Side mounting

Kinetic energy E [J] = $\frac{(m1 + m2)V^2}{2}$

m1: Weight of cylinder moving parts kg
m2: Load mass kg
V: Piston speed at the end m/s

V = 1.4 Va
Va: Average piston speed

∗ Average piston speed: Speed that the stroke is divided by a period of time from starting the operation to reaching the end.

Weight of Moving Parts: m1

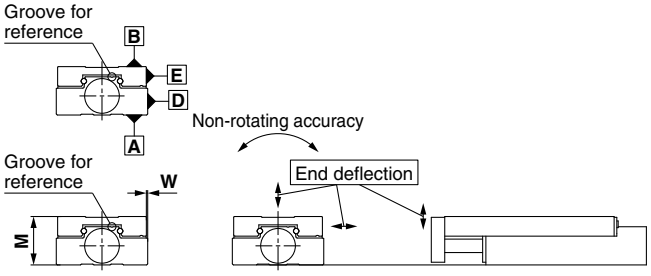
[g]

Model	Weight of moving parts				Additional weight of magnet	Additional weight of adjustment block
	Stroke [mm]					
	10	20	30	50		
MXJ12	96	99	115	147	0.61	16
MXJ16	138	147	168	211	0.61	30

Accuracy

Stroke	10, 20, 30	50
B side parallelism to A side	0.03 mm	
E side parallelism to D side		
B side traveling parallelism to A side	0.005 mm	0.008 mm
E side traveling parallelism to D side		
M dimension tolerance	±0.05 mm	
W dimension tolerance		
End deflection	±0.003 mm	
Non-rotating table accuracy (deg) at the retracted end	±0.02	

∗ The table displays the values for an unloaded, unpressurised cylinder without deflection. The values are recorded at 20°C ±5°C.



Adjuster Specifications/Refer to page 11 for adjuster models and dimensions.

Metal Stopper with Bumper

Model	MXJ12	MXJ16
Stroke absorption [mm]	2	2.8
Min. operating pressure of metal stopper with bumper∗1 [MPa]	0.3	0.3
Full compression force of bumper [N]	20	42
Mounting screw size	M6 x 0.75	M8 x 1

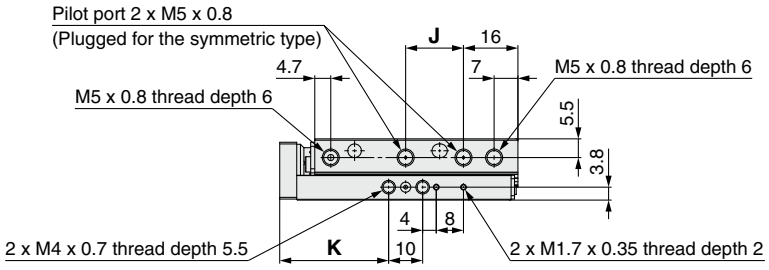
∗1 Minimum operating pressure required to fully compress the protrusion of the bumper to get in contact with the metal part
When using the metal stopper with bumper for positioning, use it at a pressure level exceeding the minimum operating pressure. For vertical mounting, the workpiece mass should be taken into consideration. For details, refer to Specific Product Precautions on page 24.

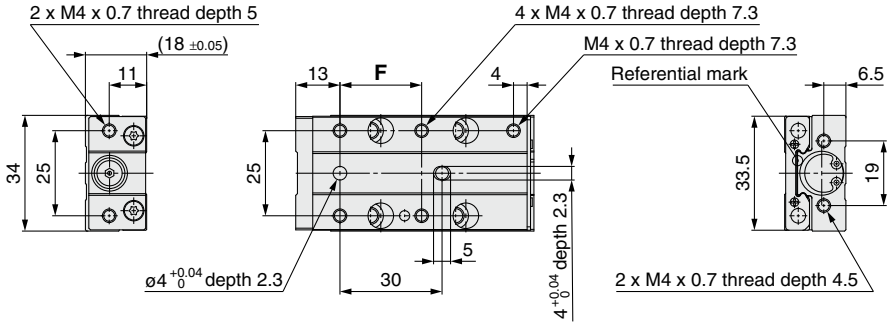
Shock Absorber/RJ

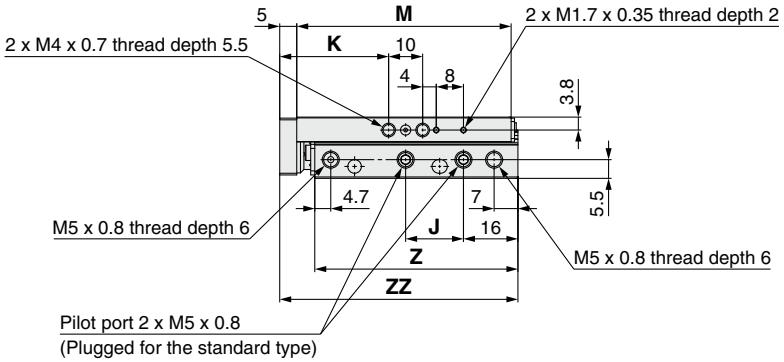
Model	MXJ12	MXJ16
Stroke absorption [mm]	4	6
Collision speed [mm/s]	50 to 500	
Max. operating frequency [cycle/min]	20	42
Max. allowable thrust [N]	150	245
Spring force (Extended) [N]	1.3	2.8
Spring force (Compressed) [N]	3.9	5.4
Mounting screw size	M6 x 0.75	M8 x 1
Shock absorber part number	RJ0604N	RJ0806LN

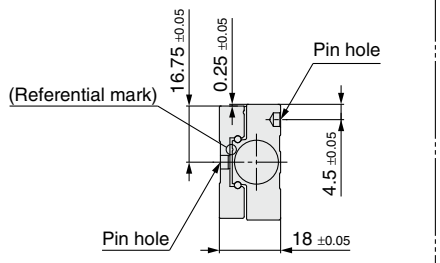
Dimensions

Basic model (Without switch rail)
MXJ12-□ZN

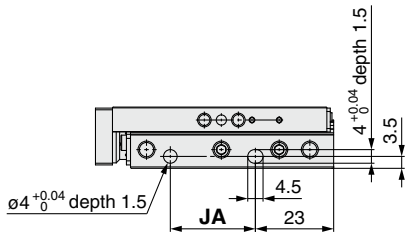




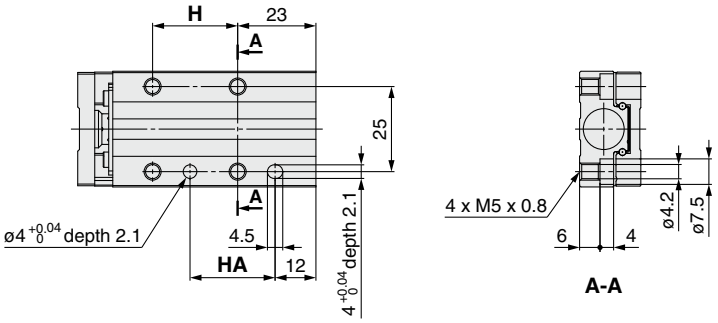




Dimensions taken from datum faces



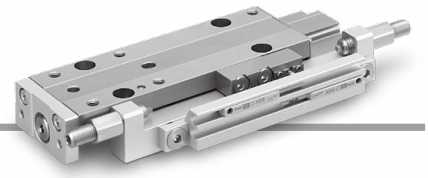
Locating pin hole geometry for positioning the body (Same dimensions on the other side)



Dimensions

[mm]

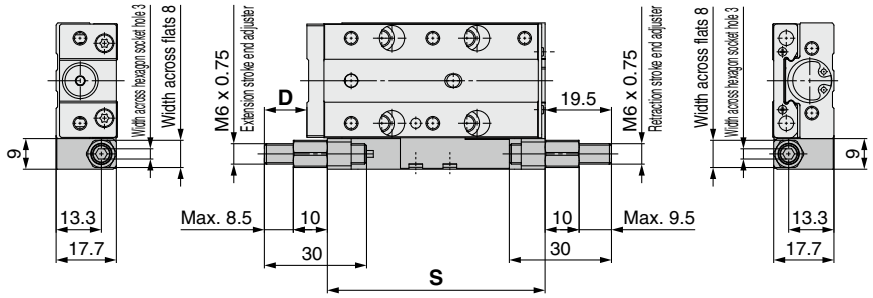
Model	F	H	HA	J	JA	K	M	Z	ZZ
MXJ12-10ZN	24	25	25	17	25	32	63	59.7	70
MXJ12-20ZN	26	27	27	27	27	34	65	61.7	72
MXJ12-30ZN	26	37	37	37	37	44	75	71.7	82
MXJ12-50ZN	26	57	57	57	57	64	95	91.7	102



Dimensions

MXJ12-□Z□N (With adjuster)

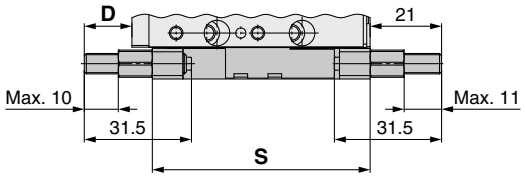
Metal stopper with bumper A: Both ends, B: Extension stroke end, C: Retraction stroke end



Dimensions [mm]

Model	D	S
MXJ12-10ZAN	12.5	64
MXJ12-10ZBN	12.5	
MXJ12-10ZCN	—	
MXJ12-20ZAN	20.5	74
MXJ12-20ZBN	20.5	
MXJ12-20ZCN	—	
MXJ12-30ZAN	20.5	84
MXJ12-30ZBN	20.5	
MXJ12-30ACN	—	
MXJ12-50ZAN	20.5	104
MXJ12-50ZBN	20.5	
MXJ12-50ACN	—	

Rubber stopper D: Both ends, E: Extension stroke end, F: Retraction stroke end



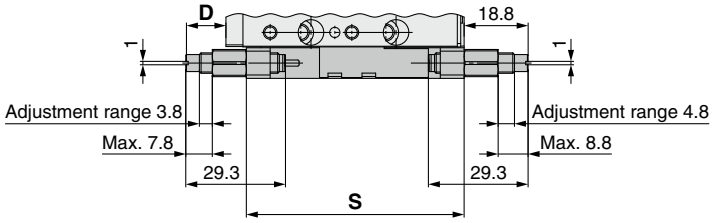
Dimensions [mm]

Model	D	S
MXJ12-10ZDN	14	64
MXJ12-10ZEN	14	
MXJ12-10ZFN	—	
MXJ12-20ZDN	22	74
MXJ12-20ZEN	22	
MXJ12-20ZFN	—	

Dimensions [mm]

