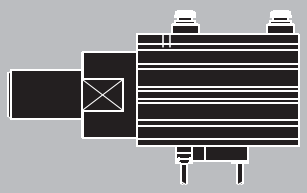


Stopper Cylinder

Series RSQ (Fixed mounting height)

ø12, ø16, ø20, ø32, ø40, ø50

Series RSG (Adjustable mounting height)

ø40, ø50

Realise Labour Saving and Automation of Conveyor Line

A through hole style and a both ends tapped style are available.
Series RSQ (Fixed mounting height)
ø12, ø16, ø20, ø32, ø40, ø50

Mounting position can be adjusted by changing the attached flange height.
Series RSG (Adjustable mounting height)
ø40, ø50

Available Styles

It is possible to select options for many applications.
Style: Fixed mounting height (RSQ), Adjustable mounting height (RSG)
Action: Double acting, Single acting (spring extend), Double acting with spring
Rod end configuration: Round bar, Non-rotating, Roller, Lever
Mounting: Through hole, Both ends tapped
Flange: (RSG)

Equipped with an easy-to-maintain shock absorber.

The shock absorber incorporated in the lever style is adjustment-free and easy-to-maintain. (ø32, ø40, ø50)

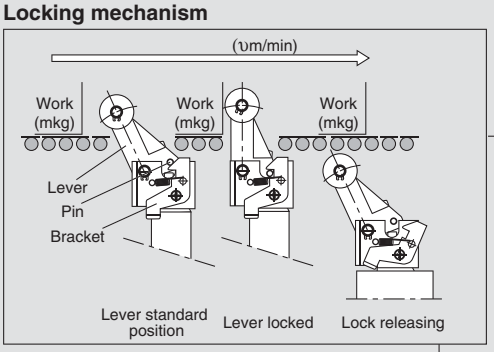
Lever style selected accord-ing to applications

- Prevention of repulsion by light pallets·····Locking mechanism
- Partial passing of work·····With cancel cap

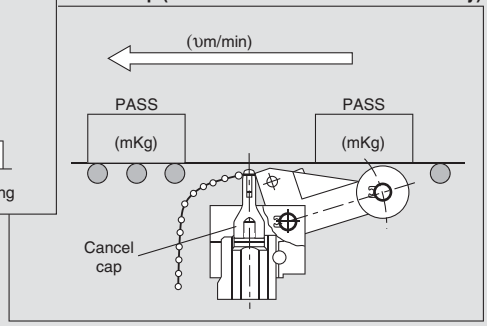
Auto Switch Option Available

Compact auto switch mounting to enable miniaturization of machines and designs.

Locking mechanism



Cancel cap (mechanism to hold lever horizontally)



Variations

Series	Mounting	Action	Rod end configuration		Magnet	Locking mechanism	Cancel	One-touch fitting	Bore size (mm)	Standard stroke (mm)
RSQ	Through hole	Double	Round bar		●	●	●	●	12	10, 15, 20, 25, 30
			Roller		●	●	●	●	16	10, 15, 20, 25, 30
			Non-rotating		●	●	●	●	20	10, 15, 20, 25, 30
			Lever	Fixed	●	●	●	●	32	10, 15, 20, 25, 30
				Adjustable	●	●	●	●	40	20, 25, 30
		Double with spring	Round bar		●	●	●	●	50	20, 25, 30
			Roller		●	●	●	●		
			Non-rotating		●	●	●	●		
			Lever	Fixed	●	●	●	●		
				Adjustable	●	●	●	●		
	Both ends tapped	Single	Round bar		●	●	●	●		
			Roller		●	●	●	●		
			Non-rotating		●	●	●	●		
			Lever	Fixed	●	●	●	●		
				Adjustable	●	●	●	●		
RSG	Flange style	Double	Round bar		●	●	●	●	40	10, 15, 20, 25, 30
			Roller		●	●	●	●	50	10, 15, 20, 25, 30
			Non-rotating		●	●	●	●		
			Lever	Fixed	●	●	●	●		
				Adjustable	●	●	●	●		
		Double with spring	Round bar		●	●	●	●		
			Roller		●	●	●	●		
			Non-rotating		●	●	●	●		
			Lever	Fixed	●	●	●	●		
				Adjustable	●	●	●	●		
		Single	Round bar		●	●	●	●		
			Roller		●	●	●	●		
			Non-rotating		●	●	●	●		
			Lever	Fixed	●	●	●	●		
				Adjustable	●	●	●	●		

