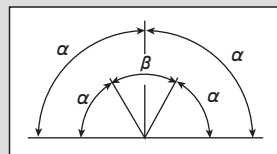


Rotary Actuator

RS01 Series

What is multiposition stop type?

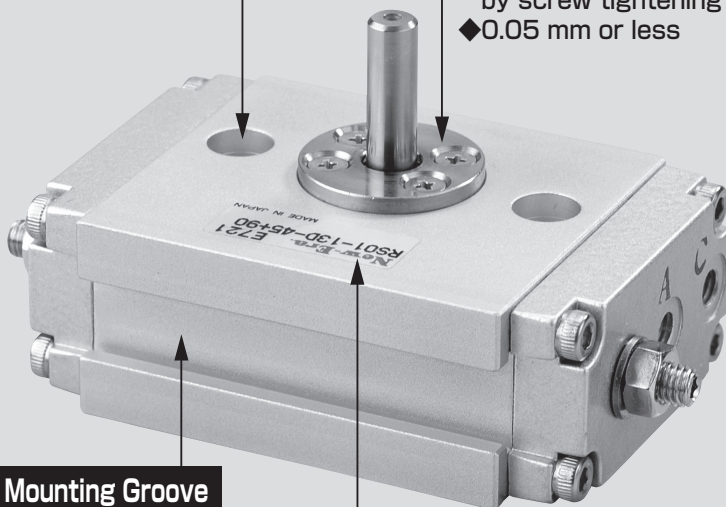
It stops at 3 or 4 points as shown in the figure on the right. Angles α and β are designated.



Body Mountable from Up or Down

Minimum Thrust Backlash

- ◆ Backlash drastically reduced by screw tightening
- ◆ 0.05 mm or less



Sensor Mounting Groove

- ◆ 2 types of sensors mountable

Rotor

Multiposition Stop Type (Stop at 3 or 4 Positions)
Built-in Air Cushion (Stop at 2 Positions)

Model Code No.

RS01 - 16 D - $\alpha + \beta$ * ZC230 A 2

Series Name

Nominal Diameter

10:10mm
13:13mm
14:14mm
16:16mm
18:18mm
22:22mm

Basic Structure

D: Multiposition Stop Type
(3-position or 4-position Stop Type)

Rocking Angle

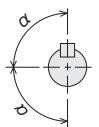
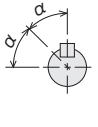
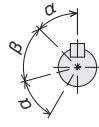
α : 3-position Stop Type
 $2\alpha \leq 180^\circ$
 $\alpha + \beta$: 4-position Stop Type
 $2\alpha + \beta \leq 180^\circ$

Switch Type	Switch Lead Wire Length	Number of Switches
No Code: No Switch	—	—
ZC230: 2 Wire System Solid State	A: 1m	1:1 Switch
ZC253: 3 Wire System Solid State	B: 3m	2:2 Switches
EC22: 2 Wire System Solid State		3:3 Switches
EC23: 3 Wire System Solid State		4:4 Switches

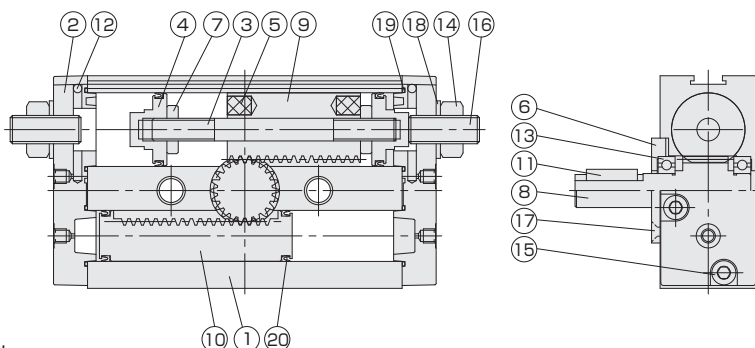
● Switch details→P.521~528

● Switch mounting→P.538~539

Type Indication Examples

3-position Stop Type		4-position Stop Type	
RS01-16D-90	RS01-14D-45	RS01-18D-45+90	RS01-22D-45+60
			

Internal Structure Diagram



Parts List

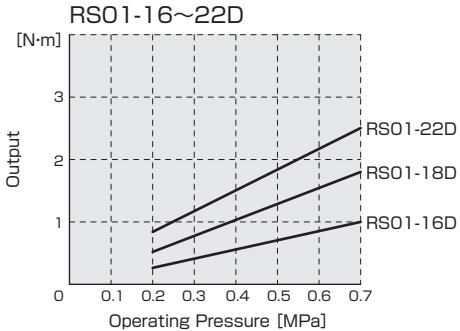
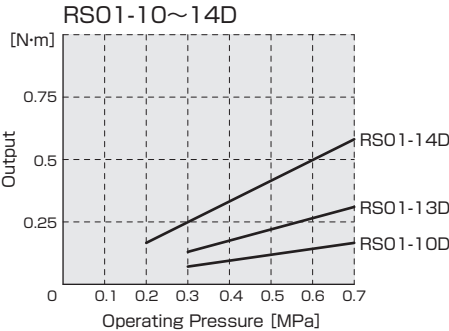
NO	Name	Material	NO	Name	Material
1	Main Body	Aluminum Alloy	11	Key	Carbon Steel
2	Head Cover	Aluminum Alloy	12	Steel Ball	Bearing Steel
3	Piston Rod	Soft Steel	13	Bearing	Marketed Product
4	Piston	Stainless Steel	14	Hexagon Nut	Soft Steel
5	Magnet	Magnetic Body	15	Hexagon Socket Head Bolt	Chrome Molybdenum Steel
6	Pinion Cover	Soft Steel	16	Hexagon Socket Head Setscrew	Chrome Molybdenum Steel
7	Tightening Nut	Brass	17	Cross-recessed Countersunk Head Screws	Soft Steel
8	Pinion Rod	Carbon Steel	18	Fastener Seal	NBR
9	Rack	Stainless Steel	19	O Ring	NBR
10	Rack Piston	Carbon Steel	20	Piston Packing	NBR

