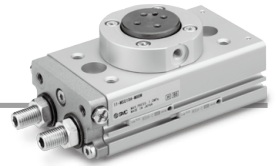


Rotary Table/Rack & Pinion Type

11-22-MSQ Series

Size: 10, 20, 30, 50



How to Order

Clean series

11	Vacuum suction type
----	---------------------

11-22-MSQ

10

A - **M9BW**

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 -

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Copper, fluorine and silicone-free + Low particle generation

22	Vacuum suction type
----	---------------------

Size

10
20
30
50

Made to order
For details, refer to page 908-5.

Port type

End port type	Size
Nil	M5
Nil	Rc1/8
-XF	G1/8
-XN	NPT1/8
-XT	NPTF1/8

* Side ports are all M5.
For details, refer to the specifications on page 908-2.

Number of auto switches

Nil	2
S	1
n	n

Auto switch

Nil	Without auto switch (Built-in magnet)
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A	Cushion pad	
D	Bumper	
R	Internal shock absorber	

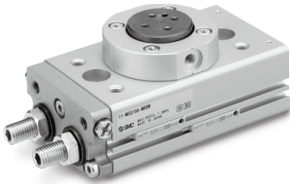
Applicable Auto Switch (Refer to the Web Catalog for detailed specifications and auto switches not in the following table.)

Type	Auto switch part no.	Load voltage	Load current range	Indicator light	Application
Solid state auto switch	2-wire D-M9B	24 VDC (10 to 28 VDC)	2.5 to 40 mA	○	24 VDC Relay, PLC
	3-wire D-M9N, D-M9P	28 VDC or less	40 mA or less	○	IC circuit, Relay, PLC
Reed auto switch	D-A93, D-A96	24 VDC, 100 VAC	5 to 40 mA, 5 to 20 mA	○	Relay, PLC

Refer to page 889 for the applicable auto switch list.

PLC: Programmable Logic Controller

Specifications



Symbol



Made to Order
(For details, refer to page 908-5.)

Symbol	Specifications
B	With interchangeable table

Size		10	20	30	50
Fluid		Air (Non-lube)			
Max. operating pressure	Cushion pad	1 MPa			
	Bumper	0.6 MPa*1			
Min. operating pressure		0.1 MPa*2			
Ambient and fluid temperatures		0 to 60°C (No freezing)			
Cushion	Cushion pad*3	Rubber bumper			
	Bumper	Shock absorber			
Angle adjustment range*4		0 to 190°*5			
Max. rotating angle*4		190°			
Cylinder bore size		ø13	ø16	ø20	ø22
Port size	End port	M5 x 0.8		Rc1/8, G1/8, NPT1/8, NPTF1/8	
	Side port	M5 x 0.8			
Cleanliness class (ISO class)		11-/22- : Class 3			

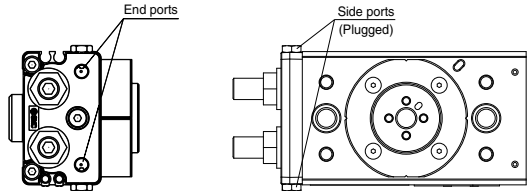
- *1 The max. operating pressure of the actuator is restricted by the max. allowable thrust of the shock absorber.
- *2 Refer to the **Web Catalog** for the min. operating pressure with a bumper.
- *3 Reduces noise when the piston and adjustment bolt collide.
- *4 For details, refer to page 908-3.
- *5 If the rotating angle of the type with an internal shock absorber is set below the value in the table below, the piston stroke will be smaller than the shock absorber's effective stroke, resulting in decreased energy absorption ability.
- *6 This product has a dedicated internal absorber. Refer below for the part number.

Suction Flow Rate of Vacuum Suction Type (Reference values)

Size	Suction flow rate L/min (ANR)
10, 20, 30, 50	10 ⁻⁶

*6 When using the ZH10DSA

Size	10	20	30	50
Min. rotating angle that will not result in decrease of the energy absorption ability	40°	35°	35°	47°



Allowable Kinetic Energy and Rotation Time Adjustment Range

Size	Allowable kinetic energy [J]*1			Adjustable range of rotation time safe in operation [s/90°]		
	Cushion pad	Bumper	Internal shock absorber	Cushion pad	Bumper	Internal shock absorber*2
10	0.007	0.014	0.039	0.2 to 2.0		0.2 to 0.7
20	0.025	0.042	0.116			
30	0.048	0.072	0.116			
50	0.081	0.162	0.294			

- *1 If operated so that the kinetic energy exceeds the allowable value, damage to the internal parts or product failure may result. Please pay special attention to the kinetic energy levels when designing and during operation to avoid exceeding the allowable limit.
- *2 If the rotation time of the type with an internal shock absorber is set longer than the time shown in the table above, the energy absorption ability of the shock absorber will greatly decrease.