Stopper Cylinder/Fixed Mounting Height

Series RSQ

ø12, ø16, ø20, ø32, ø40, ø50

How to Order

Standard RSQ B 20 □ – 15 D □ – □

With auto switch RSDQ B 20 □ – 15 D □ – M9BW □ – □

With auto switch (Built-in magnet)

Mounting bracket

B	Through-hole (Standard)
A	Both ends tapped style

Note 1) Since ø12 uses a common tube for both A and B, only B is used for part no. denotation.

Bore size

12	12 mm
16	16 mm
20	20 mm
32	32 mm
40	40 mm
50	50 mm

Port thread type

—	M thread	ø12, ø16
	Rc	ø20 to ø50
TN	NPT	
TF	G	
F	Built-in One-touch fittings (2)	

Note 2) Bore sizes available w/ One-touch fittings are ø20 to ø50.
Note 3) TF for ø20 indicates M5.

Cylinder stroke (mm)

12	10
16	10, 15
20	10, 15, 20
32	10, 15, 20
40	20, 25, 30
50	20, 25, 30

Action

D	Double acting
B	Double acting with spring loaded
T	Single acting (Spring extend)

Auto switch

	Without auto switch

∗ For the applicable auto switch model, refer to the table below.

Number of auto switches

—	2 pcs.
S	1 pc.

Rod end configuration

Symbol	Configuration	Application
—	Rounde bar type	—
K	Chamfered type	—
R	Roller type	—
L	Lever type (Non-adjustable) (4)	Basic style
B	Lever type (4) (Energy absorbing / Adjustable deformation)	—
C		With cancel cap
D		With lock menchanism
E		With lock & cancel

Note 4) The lever types are applicable only to bore sizes ø32, ø40 and ø50.

Made to Order Specifications
For details, refer to page 3.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) RSDQB32-15D

Applicable Auto Switches/Refer to Auto Switch Guide for further information on auto switches.

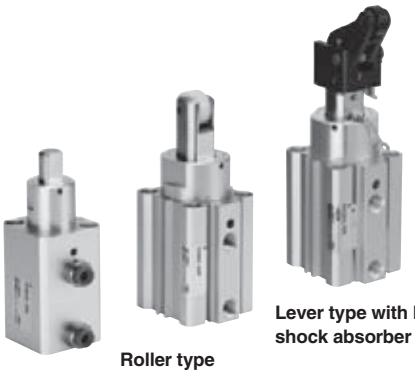
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular ø12	Perpendicular ø16, ø20, ø32 to ø50	In-line ø12	In-line ø16, ø20, ø32 to ø50	Lead wire length (m): 0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV		M9N		●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV		M9P		●	●	●	○	—	○		
				2-wire	12 V		M9BV		M9B		●	●	●	○	—	○	—	
		Connector					—	J79C	—		●	—	●	●	●	—		
	Diagnostic indication (2-colour indication)	Grommet		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-colour indication)			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		○	○	●	○	—	○	—	
	With diagnostic output (2-colour indication)			4-wire	5 V,12 V		—		—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5V	—		A96V		A96	●	—	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	A72	—	A72H	●	—	●	—	—	—	—	Relay, PLC
			No		24 V	12 V	100 V	A93V∗2		A93		●	●	●	●	—	—		
			Yes			5 V,12 V	100 V or less	A90V		A90		●	—	●	—	—	—	IC circuit	
		Connector	Yes			12 V	—	—	A73C	—		●	—	●	●	●	—	—	
			No			5 V,12 V	24 V or less	—	A80C	—		●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-colour indication)	Grommet	Yes			—	—	—	A79W	—		●	—	●	—	—	—	—	

∗1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.
∗2 1 m type lead wire is only applicable to D-A93.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) J79CN