Specifications

Model		RS01-10D	RS01-13D	RS01-14D	RS01-16D	RS01-18D	RS01-22D
Number of Stop Positions		3, 4					
Bore Size [mm] (Minor Diameter + Large Diameter)		φ10+φ14	φ13+φ18	φ14+φ20	φ16+φ24	φ18+φ26	φ22+φ30
Pinion Rod Diameter [mm]		φ5h7	φ6h7	φ8h7	φ10h7	φ12h7	φ15h7
Action Type		Double Acting Type					
Fluid		Air					
Operating Pressure [MPa]		0.3~0.7			0.2~0.7		
Proof Pressure [MPa]		1.05					
Operating Temperature [°C]		0~60 (No Freezing)					
Pipe Bore		M5×0.8					
Theoretical Torque [N·m]		0.26P	0.48P	0.9P	1.6P	2.8P	4.2P
Rocking Angle [°]	MIN	α=30	α=35	α=20	α=15	α=10	α=7
	MAX	3-Position Stop Type :2α≤180° 4-Position Stop Type :2α+β≤180°					
Minimum Switch Detection Angle [°]		30	30	25	20	18	15
Angle Adjustment 180° specification(2α+β) [°]		0~60 (Rocking is enabled between 120° and 180°.)			5~60 (Rocking is enabled between 120° and 185°.)		
Cushion Structure		None					
Allowable Energy [J]		0.2×10 ⁻²	0.4×10 ⁻²	1×10 ⁻²	3.5×10 ⁻²	7×10 ⁻²	0.11
Product Mass [g]	180°	155	270	460	800	1200	1800

Theoretical Torque P: Indicates the working pressure. (MPa)
When the kinetic energy exceeds the allowable energy, absorb the energy using a shock absorber or the like.
Use the speed controller for speed adjustment.
Minimum Switch Detection Angle: The minimum angle (α and β) that enables the sensor to sense the intermediate stop part correctly.