Model	D	S
MXJ12-30ZDN	22	84
MXJ12-30ZEN	22	
MXJ12-30ZFN	—	
MXJ12-50ZDN	22	104
MXJ12-50ZEN	22	
MXJ12-50ZFN	—	

Shock absorber G: Both ends, H: Extension stroke end, J: Retraction stroke end



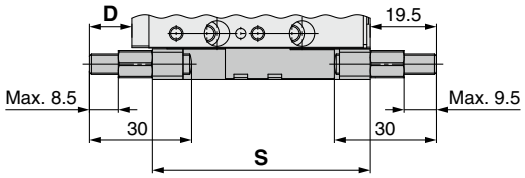
Dimensions [mm]

Model	D	S
MXJ12-10ZGN	11.8	64
MXJ12-10ZHN	11.8	
MXJ12-10ZJN	—	
MXJ12-20ZGN	19.8	74
MXJ12-20ZHN	19.8	
MXJ12-20ZJN	—	

Dimensions [mm]

Model	D	S
MXJ12-30ZGN	19.8	84
MXJ12-30ZHN	19.8	
MXJ12-30ZJN	—	
MXJ12-50ZGN	19.8	104
MXJ12-50ZHN	19.8	
MXJ12-50ZJN	—	

Metal stopper K: Both ends, L: Extension stroke end, M: Retraction stroke end



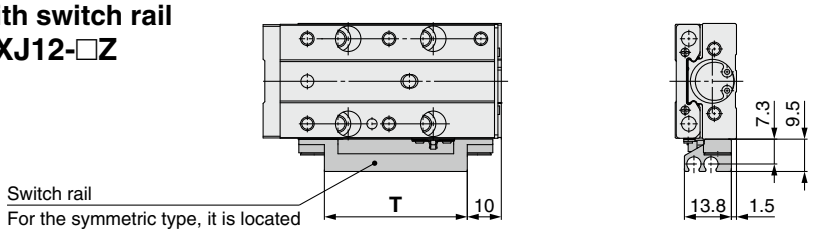
Dimensions [mm]

Model	D	S
MXJ12-10ZKN	12.5	64
MXJ12-10ZLN	12.5	
MXJ12-10ZMN	—	
MXJ12-20ZKN	20.5	74
MXJ12-20ZLN	20.5	
MXJ12-20ZMN	—	

Dimensions [mm]

Model	D	S
MXJ12-30ZKN	20.5	84
MXJ12-30ZLN	20.5	
MXJ12-30ZMN	—	
MXJ12-50ZKN	20.5	104
MXJ12-50ZLN	20.5	
MXJ12-50ZMN	—	

With switch rail
MXJ12-□Z

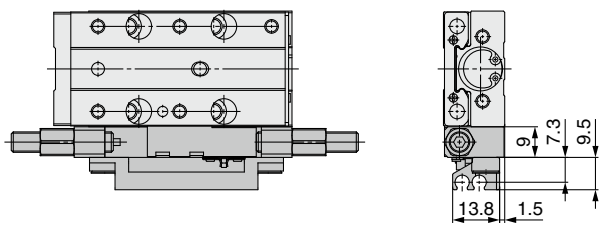


Dimensions [mm]

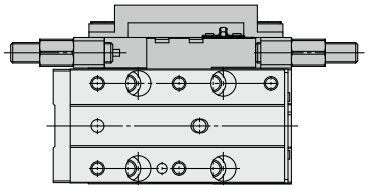
Model	T
MXJ12-10Z	42
MXJ12-20Z	44
MXJ12-30Z	54
MXJ12-50Z	74

With switch rail and adjuster

Standard type
MXJ12-□Z□

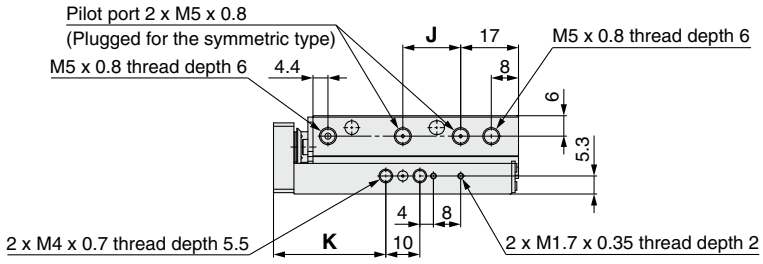


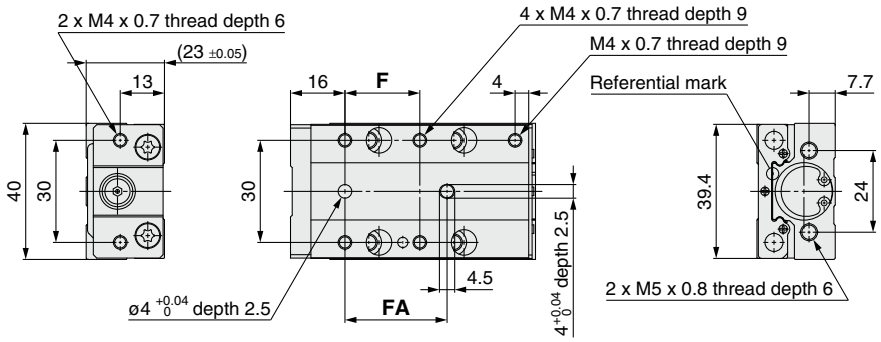
Symmetric type
MXJ12L-□Z□

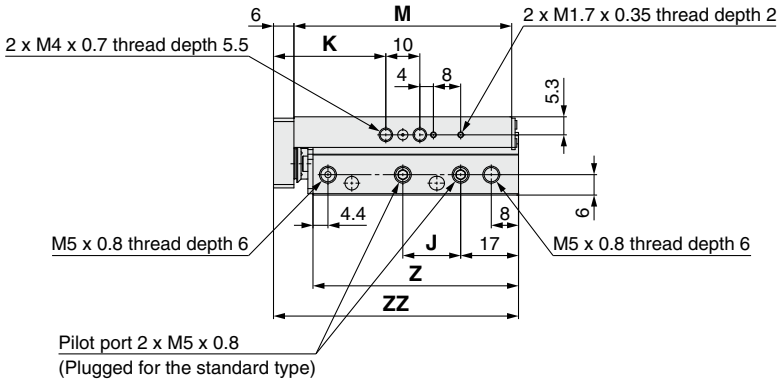


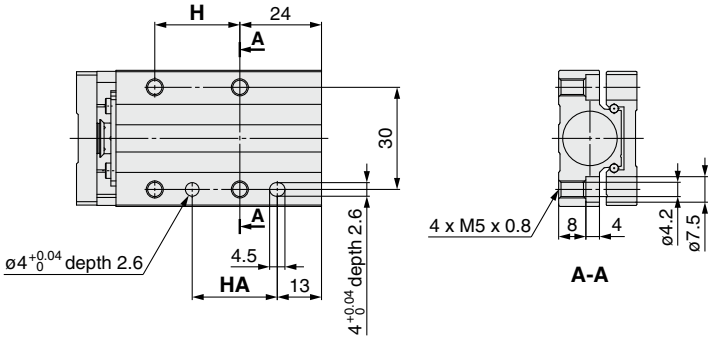
Dimensions

Basic model (Without switch rail)
MXJ16-□ZN

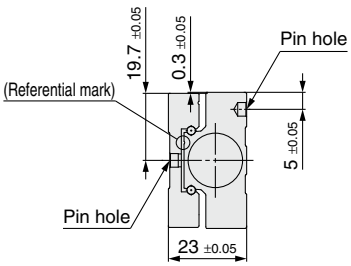




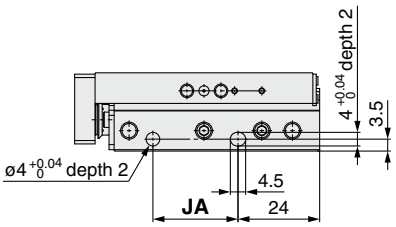




A-A



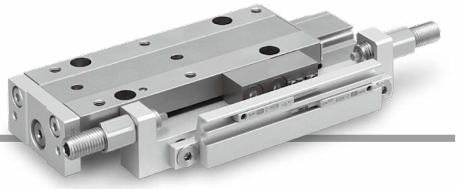
Dimensions taken from datum faces



Locating pin hole geometry for positioning the body (Same dimensions on the other side)

Dimensions [mm]

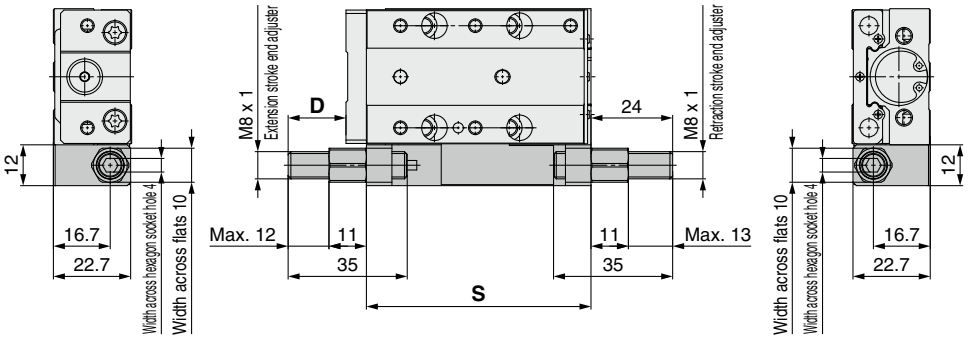
Model	F	FA	H	HA	J	JA	K	M	Z	ZZ
MXJ16-10ZN	22	30	25	25	17	25	33	64	60.4	72
MXJ16-20ZN	26	30	29	29	27	29	37	68	64.4	76
MXJ16-30ZN	36	40	39	39	37	39	47	78	74.4	86
MXJ16-50ZN	36	40	59	59	57	59	67	98	94.4	106



Dimensions

MXJ16-□Z□N (With adjuster)

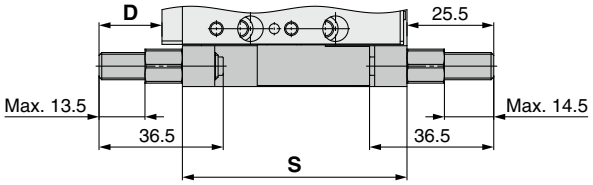
Metal stopper with bumper A: Both ends, B: Extension stroke end, C: Retraction stroke end



Dimensions [mm]