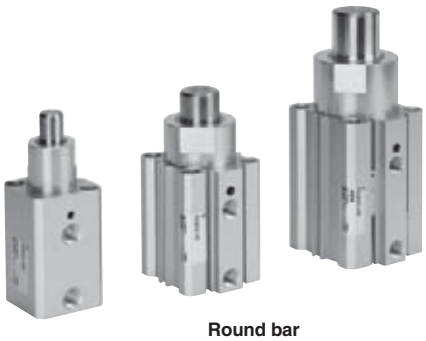
∗ Solid state auto switches marked with "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches than listed, refer to page 16 for details.
∗ For details about auto switches with pre-wired connector, refer to Auto Switch Guide.
∗ When D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V) types with ø32 to ø50 are mounted on a side other than the port side, order auto switch mounting brackets separately. Refer to page 16 for details.



Roller type

Lever type with built-in shock absorber



Round bar

Model

Bore size (mm)		12	16	20	32	40	50
Mounting	Through-hole	● Note1)	●	●	●	●	●
	Both ends tapped style		●	●	●	●	●
Built-in magnet		●	●	●	●	●	●
Piping	Screw-in type	M5 x 0.8		1/8 Note2)			
	Built-in One-touch fittings	—		ø6/4			ø8/6
Action		Double acting, Single acting (Spring extend), Double acting with spring loaded					
Rod end configuration	Round bar	●			●		
	Chamfered	●			●		
	Roller type	●			●		
	Lever type	—			●		

Note 1) ø12 tubes can have both through-hole and tap mountings in the same tube.
Note 2) TF (G thread) for ø20 indicates M5 x 0.8.

Specifications

Action	Double acting, Double acting with spring loaded, Single acting (Spring extend)
Fluid	Air
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Ambient and fluid temperature	Without auto switch: –10 to 70°C With auto switch: –10 to 60°C
Lubrication	Not required (Non-lube)
Cushion	Rubber bumper
Stroke length tolerance	$^{+1.4}_{0}$
Mounting	Through-hole/Both ends tapped
Auto switch	Mountable

∗ No freezing (for cylinders with or without an auto switch)

Made to Order Specifications

Symbol	Specifications
–XA□	Change of rod end shape
–XC3	Special port location

Spring Force (Single acting)

(N)

Bore size (mm)	Extended	Compressed
12	3.9	9.6
16	4.9	14.9
20	3.4	14.9
32	8.8	18.6
40, 50	13.7	27.5

∗ Applicable only to round bar type, chamfered type and roller type end configurations.

Bore Size/Standard Stroke

(mm)

Bore size (mm)	Rod end configuration		
	Round bar, Chamfered type	Roller type	Lever type with shock absorber
12	10	10	—
16	10, 15	10, 15	—
20	10, 15, 20	10, 15, 20	—
32			10, 15, 20
40	20, 25, 30	20, 25, 30	20, 25, 30
50			

Weight

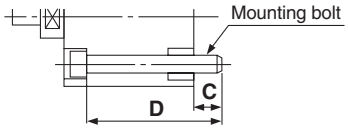
(kg)

Action	Bore size (mm)	Rod end configuration	Cylinder stroke (mm)				
			10	**15**	**20**	**25**	**30**
Double acting	**12**	Round bar, Chamfered, Roller	0.07	—	—	—	—
	16	Round bar, Chamfered, Roller	0.14	0.15	—	—	—
	20	Round bar, Chamfered, Roller	0.23	0.24	0.25	—	—
Single acting, Spring extend	**32**	Round bar, Chamfered, Roller	0.42	0.44	0.46	—	—
		Lever with built-in shock absorber	0.51	0.53	0.55	—	—
Double acting with spring loaded	**40**	Round bar, Chamfered, Roller	—	—	0.74	0.80	0.86
		Lever with built-in shock absorber	—	—	0.97	1.01	1.05
	50	Round bar, Chamfered, Roller	—	—	1.03	1.07	1.11
		Lever with built-in shock absorber	—	—	1.26	1.30	1.34

Mounting Bolt for RSQB

Mounting method: Mounting bolt for through-hole mounting style of RSQB is available as an option.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.