Effective Torque



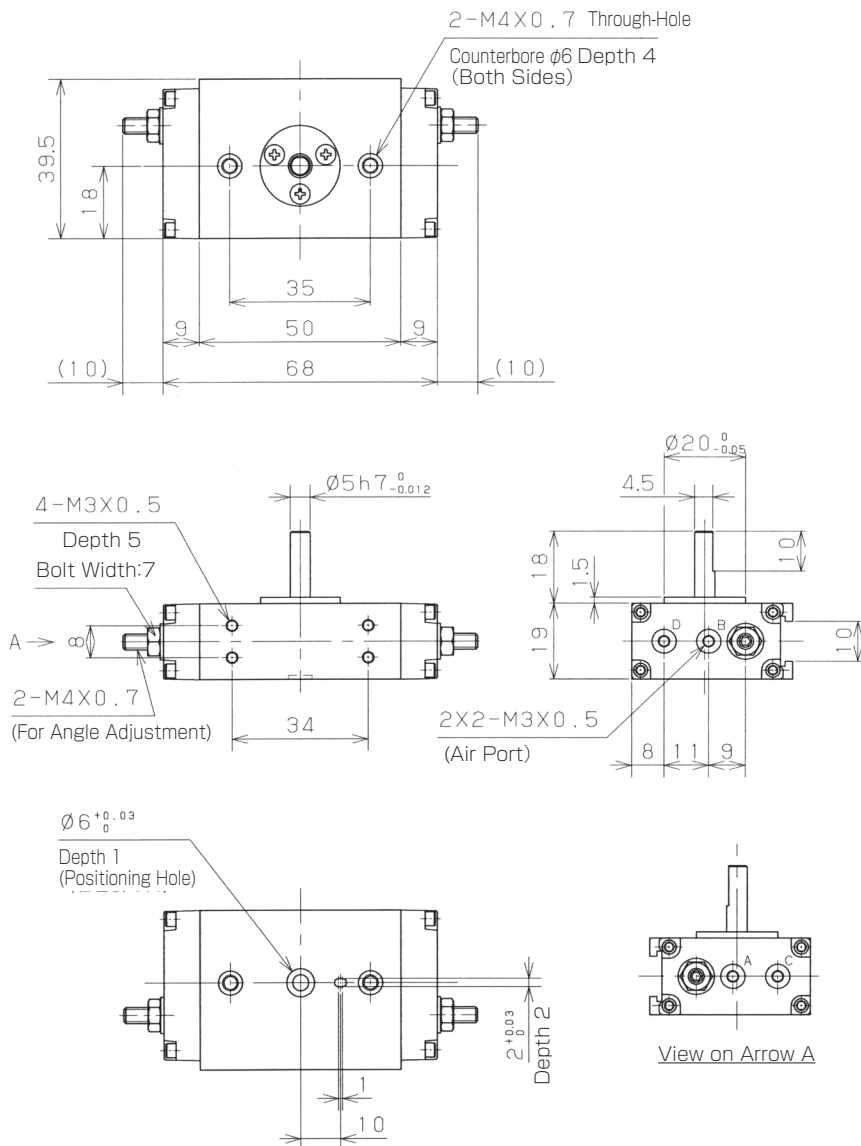
Stop Position Adjustment Method

See P.540~541

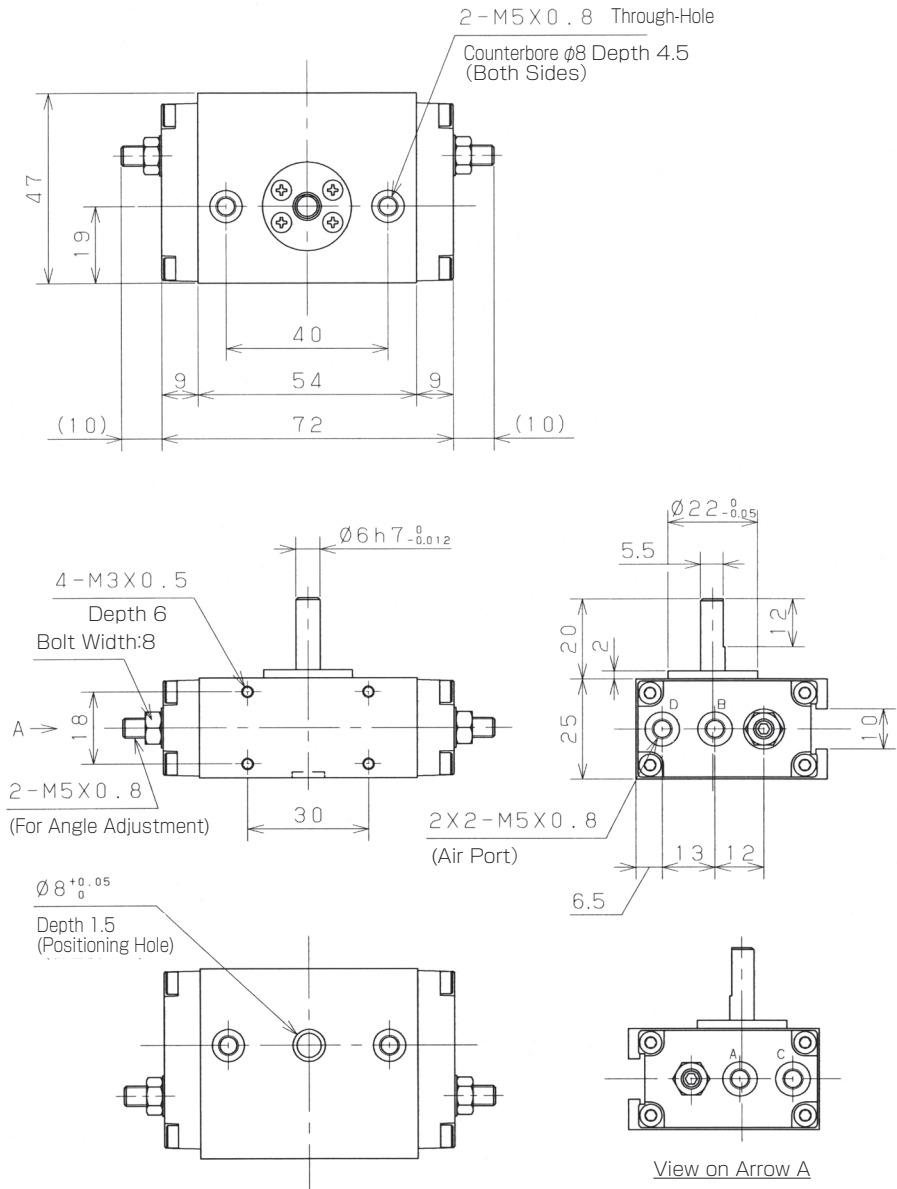
Stop Position Control Method

See P.542~543

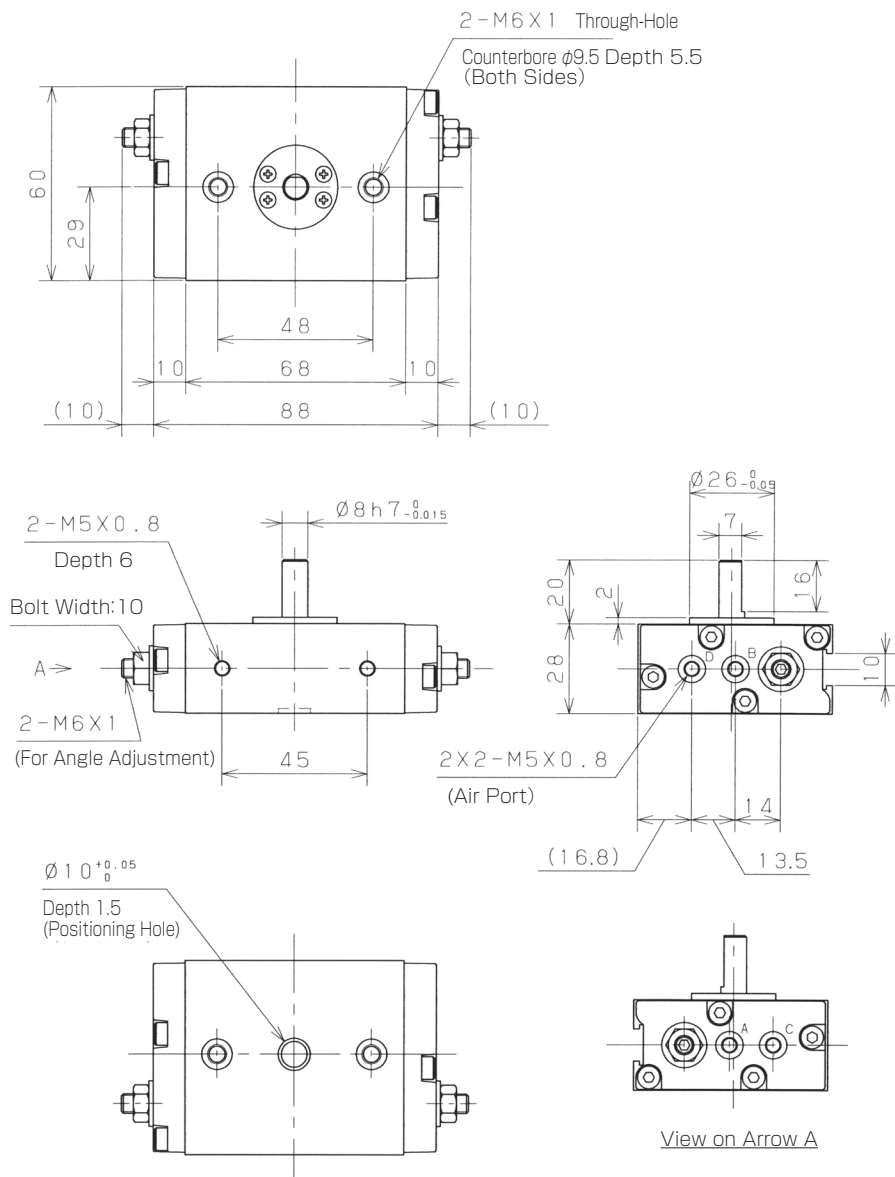
■ Dimensions RS01-10D-□



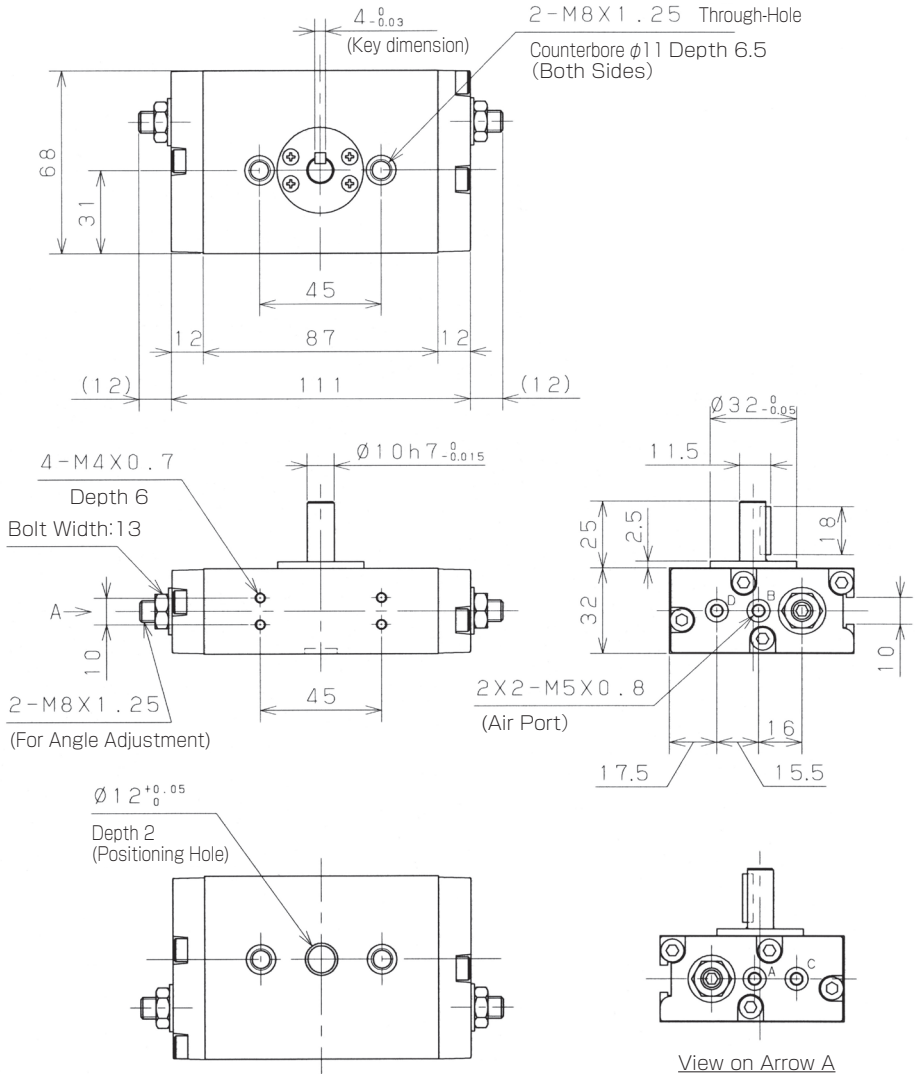
Dimensions RS01-13D-□



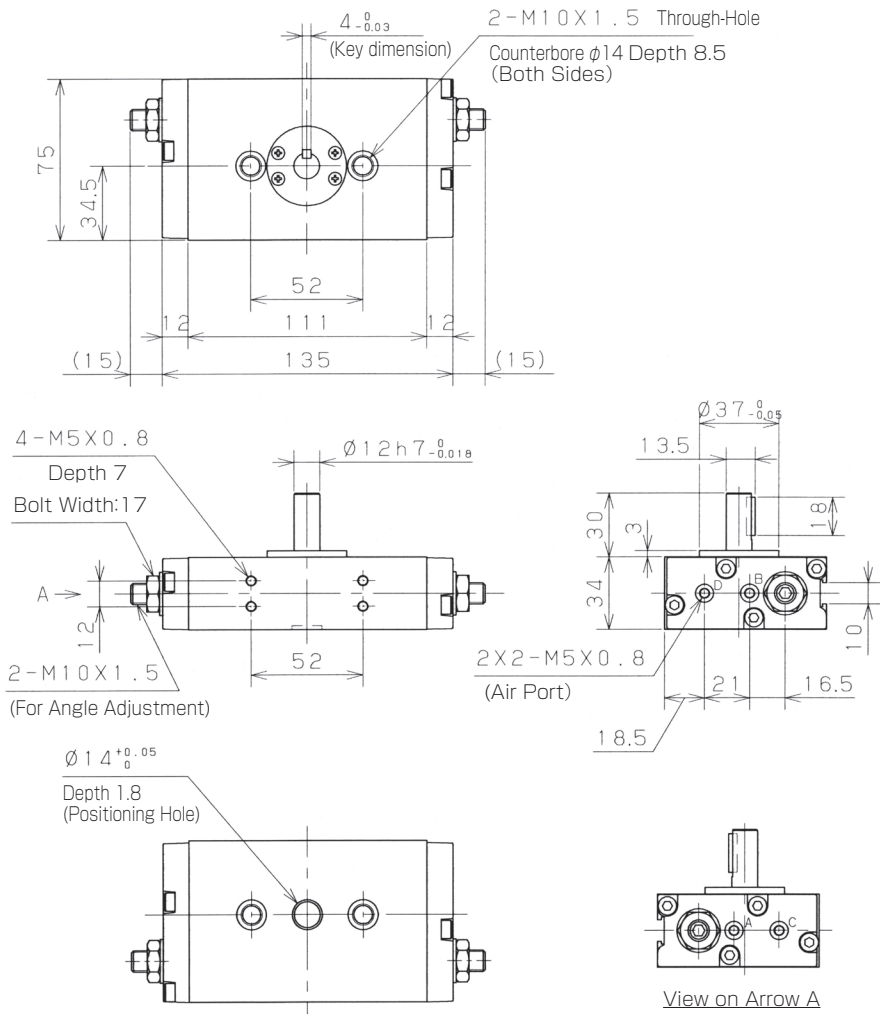
■ Dimensions RS01-14D-□



Dimensions RS01-16D-□



■ Dimensions RS01-18D-□



RS01 Series (B)



Features

- ◆ High torque obtained thanks to the compact body using the double piston system
- ◆ Higher allowable energy obtained thanks to the standard equipment of the air cushion (B type)
(The air cushion is compatible with the non-standard angles.)
- ◆ Minimum radial and thrust backlash
(Radial backlash: ± 0.15 , Thrust backlash: 0.05 mm)
- ◆ Various mounting methods
You can mount this product directly or using a bolt from the front face, back face or both faces of the main body.
- ◆ Start and stop positions adjustable externally
- ◆ Angle adjustment function enabling the angle β adjustment is equipped

Model Code No.

RS01 - 18 B - 180 * ZC253 B 2

Series Name