Model	D	S
MXJ16-10ZAN	17	66
MXJ16-10ZBN	17	
MXJ16-10ZCN	—	
MXJ16-20ZAN	23	76
MXJ16-20ZBN	23	
MXJ16-20ZCN	—	
MXJ16-30ZAN	23	86
MXJ16-30ZBN	23	
MXJ16-30ZCN	—	
MXJ16-50ZAN	23	106
MXJ16-50ZBN	23	
MXJ16-50ZCN	—	

Rubber stopper D: Both ends, E: Extension stroke end, F: Retraction stroke end



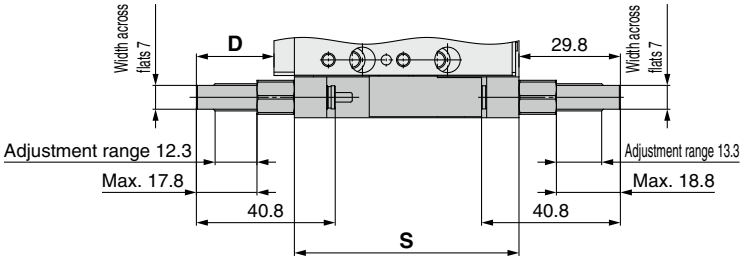
Dimensions [mm]

Model	D	S
MXJ16-10ZDN	18.5	66
MXJ16-10ZEN	18.5	
MXJ16-10ZFN	—	
MXJ16-20ZDN	24.5	76
MXJ16-20ZEN	24.5	
MXJ16-20ZFN	—	

[mm]

Model	D	S
MXJ16-30ZDN	24.5	86
MXJ16-30ZEN	24.5	
MXJ16-30ZFN	—	
MXJ16-50ZDN	24.5	106
MXJ16-50ZEN	24.5	
MXJ16-50ZFN	—	

Shock absorber G: Both ends, H: Extension stroke end, J: Retraction stroke end



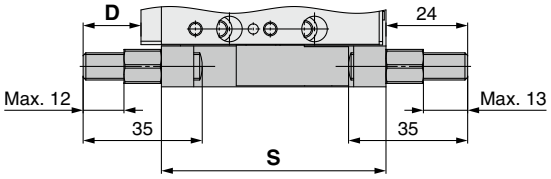
Dimensions [mm]

Model	D	S
MXJ16-10ZGN	22.8	66
MXJ16-10ZHN	22.8	
MXJ16-10ZJN	—	
MXJ16-20ZGN	28.8	76
MXJ16-20ZHN	28.8	
MXJ16-20ZJN	—	

[mm]

Model	D	S
MXJ16-30ZGN	28.8	86
MXJ16-30ZHN	28.8	
MXJ16-30ZJN	—	
MXJ16-50ZGN	28.8	106
MXJ16-50ZHN	28.8	
MXJ16-50ZJN	—	

Metal stopper K: Both ends, L: Extension stroke end, M: Retraction stroke end



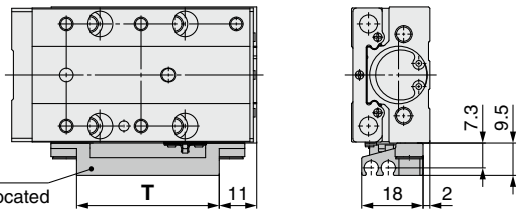
Dimensions [mm]

Model	D	S
MXJ16-10ZKN	17	66
MXJ16-10ZLN	17	
MXJ16-10ZMN	—	
MXJ16-20ZKN	23	76
MXJ16-20ZLN	23	
MXJ16-20ZMN	—	

[mm]

Model	D	S
MXJ16-30ZKN	23	86
MXJ16-30ZLN	23	
MXJ16-30ZMN	—	
MXJ16-50ZKN	23	106
MXJ16-50ZLN	23	
MXJ16-50ZMN	—	

With switch rail
MXJ16-□Z

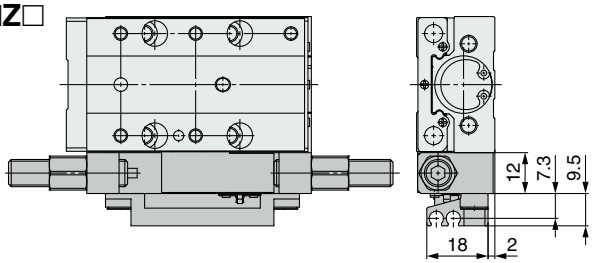


Dimensions [mm]

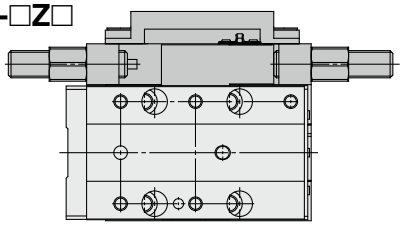
Model	T
MXJ16-10Z	42
MXJ16-20Z	46
MXJ16-30Z	56
MXJ16-50Z	76

With switch rail and adjuster

Standard type
MXJ16-□Z□



Symmetric type
MXJ16L-□Z□



MXJ Series
Adjusters

How to Order

MXJZ – C 12 – 10 A

Adjuster type

Symbol	Adjuster type	Adjuster mounting position
C	Metal stopper with bumper	Both ends
A	Rubber stopper	
J	Shock absorber	
D	Metal stopper	
CS	Metal stopper with bumper	One side
AS	Rubber stopper	
JS	Shock absorber	
DS	Metal stopper	

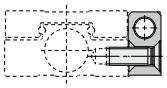
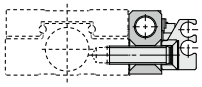
Bore size

12
16

Stroke

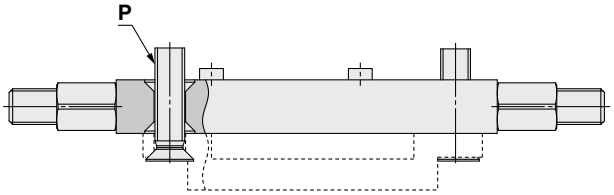
10
20
30
50

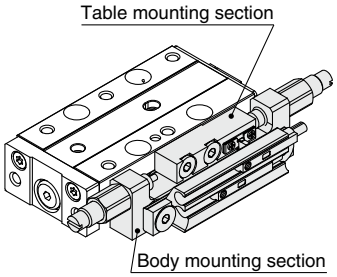
Mounting bolt

Symbol	Mounting type		Bolt size
A	For adjustment plate mounting		MXJ12: M5 x 14 MXJ16: M5 x 17
B	For adjustment plate and switch rail mounting		MXJ12: M5 x 19 MXJ16: M5 x 22

Dimensions

With switch rail





Body mounting section

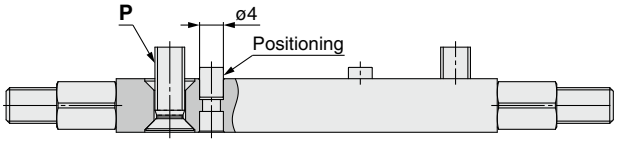
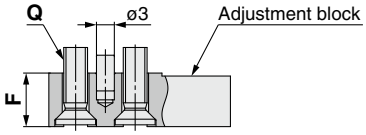
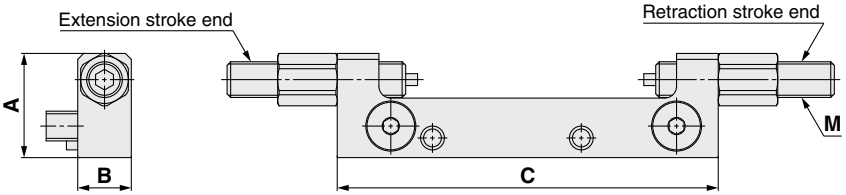
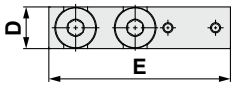


Table mounting section







Model	Adjuster type	Adjuster part number*1		Adjustment bolt part no.		Body mounting section								Table mounting section			
		Both ends	One side (Extension stroke end, Retraction stroke end)	With nut	Without nut	A	B	C Stroke 10	C Stroke 20	C Stroke 30	C Stroke 50	M (Fine pitch)	P	D	E	F	Q
																	
MXJ12	Metal stopper with bumper	**MXJZ-C12-□□A**	**MXJZ-CS12-□□A**	MXJZ-CT12	MXQA-A887	17.5	9	64	74	84	104	M6 x 0.75	M5 x 14	6.8	32	9	M4 x 13
		MXJZ-C12-□□B	**MXJZ-CS12-□□B**										M5 x 19				
	Rubber stopper	**MXJZ-A12-□□A**	**MXJZ-AS12-□□A**	MXJZ-AT12	MXQA-A827								M5 x 14				
		MXJZ-A12-□□B	**MXJZ-AS12-□□B**										M5 x 19				
	Shock absorber	**MXJZ-J12-□□A**	**MXJZ-JS12-□□A**	MXJZ-JT12	RJ0604N								M5 x 14				
		MXJZ-J12-□□B	**MXJZ-JS12-□□B**										M5 x 19				
	Metal stopper	**MXJZ-D12-□□A**	**MXJZ-DS12-□□A**	MXJZ-DT12	MXQA-A838								M5 x 14				
		MXJZ-D12-□□B	**MXJZ-DS12-□□B**										M5 x 19				
MXJ16	Metal stopper with bumper	**MXJZ-C16-□□A**	**MXJZ-CS16-□□A**	MXJZ-CT16	MXQA-A1287	22.2	12	66	76	86	106	M8 x 1	M5 x 17	9.4	33	12	M4 x 16
		MXJZ-C16-□□B	**MXJZ-CS16-□□B**										M5 x 22				
	Rubber stopper	**MXJZ-A16-□□A**	**MXJZ-AS16-□□A**	MXJZ-AT16	MXQA-A1227								M5 x 17				
		MXJZ-A16-□□B	**MXJZ-AS16-□□B**										M5 x 22				
	Shock absorber	**MXJZ-J16-□□A**	**MXJZ-JS16-□□A**	MXJZ-JT16	RJ0806LN								M5 x 17				
		MXJZ-J16-□□B	**MXJZ-JS16-□□B**										M5 x 22				
	Metal stopper	**MXJZ-D16-□□A**	**MXJZ-DS16-□□A**	MXJZ-DT16	MXQA-A1238								M5 x 17				
		MXJZ-D16-□□B	**MXJZ-DS16-□□B**										M5 x 22				

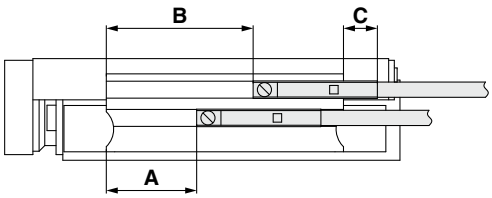
*1 The adjustment bolt and shock absorber are included.