Shock Absorber (Internal Absorber) for the "22-"

Size	Part no
10	RBA08-Z2362-5
20	RBA10-Z2363-6
30	RBA14-Z2364-11

* The type for the "11-" is the same as that for the basic type.

Directional Control Valves

Air Cylinders

Rotary Actuators

Air Grippers

Air Preparation Equipment

Modular F. R.

Pressure Control Equipment

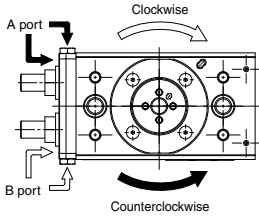
Flow Control Equipment

Flow Control Equipment

Pressure Switches/Pressure Sensors

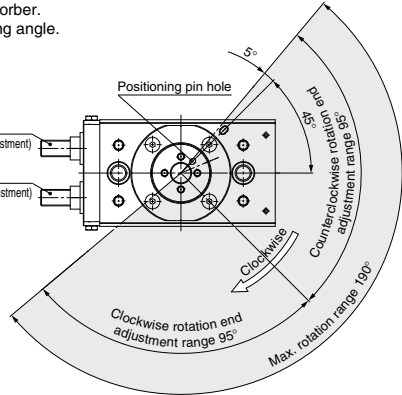
Rotation Direction and Rotating Angle

- The rotary table turns in the counterclockwise direction where the A port is pressurized, and in the clockwise direction when the B port is pressurized. (Please note that the rotation direction is different from the existing MSQ.)
- By adjusting the adjustment bolt, the rotation end can be set within the ranges shown in the drawing.
- The rotating angle can also be set on the type with an internal shock absorber.
- Refer to the **Web Catalog** for the tightening torques for setting the rotating angle.



Adjustment bolt A
(For counterclockwise rotation end adjustment)

Adjustment bolt B
(For clockwise rotation end adjustment)

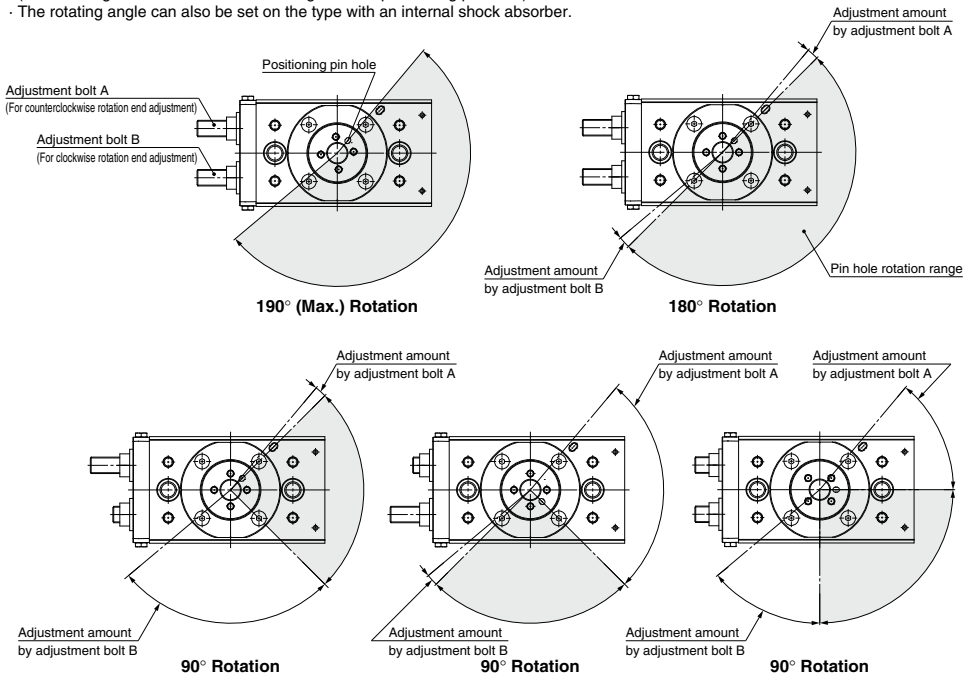


Rotation Direction and Rotating Angle (Cushion pad, Bumper, Internal shock absorber)