Nominal Diameter

10: 10mm
14: 14mm
16: 16mm
18: 18mm
22: 22mm

Basic Structure

B: 2-position Stop Type
(Built-in Air Cushion)

Rocking
Angle

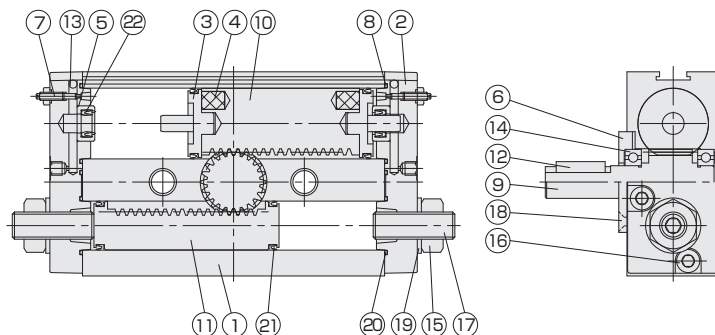
90: 90°
180: 180°
(Standard Angle)

Switch Type	Switch Lead Wire Length	Number of Switches
ZC230: 2 Wire System Solid State	A: 1m	1:1 Switch
ZC253: 3 Wire System Solid State	B: 3m	2:2 Switches
EC22: 2 Wire System Solid State		
EC23: 3 Wire System Solid State		
Switch Type	Number of Switches	Switch Lead Wire Length
No Code: No Switch	—	—
RCA: 2 Wire System Contact	1:1 Switch	No Code: 1.5m
RCB: 2 Wire System Contact	2:2 Switches	LA: 5m
RCM: 2 Wire System Solid State		

● Switch details → P.521~528

● Switch mounting → P.538~539

Internal Structure Diagram



Parts List

NO	Name	Material	NO	Name	Material
1	Main Body	Aluminum Alloy	12	Key	Carbon Steel
2	Head Cover	Aluminum Alloy	13	Steel Ball	Bearing Steel
3	Piston	Brass	14	Bearing	Marketed Soft Steel
4	Magnet	Magnetic Body	15	Hexagon Nut	Soft Steel
5	Packing Housing	Brass	16	Hexagon Socket Head Bolt	Chrome Molybdenum Steel
6	Pinion Cover	Soft Steel	17	Hexagon Socket Head Setscrew	Chrome Molybdenum Steel