Auto Switch Mounting

Auto Switch Proper Mounting Position (Detection at stroke end)

Lead wire, in-line entry (Without adjuster)

Solid state auto switch
D-M9□
D-M9□W
D-M9□A

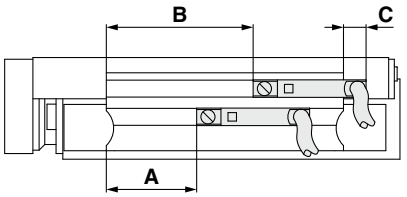


[mm]

Model	A				B				C			
	Stroke				Stroke				Stroke			
	10	20	30	50	10	20	30	50	10	20	30	50
MXJ12	16	8	8	8	26	28	38	58	6	6	6	6
MXJ16	16	10	10	10	26	30	40	60	6	6	6	6

Lead wire, perpendicular entry (Without adjuster)

Solid state auto switch
D-M9□V
D-M9□WV
D-M9□AV

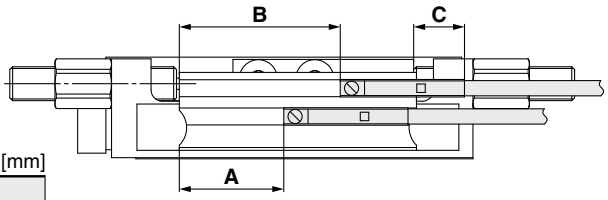


[mm]

Model	A				B				C			
	Stroke				Stroke				Stroke			
	10	20	30	50	10	20	30	50	10	20	30	50
MXJ12	16	8	8	8	26	28	38	58	4	4	4	4
MXJ16	16	10	10	10	26	30	40	60	4	4	4	4

Lead wire, in-line entry (With adjuster)

Solid state auto switch
D-M9□
D-M9□W
D-M9□A

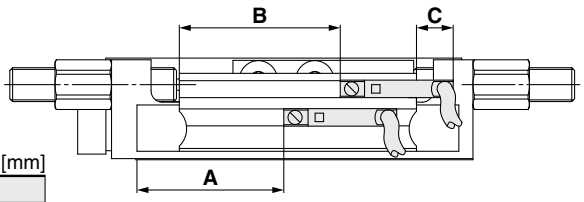


[mm]

Model	A				B				C			
	Stroke				Stroke				Stroke			
	10	20	30	50	10	20	30	50	10	20	30	50
MXJ12	18.5	10.5	10.5	10.5	28.5	30.5	40.5	60.5	8.5	8.5	8.5	8.5
MXJ16	19	13	13	13	29	33	43	63	9	9	9	9

Lead wire, perpendicular entry (With adjuster)

Solid state auto switch
D-M9□V
D-M9□WV
D-M9□AV



[mm]

Model	A				B				C			
	Stroke				Stroke				Stroke			
	10	20	30	50	10	20	30	50	10	20	30	50
MXJ12	18.5	10.5	10.5	10.5	28.5	30.5	40.5	60.5	6.5	6.5	6.5	6.5
MXJ16	19	13	13	13	29	33	43	63	7	7	7	7

Operating Range

[mm]

Auto switch model	MXJ12	MXJ16
D-M9□, M9□V	1.5	1.5
D-M9□W, M9□WV		
D-M9□A, M9□AV		

∗ Values which include hysteresis are for reference purposes only. They are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

Auto Switch Mounting

⚠ Caution

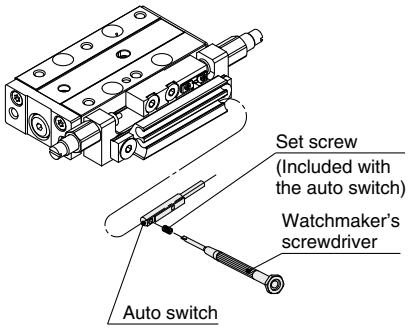
1. Auto switch mounting tool

· When tightening the auto switch mounting screw (included with the auto switch), use a watchmaker's screwdriver with a handle diameter of about 5 to 6 mm.

Tightening torque

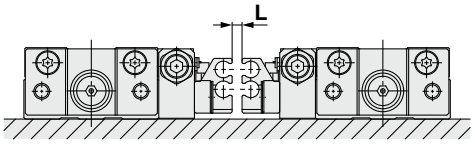
Tightening Torque of Auto Switch Mounting Screw [N·m]

Auto switch model	Tightening torque
D-M9□(V) **D-M9□W(V)** **D-M9□A(V)**	0.05 to 0.15



2. Maintain a minimum gap (L) if standard type and symmetric type are used side by side.

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

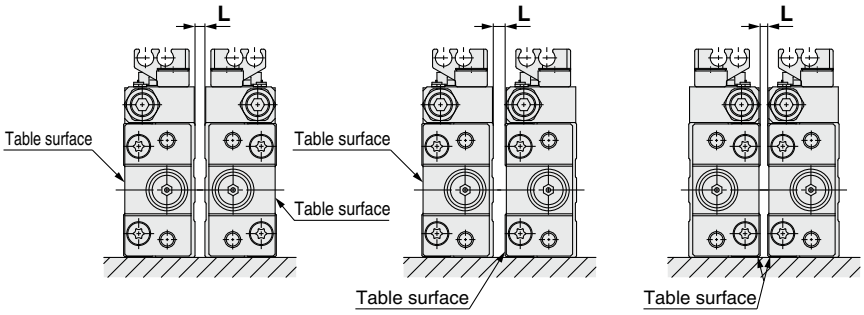


L Dimension [mm]

Without shielding plate	4.5
With shielding plate	2.5

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

3. Maintain a minimum gap (L) if multiple products are side mounted next to each other.



L Dimension [mm]

Without shielding plate	1
With shielding plate	

Switch Rail Assembly

MXJZ − AD 12 − 10 N

Bore size

12
16

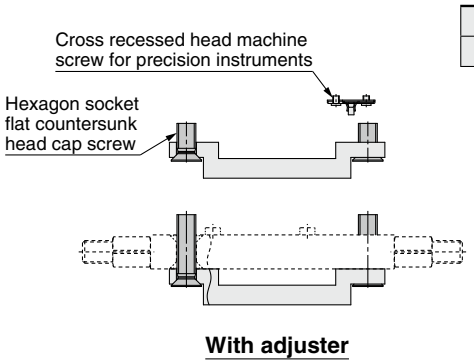
Stroke

10
20
30
50

Mounting bolt

Symbol	Mounting type		Hexagon socket flat countersunk head cap screw	Cross recessed head machine screw for precision instruments
N	None*1			M1.7 x 2
B	For adjustment plate and switch rail mounting		MXJ12: M5 x 19 MXJ16: M5 x 22	M1.7 x 2
C	For switch rail mounting		MXJ12: M5 x 10 MXJ16: M5 x 10	M1.7 x 2

*1 The bolt is included in the adjuster when ordering the adjuster and switch rail assembly together.



With adjuster

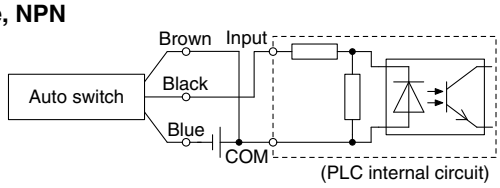
Other than the applicable auto switches listed in "How to Order," the following auto switches are also mountable.

* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to the **Web Catalog**.

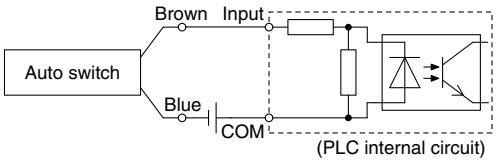
Prior to Use
Auto Switch Connections and Examples

Sink Input Specifications

3-wire, NPN

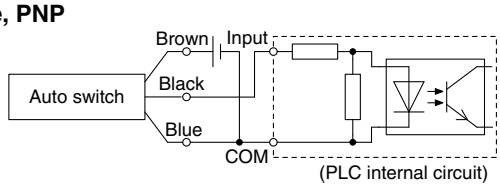


2-wire

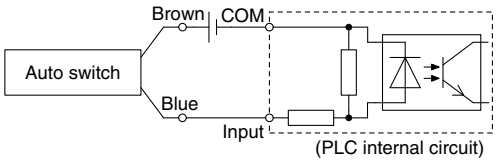


Source Input Specifications

3-wire, PNP



2-wire



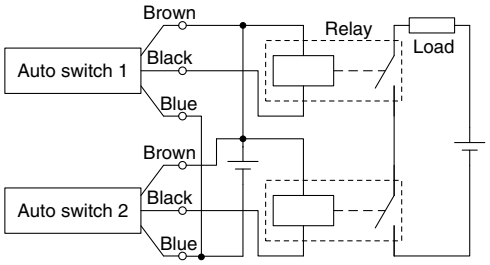
Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

Examples of AND (Series) and OR (Parallel) Connections

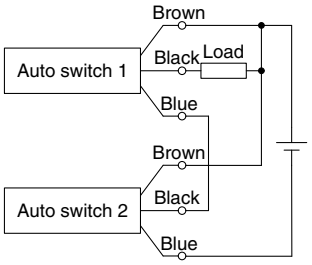
* When using solid state auto switches, ensure the application is set up so the signals for the first 50 ms are invalid. Depending on the operating environment, the product may not operate properly.

3-wire AND connection for NPN output

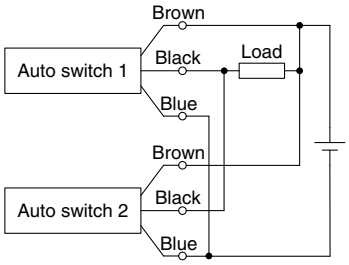
(Using relays)



(Performed with auto switches only)

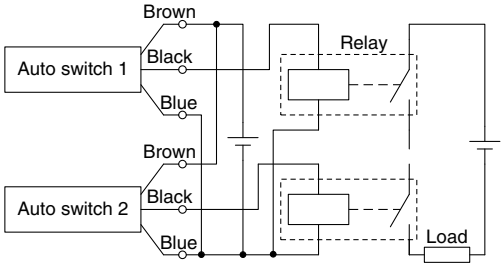


3-wire OR connection for NPN output

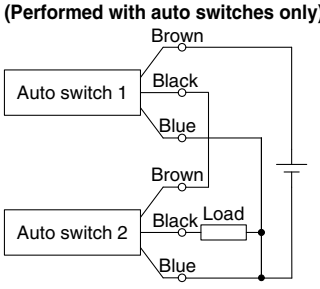


3-wire AND connection for PNP output

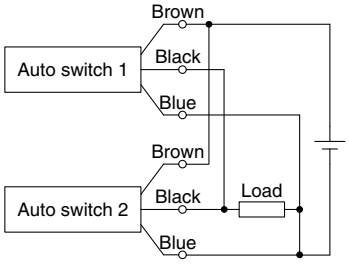
(Using relays)



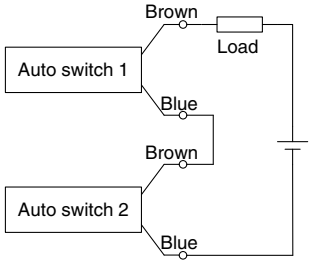
(Performed with auto switches only)



3-wire OR connection for PNP output



2-wire AND connection

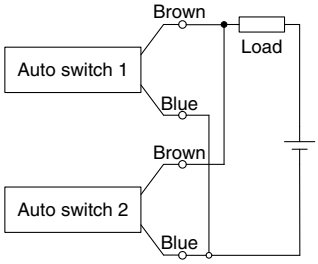


When two auto switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state.
The indicator lights will light up when both of the auto switches are in the ON state.
Auto switches with a load voltage less than 20 V cannot be used.