Size	Adjustment angle per rotation of adjustment bolt
10	8.0°
20	5.7°
30	5.7°
50	6.4°

Rotating Angle Range Examples

- Various rotation ranges are possible as shown in the drawings below using adjustment bolts A and B. (The drawings also show the rotation ranges of the positioning pin hole.)
- The rotating angle can also be set on the type with an internal shock absorber.



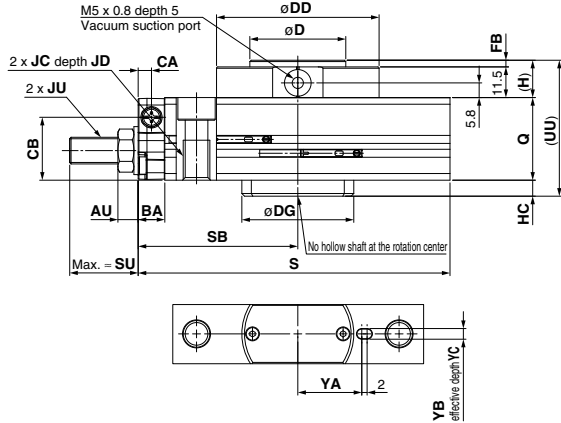
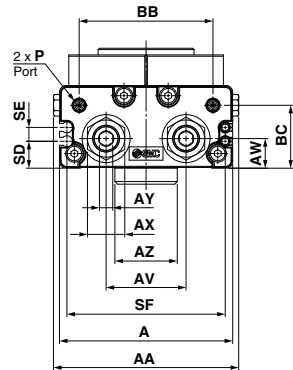
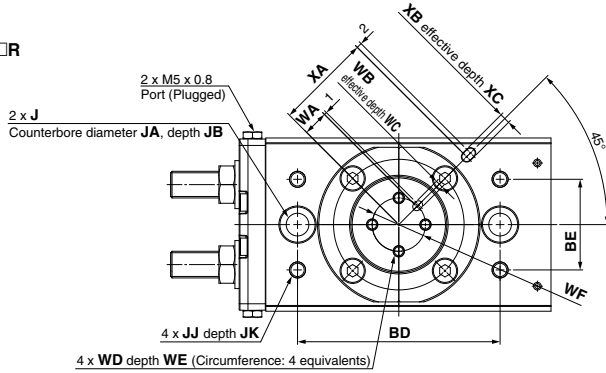
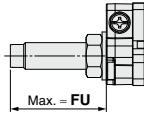
Dimensions: Sizes 10, 20, 30, 50

Basic type: $\frac{11}{22}$ MSQ□A

Bumper: $\frac{11}{22}$ MSQ□D

Internal shock absorber: $\frac{11}{22}$ MSQ□R

Internal shock absorber



Size	A	AA	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	CA	CB	D	DD	DG	FB	FU	H	HC	J	JA	JB	JC
10	50	54.4	6.6	22	9.8	12	4	17.7	8	35	22.2	60	27	4	22.2	26h9	46h9	35h9	2.7	32	14.2	5	6.8	11	6	M8 x 1.25
20	65	69.4	7.6	30	11.1	14	5	23.4	10	50.2	23.6	76	34	5	23.6	36h9	61h9	42h9	2.5	36	14	6	8.6	14	8.5	M10 x 1.5
30	70	74.4	7.6	36.5	13.8	14	5	25	12	49	30	84	37	6	31	41h9	67h9	48h9	2.5	34	14	6	8.6	14	8.5	M10 x 1.5
50	80	84.4	10	42	17.5	19	6	28	12	62	35	100	50	6	35	46h9	77h9	54h9	2.5	54	14	7	10.5	18	10.5	M12 x 1.75