7	Needle	Stainless Steel	18	Cross-recessed Countersunk Head Screws	Soft Steel
8	Gasket	NBR	19	Fastener Seal	NBR
9	Pinion Rod	Carbon Steel	20	O Ring	NBR
10	Rack	Stainless Steel	21	Piston Packing	NBR
11	Rack Piston	Carbon Steel	22	Cushion Paking	NBR

Specifications

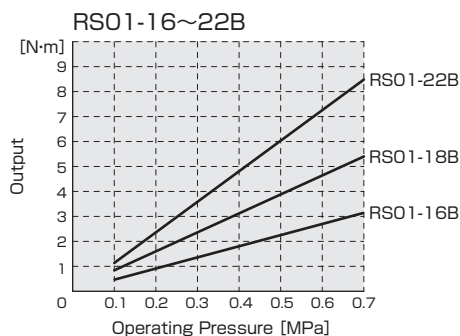
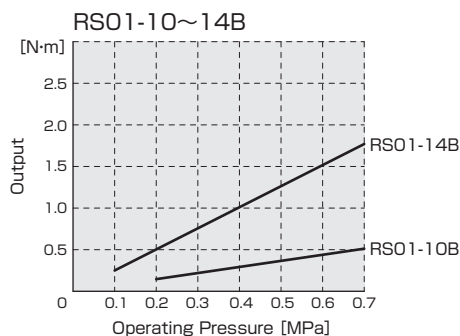
Model		RS01-10B	RS01-14B	RS01-16B	RS01-18B	RS01-22B
Number of Stop Positions		2				
Bore Size [mm] (Minor Diameter + Large Diameter)		φ10+φ14	φ14+φ20	φ16+φ24	φ18+φ26	φ22+φ30
Pinion Rod Diameter [mm]		φ5h7	φ8h7	φ10h7	φ12h7	φ15h7
Action Type		Double Acting Type				
Fluid		Air				
Operating Pressure [MPa]		0.1~0.7				
Proof Pressure [MPa]		1.05				
Operating Temperature [°C]		0~60 (No Freezing)				
Pipe Bore		M5×0.8				
Theoretical Torque [N·m]		0.8P	2.8P	5.2P	8.6P	14P
Rocking Angle [°]		90-180				
Angle Adjustment [°]	90° Specification	70~95				
	180° Specification	160~185				
Cushion Structure		Air Cushion				
Allowable Energy [J]		0.02	3×10 ⁻²	0.14	0.28	0.42
Cushion Angle [°]		60	60	60	40	40
Product Mass [g]	90°	152	460	700	1000	1600
	180°	152	460	800	1200	1800