Load voltage at ON = Power supply voltage – Residual voltage x 2 pcs.
= 24 V – 4 V x 2 pcs.
= 16 V

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

2-wire OR connection



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

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

Load voltage at OFF = Leakage current x 2 pcs. x Load impedance
= 1 mA x 2 pcs. x 3 kΩ
= 6 V

Example: Load impedance is 3 kΩ.
Leakage current from auto switch is 1 mA.

MXJ Series
Made to Order

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

No.	Symbol	Specifications	Page
1	-X11	Long adjustment bolt (10 mm longer adjustment range)	16
2	-X12	Long adjustment bolt (20 mm longer adjustment range)	16
3	-X39	Fluororubber seal	17
4	-X42	Anti-corrosive guide unit	17
5	-X45	EPDM seal	17
6	-X53	Reed auto switch	17
7	-X2128	Heat-resistant specification (–10 to 100°C)	18
8	-X2410	Low-speed specification (15 to 50 mm/s)	18

Symbol

1 Long Adjustment Bolt (10 mm longer adjustment range) -X11

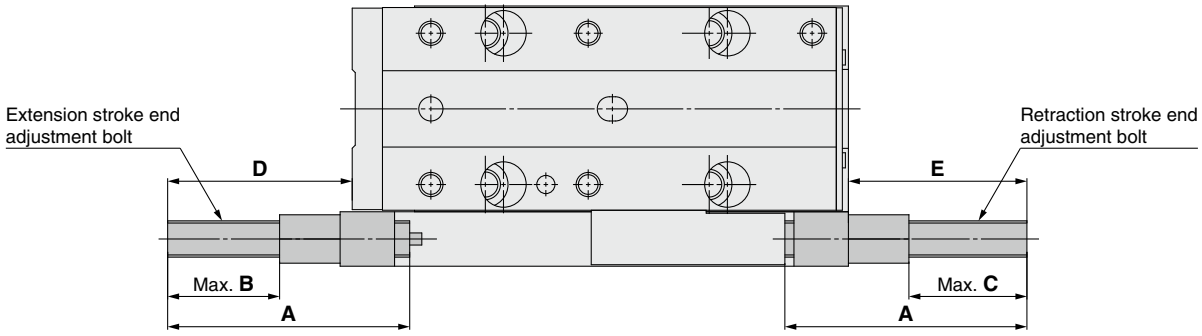
The stroke adjustment range has been increased by 10 mm compared with the standard product by making the adjustment bolt longer. For the adjustment range, refer to the table below.

* -X11 is not available with shock absorber.
* For MXJ16, "-X11" is not necessary for 10 mm stroke because the stroke adjustment range of standard products is 10 mm or more, but it is possible to order.

MXJ | Standard model no. (Refer to page 4.) | Standard adjuster part no. (Refer to page 11.) | Standard adjustment bolt part no. (Refer to page 11.) – X11

Long adjustment bolt (10 mm longer adjustment range)

Dimensions



Metal Stopper with Bumper

[mm]

Model	A	B	C	D	E
MXJ12(L)-10ZA(N)-X11	40	18.5	19.5	22.5	29.5
MXJ12(L)-10ZB(N)-X11		18.5	—	22.5	—
MXJ12(L)-10ZC(N)-X11		—	19.5	—	29.5
MXJ12(L)-20ZA(N)-X11	40	18.5	19.5	30.5	29.5
MXJ12(L)-20ZB(N)-X11		18.5	—	30.5	—
MXJ12(L)-20ZC(N)-X11		—	19.5	—	29.5
MXJ12(L)-30ZA(N)-X11	40	18.5	19.5	30.5	29.5
MXJ12(L)-30ZB(N)-X11		18.5	—	30.5	—
MXJ12(L)-30AC(N)-X11		—	19.5	—	29.5
MXJ12(L)-50ZA(N)-X11	40	18.5	19.5	30.5	29.5
MXJ12(L)-50ZB(N)-X11		18.5	—	30.5	—
MXJ12(L)-50AC(N)-X11		—	19.5	—	29.5

[mm]

Model	A	B	C	D	E
MXJ16(L)-10ZA(N)-X11	45	22	23	27	34
MXJ16(L)-10ZB(N)-X11		22	—	27	—
MXJ16(L)-10ZC(N)-X11		—	23	—	34
MXJ16(L)-20ZA(N)-X11	45	22	23	33	34
MXJ16(L)-20ZB(N)-X11		22	—	33	—
MXJ16(L)-20ZC(N)-X11		—	23	—	34
MXJ16(L)-30ZA(N)-X11	45	22	23	33	34
MXJ16(L)-30ZB(N)-X11		22	—	33	—
MXJ16(L)-30ZC(N)-X11		—	23	—	34
MXJ16(L)-50ZA(N)-X11	45	22	23	33	34
MXJ16(L)-50ZB(N)-X11		22	—	33	—
MXJ16(L)-50ZC(N)-X11		—	23	—	34

Rubber Stopper

[mm]

Model	A	B	C	D	E
MXJ12(L)-10ZD(N)-X11	41.5	20	21	24	31
MXJ12(L)-10ZE(N)-X11		20	—	24	—
MXJ12(L)-10ZF(N)-X11		—	21	—	31
MXJ12(L)-20ZD(N)-X11	41.5	20	21	32	31
MXJ12(L)-20ZE(N)-X11		20	—	32	—
MXJ12(L)-20ZF(N)-X11		—	21	—	31
MXJ12(L)-30ZD(N)-X11	41.5	20	21	32	31
MXJ12(L)-30ZE(N)-X11		20	—	32	—
MXJ12(L)-30ZF(N)-X11		—	21	—	31
MXJ12(L)-50ZD(N)-X11	41.5	20	21	32	31
MXJ12(L)-50ZE(N)-X11		20	—	32	—
MXJ12(L)-50ZF(N)-X11		—	21	—	31

[mm]

Model	A	B	C	D	E
MXJ16(L)-10ZD(N)-X11	46.5	23.5	24.5	28.5	35.5
MXJ16(L)-10ZE(N)-X11		23.5	—	28.5	—
MXJ16(L)-10ZF(N)-X11		—	24.5	—	35.5
MXJ16(L)-20ZD(N)-X11	46.5	23.5	24.5	34.5	35.5
MXJ16(L)-20ZE(N)-X11		23.5	—	34.5	—
MXJ16(L)-20ZF(N)-X11		—	24.5	—	35.5
MXJ16(L)-30ZD(N)-X11	46.5	23.5	24.5	34.5	35.5
MXJ16(L)-30ZE(N)-X11		23.5	—	34.5	—
MXJ16(L)-30ZF(N)-X11		—	24.5	—	35.5
MXJ16(L)-50ZD(N)-X11	46.5	23.5	24.5	34.5	35.5
MXJ16(L)-50ZE(N)-X11		23.5	—	34.5	—
MXJ16(L)-50ZF(N)-X11		—	24.5	—	35.5

Metal Stopper

[mm]

Model	A	B	C	D	E
MXJ12(L)-10ZK(N)-X11	40	18.5	19.5	22.5	29.5
MXJ12(L)-10ZL(N)-X11		18.5	—	22.5	—
MXJ12(L)-10ZM(N)-X11		—	19.5	—	29.5
MXJ12(L)-20ZK(N)-X11	40	18.5	19.5	30.5	29.5
MXJ12(L)-20ZL(N)-X11		18.5	—	30.5	—
MXJ12(L)-20ZM(N)-X11		—	19.5	—	29.5
MXJ12(L)-30ZK(N)-X11	40	18.5	19.5	30.5	29.5
MXJ12(L)-30ZL(N)-X11		18.5	—	30.5	—
MXJ12(L)-30ZM(N)-X11		—	19.5	—	29.5
MXJ12(L)-50ZK(N)-X11	40	18.5	19.5	30.5	29.5
MXJ12(L)-50ZL(N)-X11		18.5	—	30.5	—
MXJ12(L)-50ZM(N)-X11		—	19.5	—	29.5

[mm]

Model	A	B	C	D	E
MXJ16(L)-10ZK(N)-X11	45	22	23	27	34
MXJ16(L)-10ZL(N)-X11		22	—	27	—
MXJ16(L)-10ZM(N)-X11		—	23	—	34
MXJ16(L)-20ZK(N)-X11	45	22	23	33	34
MXJ16(L)-20ZL(N)-X11		22	—	33	—
MXJ16(L)-20ZM(N)-X11		—	23	—	34
MXJ16(L)-30ZK(N)-X11	45	22	23	33	34
MXJ16(L)-30ZL(N)-X11		22	—	33	—
MXJ16(L)-30ZM(N)-X11		—	23	—	34
MXJ16(L)-50ZK(N)-X11	45	22	23	33	34
MXJ16(L)-50ZL(N)-X11		22	—	33	—
MXJ16(L)-50ZM(N)-X11		—	23	—	34

2 Long Adjustment Bolt (20 mm longer adjustment range)

Symbol **-X12**

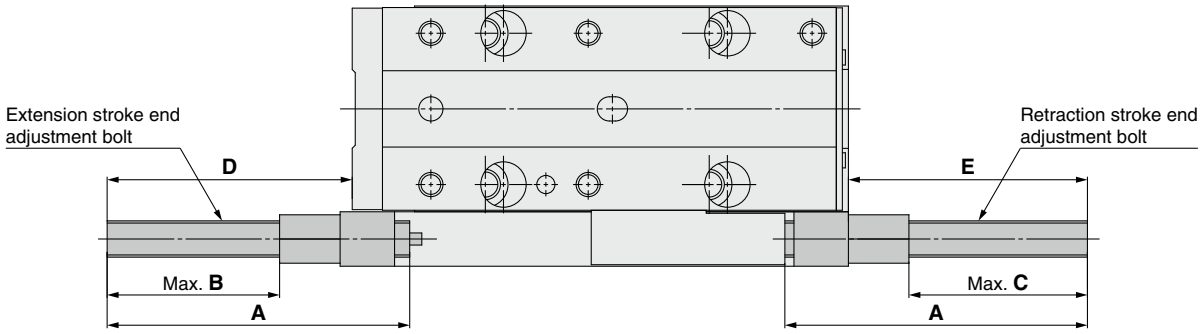
The stroke adjustment range has been increased by 20 mm compared with the standard product by making the adjustment bolt longer. For the adjustment range, refer to the table below.