Size	JD	JJ	JK	JU	P	Q	S	SB	SD	SE	SF	SU	UU	WA	WB	WC	WD	WE	WF	XA	XB	XC	YA	YB	YC
10	12	M5 x 0.8	6	M8 x 1	M5 x 0.8	29.5	92	47.2	8.6	5.2	45.6	18	48.7	6	2H9	2.5	M3 x 0.5	5	13	27	3H9	3.5	19	3H9	3.5
20	15	M6 x 1	6	M10 x 1	M5 x 0.8	31	117	59.9	10.1	5.2	59.4	26	51	9.5	3H9	3.5	M4 x 0.7	7	20	36	4H9	4.5	24	4H9	4.5
30	15	M6 x 1	6	M10 x 1	Rc1/8*	38	127	65.3	10.3	14	65	24	58	10.5	4H9	3.5	M5 x 0.8	9	22	39	4H9	4.5	28	4H9	4.5
50	18	M8 x 1.25	8	M14 x 1.5	Rc1/8*	43	152	77.7	11.3	16	75	34	64	11.5	4H9	3.5	M6 x 1	10	24	45	5H9	5.5	33	5H9	5.5

* In addition to Rc1/8, G1/8, NPT1/8, and NPTF1/8 are also available.

Directional Control Valves
Air Cylinders
Rotary Actuators
Air Grippers
Air Preparation Equipment
Modular F. R.
Pressure Control Equipment
Fittings & Tubing
Flow Control Equipment
Pressure Switches/Pressure Sensors



1 With Interchangeable Table

Symbol

-B

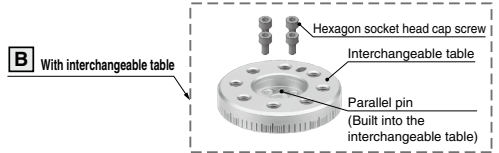
How to Order

Standard model no. - **B**

Made to order

B With interchangeable table

- * The interchangeable table can be ordered separately. For details, refer to the tables below.
- * The interchangeable table is assembled before shipment.



B: Interchangeable Table Part Numbers for the "11-"

Size	Part no.	Contents
		Description (Qty.)
10	P891010-56	· Interchangeable table (1)
20	P891020-56	· Parallel pin (1)
30	P891030-56	· Hexagon socket head cap screw (4)
50	P891040-56	

B: Interchangeable Table Part Numbers for the "22-"

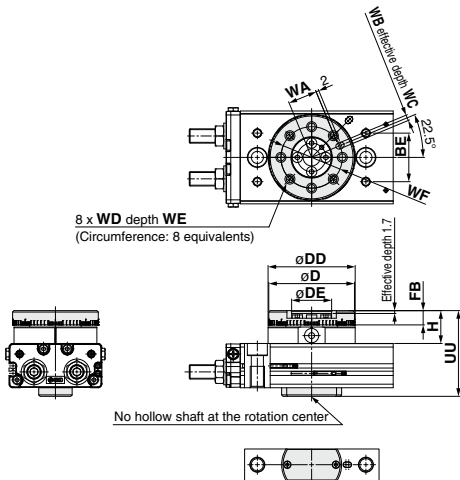
Size	Part no.	Contents
		Description (Qty.)
10	P891010-51	· Interchangeable table (1)
20	P891020-51	· Parallel pin (1)
30	P891030-51	· Hexagon pin (1)
50	P891040-51	· Hexagon socket head cap screw (4)

* Refer to the **Web Catalog** for the tightening torque of the interchangeable parts.

* Mounting diagram of the interchangeable table and plate

Dimensions other than those shown below are the same as those of the basic type. Refer to page 913.

Dimensions



(mm)

Size	D	DD	DE	FB	H	UU	WA	WB	WC	WD	WE	WF
10	45h9	46h9	20H9	8	21.2	55.7	15	3H9	3.5	M5 x 0.8	8	32
20	60h9	61h9	28H9	10	23	60	20.5	4H9	4.5	M6 x 1	10	43
30	65h9	67h9	32H9	10	23	67	23	4H9	4.5	M6 x 1	10	48
50	75h9	77h9	35H9	12.5	25.5	75.5	26.5	5H9	5.5	M8 x 1.25	12.5	55

* Dimensions other than those shown above are the same as those of the basic type.

* The product with the vacuum port has no hollow shaft at its rotation center.