Theoretical Torque P: Indicates the working pressure, (MPa)

When the kinetic energy exceeds the allowable energy, absorb the energy using a shock absorber or the like.

Use the speed controller for speed adjustment.

Effective Torque



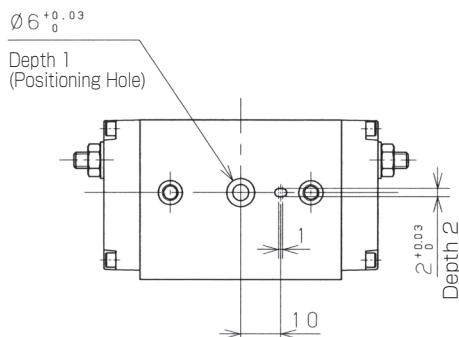
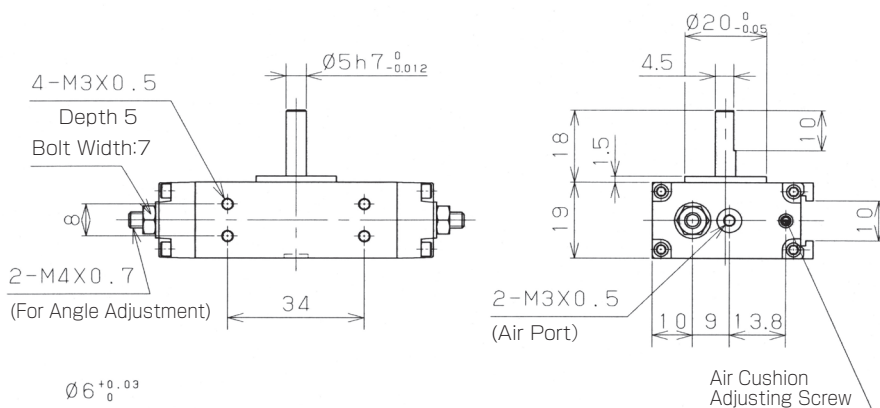
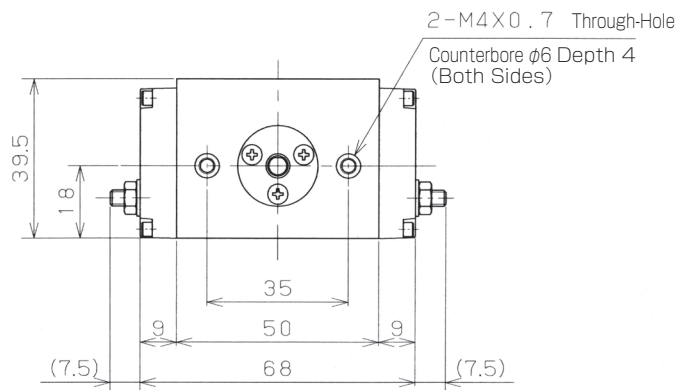
Stop Position Adjustment Method

☞ See P.540~541

Stop Position Control Method

☞ See P.542~543

■ Dimensions RS01-10B-□

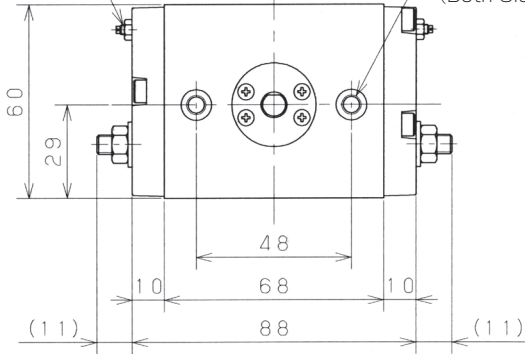


Dimensions RS01-14B-□

Air Cushion
Adjusting Screw

2 - M6 X 1 Through-Hole

Counterbore $\phi 9.5$ Depth 5.5
(Both Sides)



2 - M5 X 0.8

Depth 6

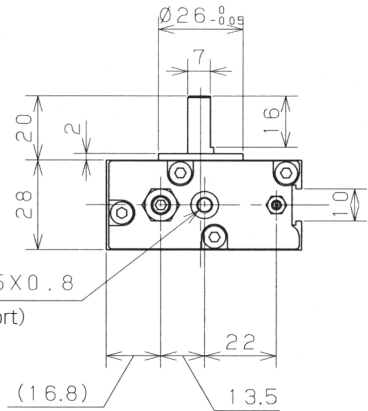
Bolt Width: 10

2 - M6 X 1

(For Angle Adjustment)