* -X12 is not available with shock absorber.
* For MXJ16, "-X12" is not necessary for 10 or 20 mm stroke because the stroke adjustment range of -X11 is 20 mm or more, but it is possible to order.

MXJ | Standard model no. (Refer to page 4.) | Standard adjuster part no. (Refer to page 11.) | Standard adjustment bolt part no. (Refer to page 11.) **– X12**

Long adjustment bolt (20 mm longer adjustment range)

Dimensions



Metal Stopper with Bumper

[mm]

Model	A	B	C	D	E
MXJ12(L)-10ZA(N)-X12	50	28.5	29.5	32.5	39.5
MXJ12(L)-10ZB(N)-X12		28.5	—	32.5	—
MXJ12(L)-10ZC(N)-X12		—	29.5	—	39.5
MXJ12(L)-20ZA(N)-X12	50	28.5	29.5	40.5	39.5
MXJ12(L)-20ZB(N)-X12		28.5	—	40.5	—
MXJ12(L)-20ZC(N)-X12		—	29.5	—	39.5
MXJ12(L)-30ZA(N)-X12	50	28.5	29.5	40.5	39.5
MXJ12(L)-30ZB(N)-X12		28.5	—	40.5	—
MXJ12(L)-30ZC(N)-X12		—	29.5	—	39.5
MXJ12(L)-50ZA(N)-X12	50	28.5	29.5	40.5	39.5
MXJ12(L)-50ZB(N)-X12		28.5	—	40.5	—
MXJ12(L)-50AC(N)-X12		—	29.5	—	39.5

[mm]

Model	A	B	C	D	E
MXJ16(L)-10ZA(N)-X12	55	32	33	37	44
MXJ16(L)-10ZB(N)-X12		32	—	37	—
MXJ16(L)-10ZC(N)-X12		—	33	—	44
MXJ16(L)-20ZA(N)-X12	55	32	33	43	44
MXJ16(L)-20ZB(N)-X12		32	—	43	—
MXJ16(L)-20ZC(N)-X12		—	33	—	44
MXJ16(L)-30ZA(N)-X12	55	32	33	43	44
MXJ16(L)-30ZB(N)-X12		32	—	43	—
MXJ16(L)-30ZC(N)-X12		—	33	—	44
MXJ16(L)-50ZA(N)-X12	55	32	33	43	44
MXJ16(L)-50ZB(N)-X12		32	—	43	—
MXJ16(L)-50ZC(N)-X12		—	33	—	44

Rubber Stopper

[mm]

Model	A	B	C	D	E
MXJ12(L)-10ZD(N)-X12	51.5	30	31	34	41
MXJ12(L)-10ZE(N)-X12		30	—	34	—
MXJ12(L)-10ZF(N)-X12		—	31	—	41
MXJ12(L)-20ZD(N)-X12	51.5	30	31	42	41
MXJ12(L)-20ZE(N)-X12		30	—	42	—
MXJ12(L)-20ZF(N)-X12		—	31	—	41
MXJ12(L)-30ZD(N)-X12	51.5	30	31	42	41
MXJ12(L)-30ZE(N)-X12		30	—	42	—
MXJ12(L)-30ZF(N)-X12		—	31	—	41
MXJ12(L)-50ZD(N)-X12	51.5	30	31	42	41
MXJ12(L)-50ZE(N)-X12		30	—	42	—
MXJ12(L)-50ZF(N)-X12		—	31	—	41

[mm]

Model	A	B	C	D	E
MXJ16(L)-10ZD(N)-X12	56.5	33.5	34.5	38.5	45.5
MXJ16(L)-10ZE(N)-X12		33.5	—	38.5	—
MXJ16(L)-10ZF(N)-X12		—	34.5	—	45.5
MXJ16(L)-20ZD(N)-X12	56.5	33.5	34.5	44.5	45.5
MXJ16(L)-20ZE(N)-X12		33.5	—	44.5	—
MXJ16(L)-20ZF(N)-X12		—	34.5	—	45.5
MXJ16(L)-30ZD(N)-X12	56.5	33.5	34.5	44.5	45.5
MXJ16(L)-30ZE(N)-X12		33.5	—	44.5	—
MXJ16(L)-30ZF(N)-X12		—	34.5	—	45.5
MXJ16(L)-50ZD(N)-X12	56.5	33.5	34.5	44.5	45.5
MXJ16(L)-50ZE(N)-X12		33.5	—	44.5	—
MXJ16(L)-50ZF(N)-X12		—	34.5	—	45.5

Metal Stopper

[mm]

Model	A	B	C	D	E
MXJ12(L)-10ZK(N)-X12	50	28.5	29.5	32.5	39.5
MXJ12(L)-10ZL(N)-X12		28.5	—	32.5	—
MXJ12(L)-10ZM(N)-X12		—	29.5	—	39.5
MXJ12(L)-20ZK(N)-X12	50	28.5	29.5	40.5	39.5
MXJ12(L)-20ZL(N)-X12		28.5	—	40.5	—
MXJ12(L)-20ZM(N)-X12		—	29.5	—	39.5
MXJ12(L)-30ZK(N)-X12	50	28.5	29.5	40.5	39.5
MXJ12(L)-30ZL(N)-X12		28.5	—	40.5	—
MXJ12(L)-30ZM(N)-X12		—	29.5	—	39.5
MXJ12(L)-50ZK(N)-X12	50	28.5	29.5	40.5	39.5
MXJ12(L)-50ZL(N)-X12		28.5	—	40.5	—
MXJ12(L)-50ZM(N)-X12		—	29.5	—	39.5

[mm]

Model	A	B	C	D	E
MXJ16(L)-10ZK(N)-X12	55	32	33	37	44
MXJ16(L)-10ZL(N)-X12		32	—	37	—
MXJ16(L)-10ZM(N)-X12		—	33	—	44
MXJ16(L)-20ZK(N)-X12	55	32	33	43	44
MXJ16(L)-20ZL(N)-X12		32	—	43	—
MXJ16(L)-20ZM(N)-X12		—	33	—	44
MXJ16(L)-30ZK(N)-X12	55	32	33	43	44
MXJ16(L)-30ZL(N)-X12		32	—	43	—
MXJ16(L)-30ZM(N)-X12		—	33	—	44
MXJ16(L)-50ZK(N)-X12	55	32	33	43	44
MXJ16(L)-50ZL(N)-X12		32	—	43	—
MXJ16(L)-50ZM(N)-X12		—	33	—	44

CAT.ES20-252A 2020-8

Symbol **-X39**

3 Fluororubber Seal

This specification changes the materials for the piston seal, rod seal, and O-rings to fluororubber.

MXJ [Standard model no.] **– X39**
X39: Fluororubber seal

Specifications

Seal material	Fluororubber

∗ Dimensions and specifications other than the above are the same as the standard type.

Symbol **-X42**

4 Anti-corrosive Guide Unit

Martensitic stainless steel is used for the table and body. Use this treatment if more effective anti-corrosiveness is necessary. Table and body are given anti-corrosive treatment.

MXJ [Standard model no.] **– X42**
X42: Anti-corrosive guide unit

Specifications

Surface treatment	Special anti-corrosive treatment∗1

∗1 Special anti-corrosive treatment makes the table and the body black.
∗ Dimensions and specifications other than the above are the same as the standard type.

Symbol **-X45**

5 EPDM Seal

This specification changes the materials for the piston seal, rod seal, and O-rings to EPDM.

MXJ [Standard model no.] **– X45**
X45: EPDM seal

Specifications

Seal material	EPDM
Grease	PTFE grease

∗ Dimensions and specifications other than the above are the same as the standard type.

⚠ Warning

Precautions

Be aware that smoking cigarettes, etc., after your hands have come into contact with the grease used in this product can create a gas that is hazardous to humans.

Symbol **-X53**

6 Reed Auto Switch

Reed auto switch can be used by changing to a stronger magnet.

MXJ [Standard model no.] **– A93** [ ] **– X53**
X53: Reed auto switch
[ ]: Number of auto switches

Nil	2
S	1
n	n

Applicable Auto Switches/Refer to the **Web Catalog** or Best Pneumatics Catalog 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	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)			
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	IC circuit	—
			Yes	2-wire	24 V	12 V	100 V	**A93V**∗1	**A93**	●	●	●	●	—	—	Relay, PLC
			No				100 V or less	**A90V**	**A90**	●	—	●	—	—	IC circuit	

∗1 The 1 m lead wire is only applicable to the D-A93.
∗ Lead wire length symbols: 0.5 m·····Nil (Example) A93
1 m·····M (Example) A93M
3 m·····L (Example) A93L
5 m·····Z (Example) A93Z
∗ Auto switches are shipped together, but not assembled.

7 Heat-resistant Specification (–10 to 100°C)

Symbol **-X2128**

Seal material and grease have been changed so that the product can be used at temperatures between –10 up to 100°C.

MXJ [Standard model no.] **– X2128**
Heat-resistant specification

* It is not possible to order a model with an auto switch.
* For lubrication, specialized grease GR-F is recommended.

Specifications

Ambient temperature	–10°C to 100°C (No freezing)
Seal material	Fluororubber
Grease	Heat-resistant grease
Applicable adjuster type	Metal stopper

* Specifications other than the above are the same as the standard type.

8 Low-speed Specification (15 to 50 mm/s)

Symbol **-X2410**

Stick-slip phenomenon can be prevented, and smooth operation can be achieved even at lower driving speeds between 15 to 50 mm/s.

MXJ [Standard model no.] **– X2410**
Low-speed specification

* Operate without lubrication from a pneumatic system lubricator.

Specifications

Operating speed range (Average operating speed)	15 to 50 mm/s
Applicable adjuster type	Rubber stopper, Metal stopper

* Dimensions and specifications other than the above are the same as the standard type.