Example) CQ-M3x45L 2 pcs.



(mm)

Cylinder model	C	D	Mounting bolt part no.
RSQB12-10□ Note)	5	45	CQ-M3 x 45L
RSQB16-10□	7.5	55	CQ-M3 x 55L
-15□		60	x 60L
RSQB20-10□	7	55	CQ-M5 x 55L
-15□		60	x 60L
-20□		65	x 65L
RSQB32-10□	9	60	CQ-M5 x 60L
-15□		65	x 65L
-20□		70	x 70L

Cylinder model	C	D	Mounting bolt part no.
RSQB40-20□	9.5	75	CQ-M5 x 75L
-25□		80	CQ-M5 x 80L
-30□		85	x 85L
RSQB50-20□	9	75	CQ-M6 x 75L
-25□		80	x 80L
-30□		85	x 85L

Note) Be sure to use the attached flat washers when mounting ø12 cylinders with through-holes.

Operating Ranges by Rod End Configuration

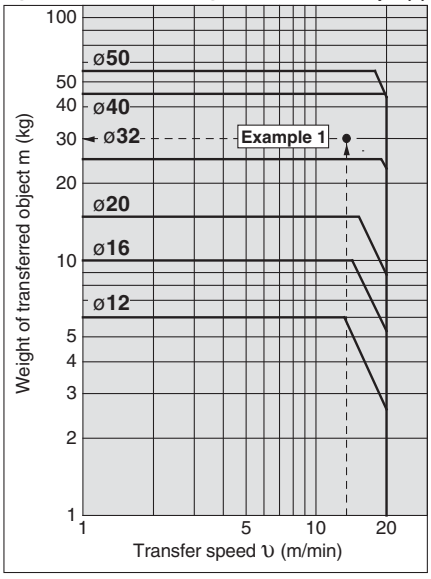
(Example 1) For roller type with transfer speed of 15 m/min. and the weight of transferred object of 30 kg.

<How to read the graphs>
To select a cylinder based on the specifications above, find the intersection of the speed of 15 m/min. on the horizontal axis and the weight of 30 kg on the vertical axis in graph (1) below, and select **RSQ□40-□□R** that falls in the cylinder operating range.

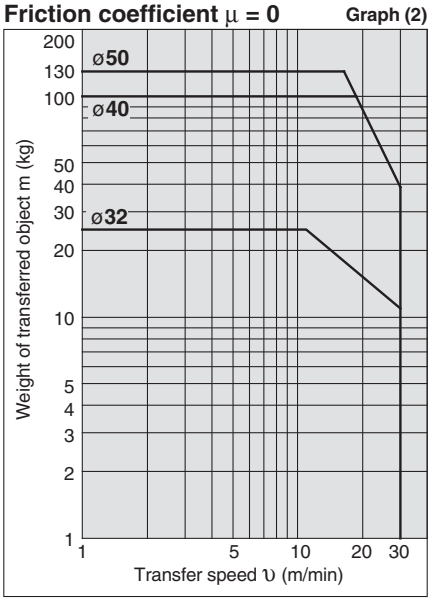
(Example 2) Transfer speed of 15 m/min., Weight of transferred object of 60 kg, Friction coefficient μ = 0.1, Lever type (Lever type with lock mechanism)

<How to read the graphs>
To select a cylinder based on the specifications above, find the intersection of the speed of 15 m/min. on the horizontal axis and the weight of 60 kg on the vertical axis in graph (3) below, and select **RSQ□40-□□D** that falls in the cylinder operating range.