$\phi 8 h7 - \frac{0.015}{0.005}$

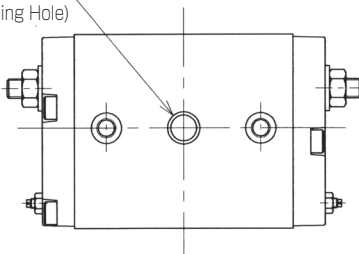
45



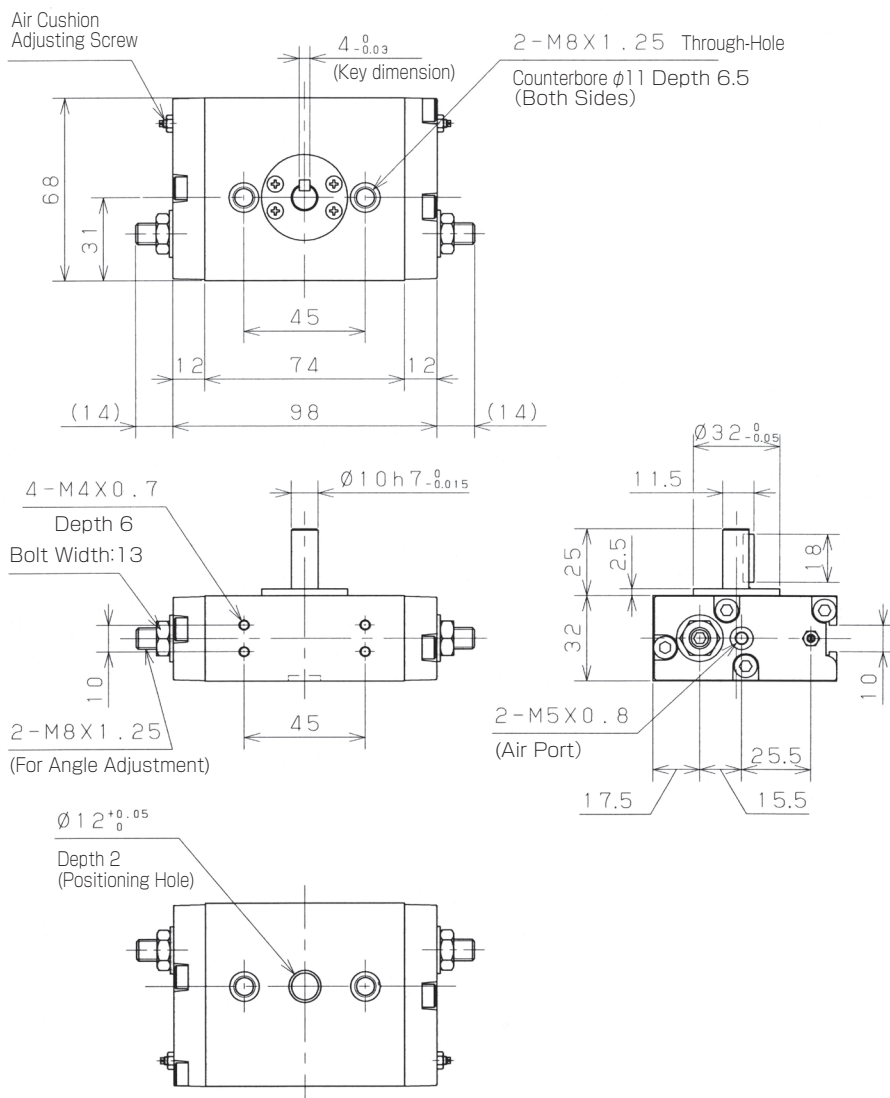
2 - M5 X 0.8
(Air Port)

$\phi 10 \frac{+0.05}{0}$

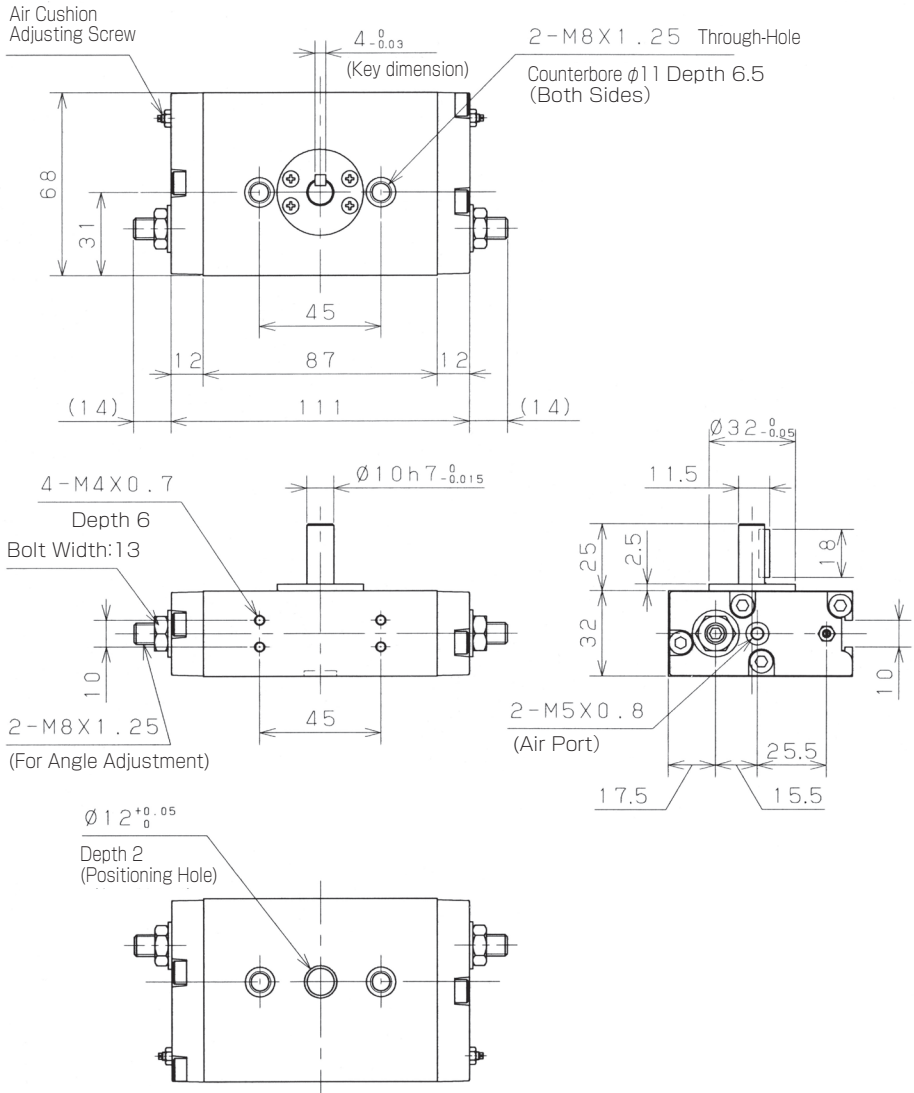
Depth 1.5
(Positioning Hole)