MXJ Series
Model Selection

For Transfer

(1) Load mass and overhang L_1 and L_2, should be within the average speed (Va) limit in the graphs.
(2) For horizontal use, overhang L_3 should not exceed the allowable range.
For vertical use, it is not necessary to consider L_3 as it does not affect the moment.

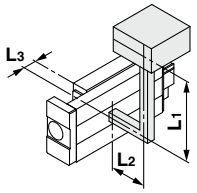
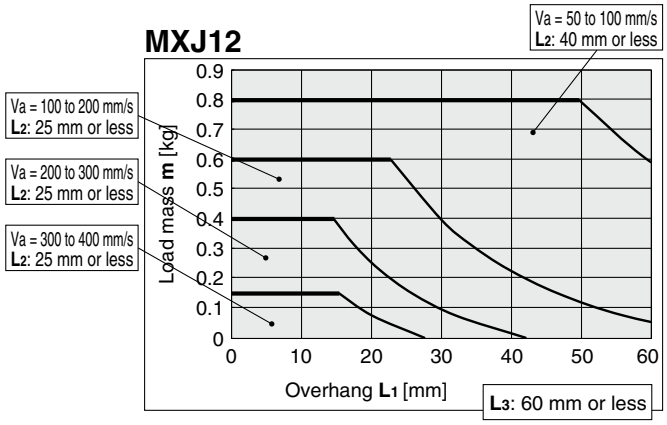


Table mounting

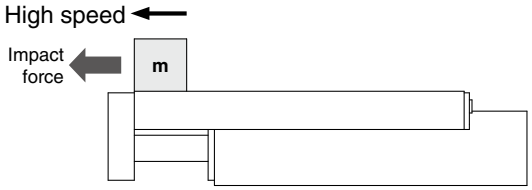
L1: Distance from the center of the table to the center of gravity of the workpiece
L2: Distance from the top surface of the table to the center of gravity of the workpiece
L3: Distance from the end of the body to the center of gravity of the workpiece in the Z direction

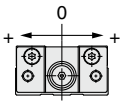


∗ Confirm that the overhang **L1** is within the allowable range based on the load mass and average speed.

⚠Caution

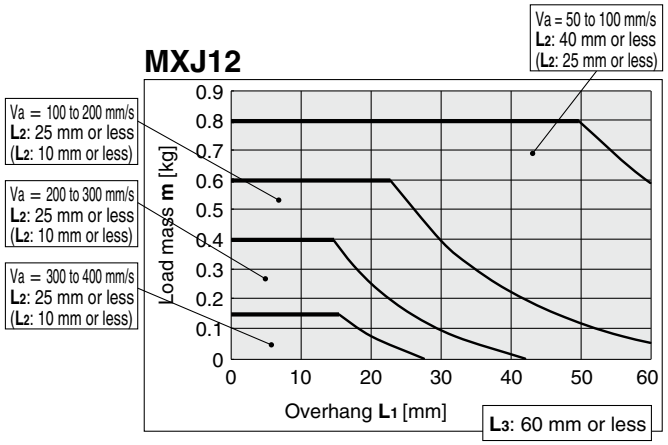
If the operating speed is increased after setting the operating conditions such as overhang and operating speed, the stopping impact force will increase which causes an excessive moment to be generated; this will lead to the failure of the guide. Do not increase the operating speed after setting the operating conditions.
If the adjusting screw of the speed controller is loosened, the operating speed will increase, so the screw should be tightened completely.



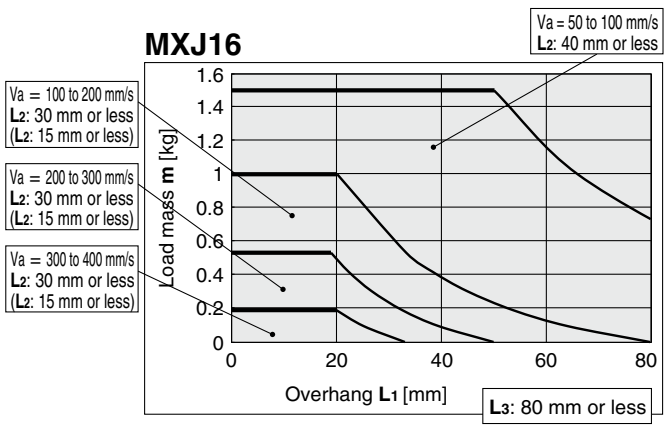


The allowable overhang **L1** for without adjuster type is symmetrical. Use in either direction.

Without Adjuster

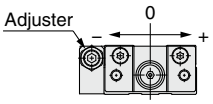


∗ When the end plate is mounted, the value in brackets applies for **L2**.



∗ When the end plate is mounted, the value in brackets applies for **L2**.

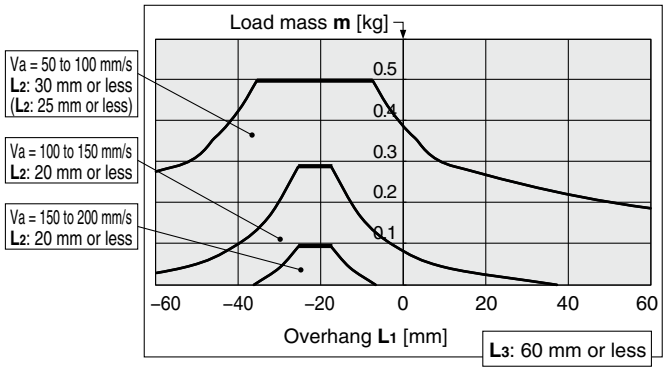
For Transfer



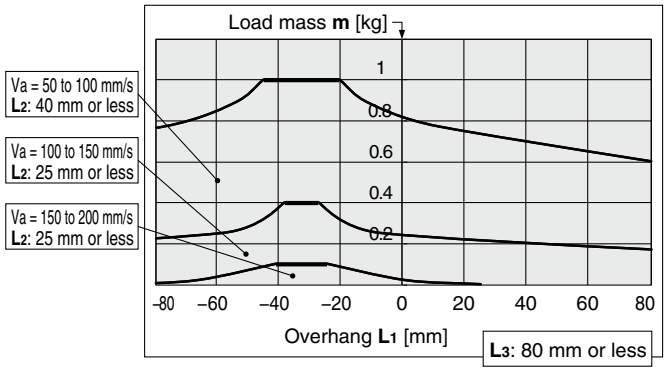
The allowable overhang **L1** for adjuster type is asymmetrical. Adjuster side is the "-" direction.

Metal Stopper with Bumper

MXJ12



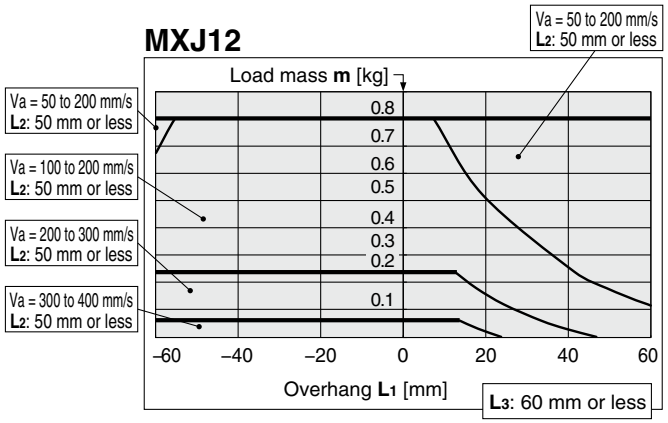
MXJ16



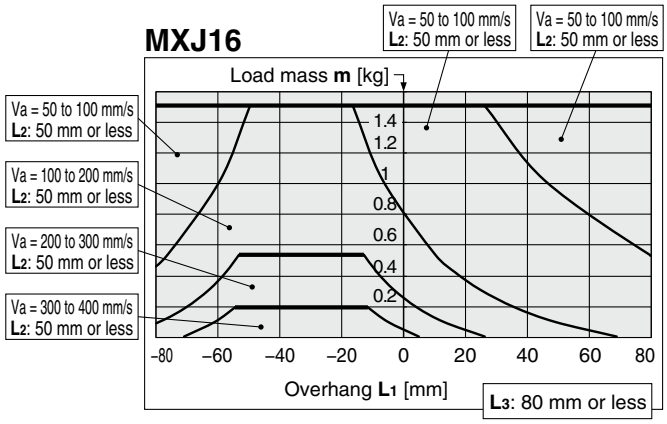
∗ When the end plate is mounted, the value in brackets applies for **L2**.

Rubber Stopper

MXJ12

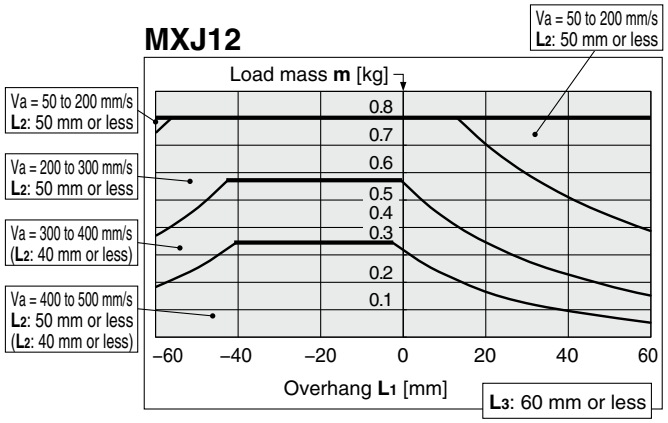


MXJ16



Shock Absorber (RJ)

MXJ12



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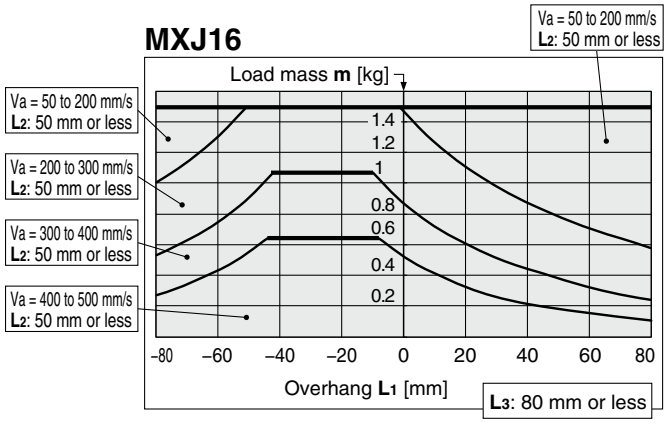
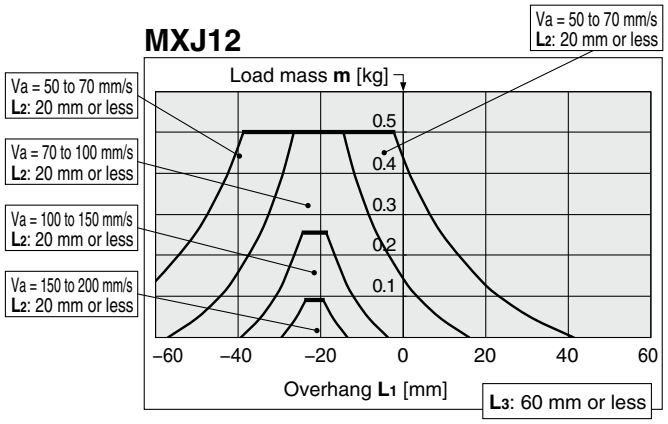


∗ When the end plate is mounted, the value in brackets applies for **L2**.