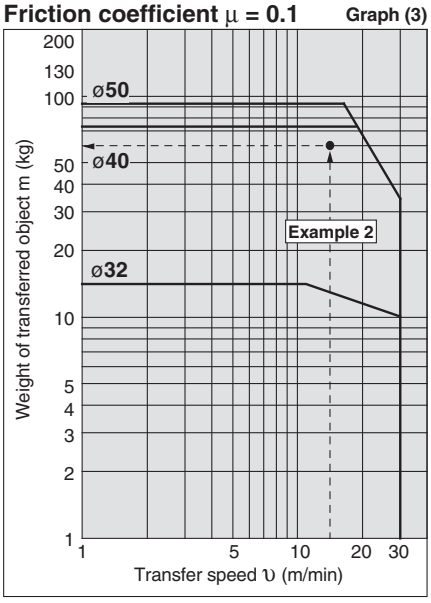
Roller Type/Round Bar Type/Chamfered Type **Graph (1)**



Lever Type (With shock absorber) Friction coefficient μ = 0 **Graph (2)**



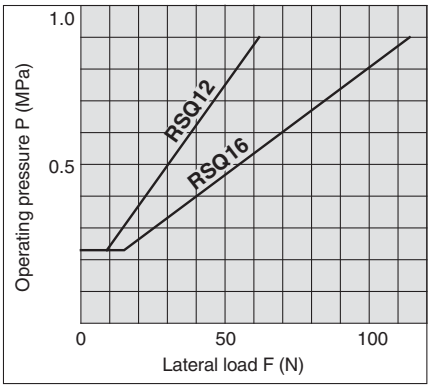
Lever Type (With shock absorber) Friction coefficient μ = 0.1 **Graph (3)**

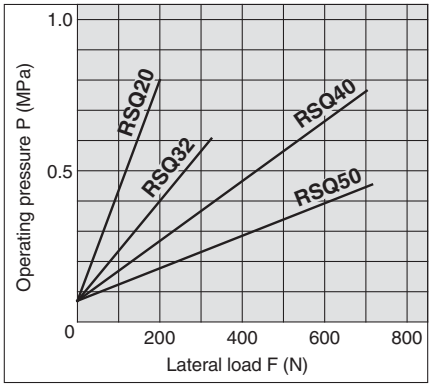


∗ Lever-type weight of transferred object and transfer speed graphs (graphs (2) and (3)) show the values at room temperature (20 to 25°C).
∗ When selecting cylinders, confirm the Specific Product Precautions as well.

Lateral Load and Operating Pressure

The larger the lateral load, the higher the operating pressure required for the stopper cylinder. Set the operating pressure using the graphs as a guide.
(Applicable for round bar, roller and chamfered type rod end configurations.)



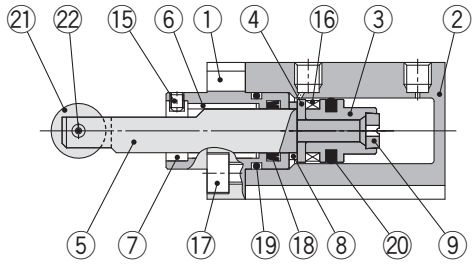


Construction

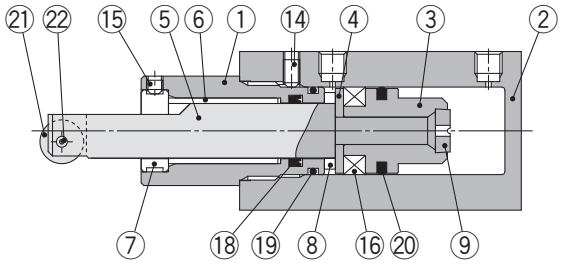
Double acting

Roller rod end

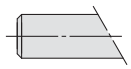
ø12



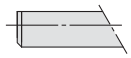
ø16



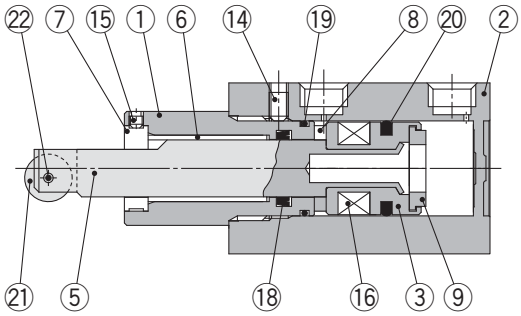
Round bar rod end type (D)