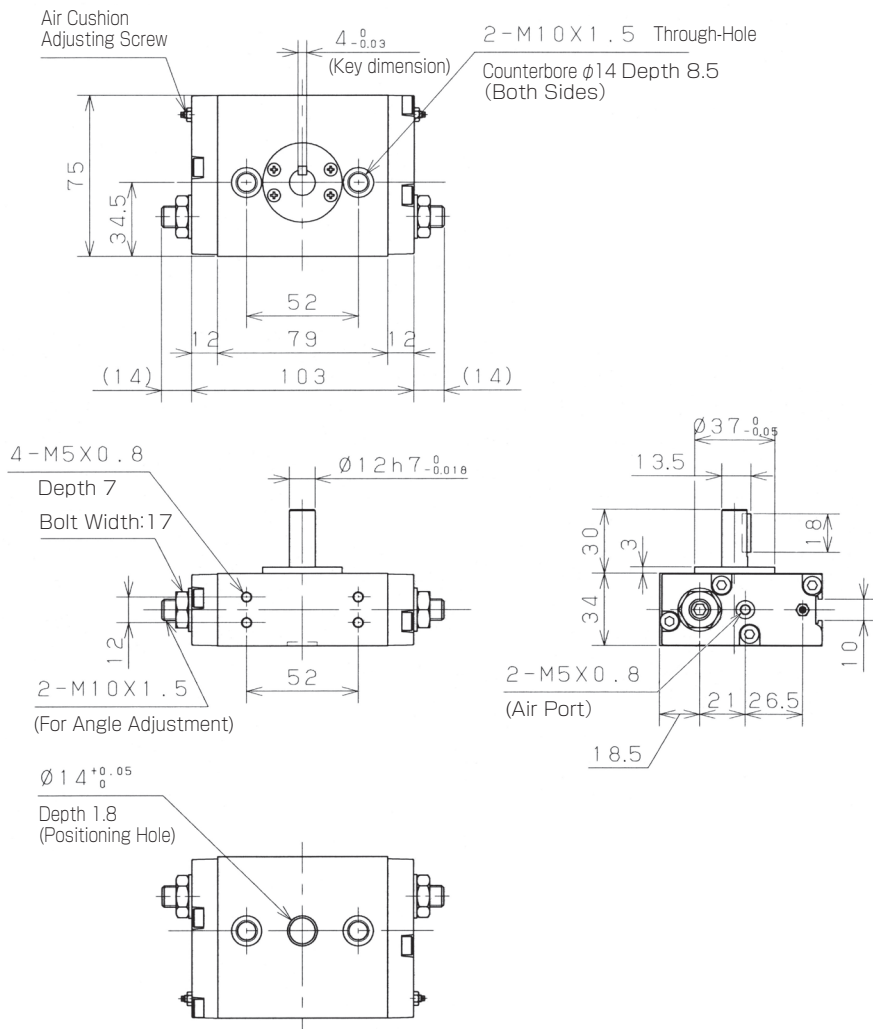
Dimensions RS01-16B-90

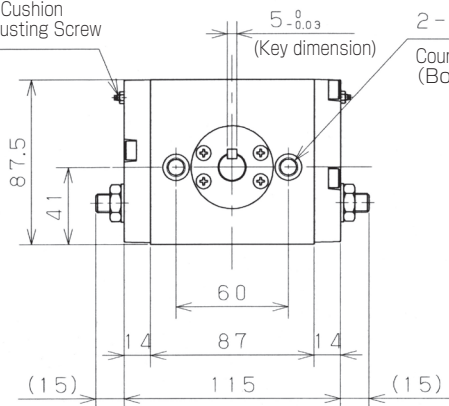


Dimensions **RS01-16B-180**



■ Dimensions RS01-18B-90



Dimensions RS01-22B-90Air Cushion
Adjusting Screw

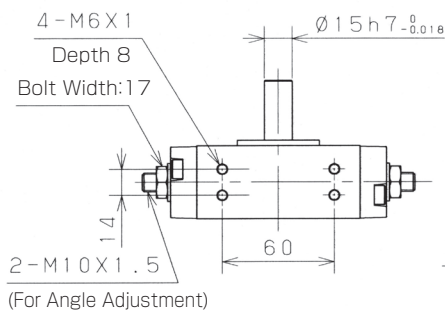
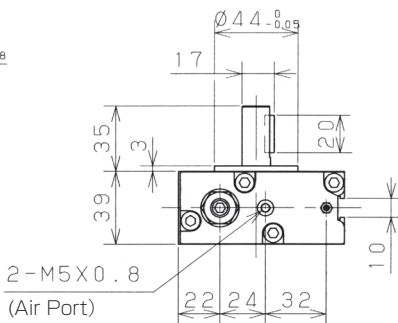
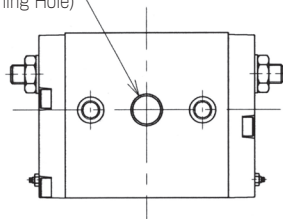
2-M10 X 1.5 Through-Hole

Counterbore $\phi 14$ Depth 8.5
(Both Sides)

4-M6 X 1

Depth 8

Bolt Width: 17

2-M10 X 1.5
(For Angle Adjustment)2-M5 X 0.8
(Air Port) $\phi 17^{+0.05}$ Depth 2
(Positioning Hole)

Dimensions RS01-22B-180