Metal Stopper

MXJ12



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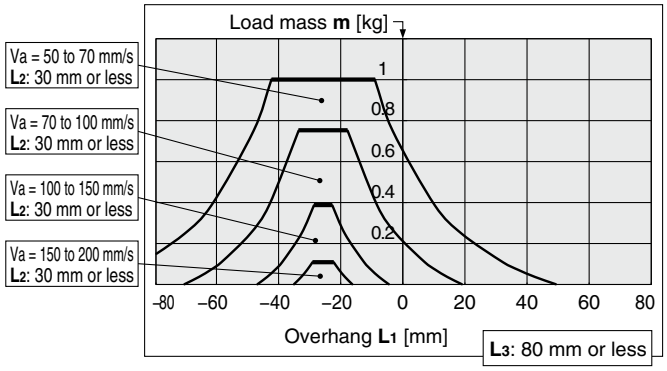


For Pressing (Clamping)

(1) Confirm that the clamping jig weight and overhang are within the allowable range as shown in the graphs for transfer. (▶ pp. 19, 20)

(2) Pressing force N and overhang L_1 and L_2, should be within the range as shown in the graphs.

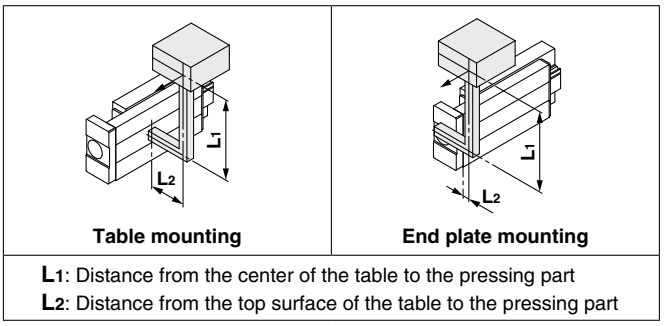
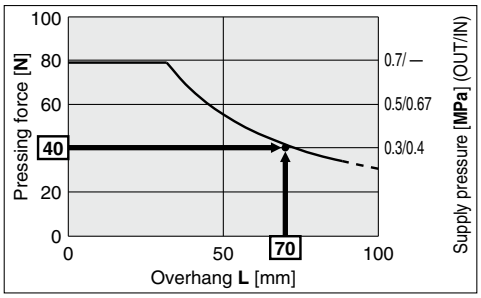


Table mounting | **End plate mounting**

L_1: Distance from the center of the table to the pressing part
L_2: Distance from the top surface of the table to the pressing part

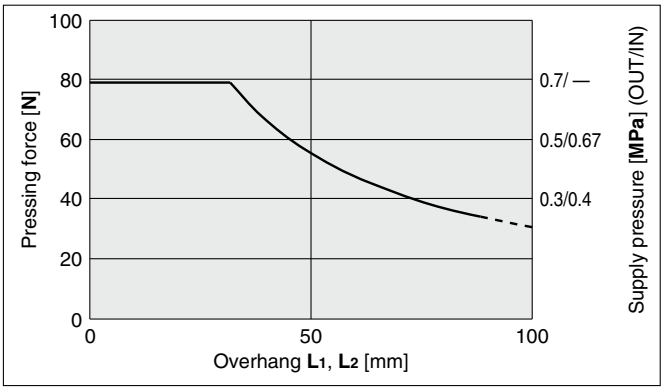
MXJ12



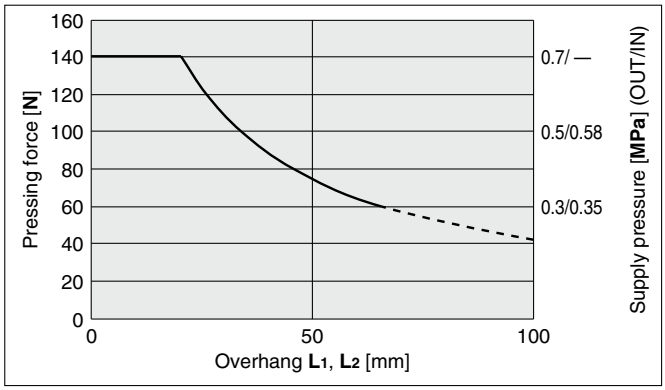
* Allowable supply pressure on OUT side and IN side is the theoretical output of cylinder when pressing force is required.
* Confirm that the intersection of the pressing force and overhang **L_1** is within the range as shown in the graph.

Table Mounting

MXJ12

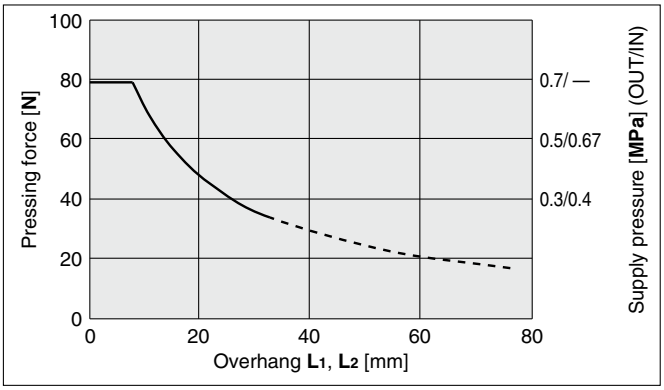


MXJ16



End Plate Mounting

MXJ12



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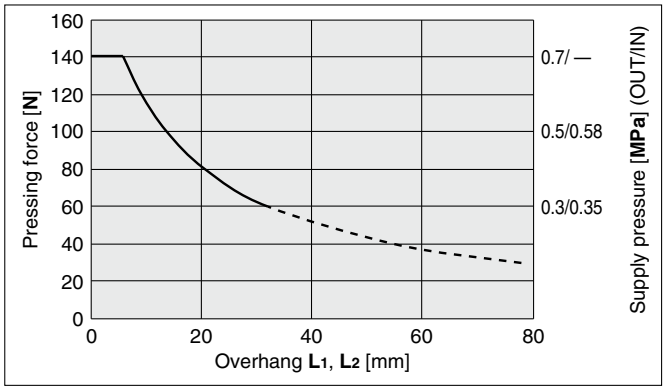
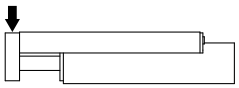


Table Deflection (Reference Values)

The graphs below show the table displacement when the static moment load is applied to the table. The graphs do not show the loadable mass. Refer to the Model Selection for the loadable mass.

Table displacement due to pitch moment load

Displacement when a load is applied to the part indicated by the arrow for the entire stroke



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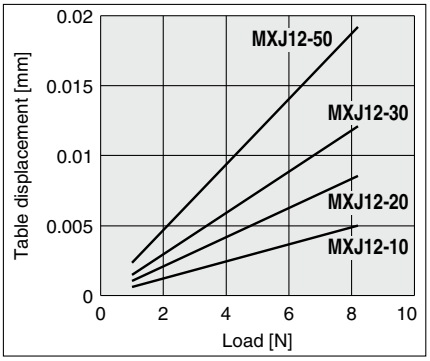

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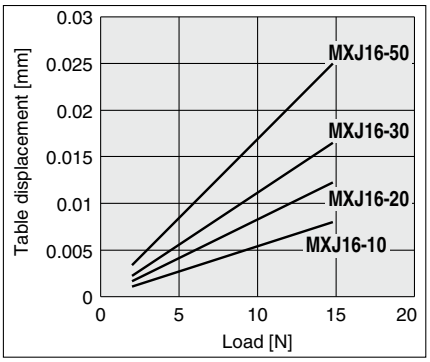
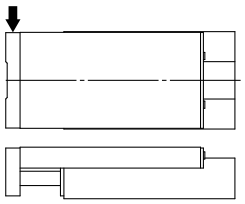
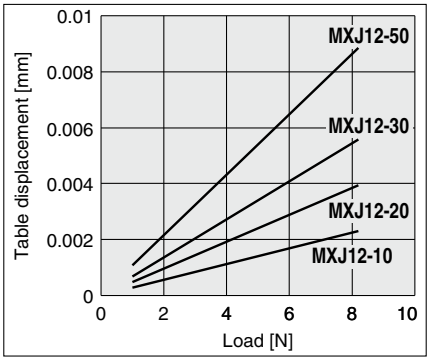


Table displacement due to yaw moment load

Displacement when a load is applied to the part indicated by the arrow for the entire stroke



MXJ12



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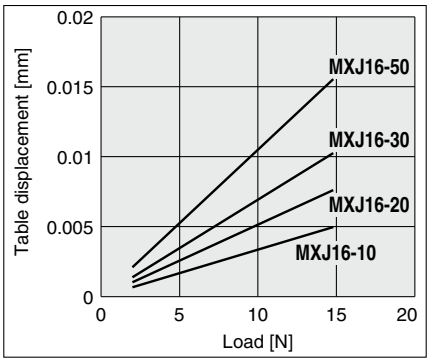
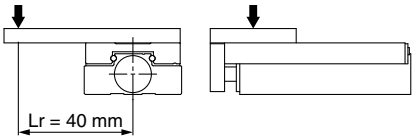
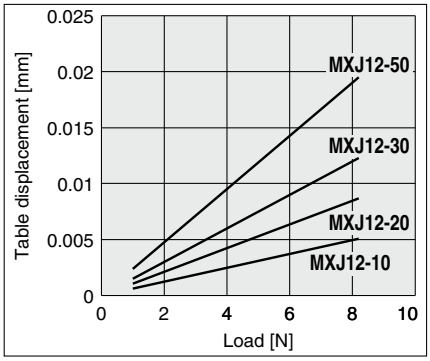


Table displacement due to roll moment load

Displacement when a load is applied to the part indicated by the arrow when the table is retracted



MXJ12



MXJ16