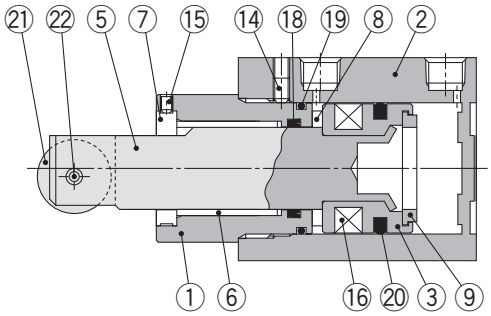
Chamfered rod end type (K)



ø20

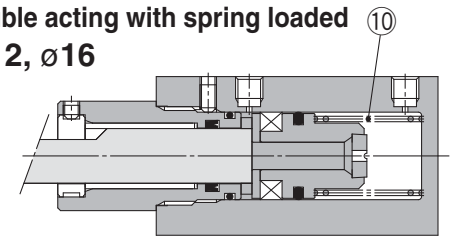


ø32, ø40, ø50

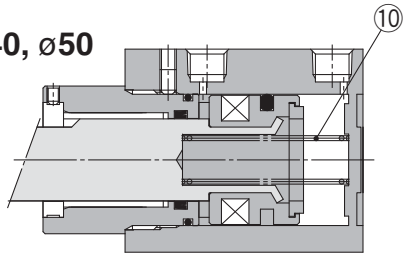


Double acting with spring loaded

ø12, ø16

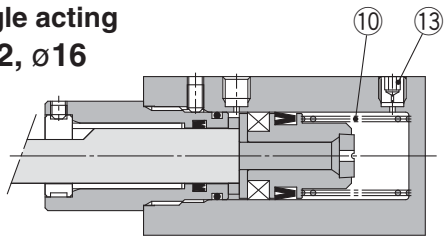


ø32, ø40, ø50

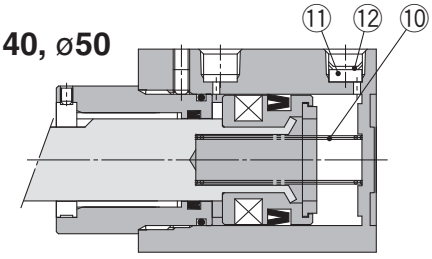


Single acting

ø12, ø16



ø32, ø40, ø50

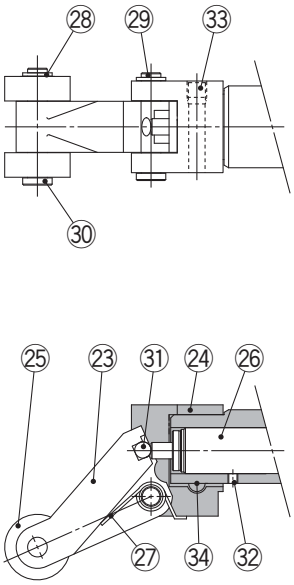


Component Parts

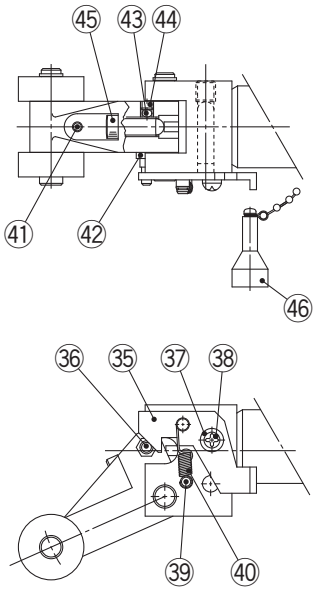
No.	Description	Material	Note
1	**Rod cover**	Aluminium alloy	Anodised
2	**Cylinder tube**	Aluminium alloy	Hard anodised
3	**Piston**	Aluminium alloy	Chromated
4	**Spacer for switch**	Aluminium alloy	ø12, ø16 only
5	**Piston rod**	ø12, ø16, ø20 Stainless steel ø32, ø40, ø50 Carbon steel	Hard chrome plated
6	**Bushing**	Bearing alloy	
7	**Non-rotating guide**	Rolled steel	Non-rotating type only
8	**Bumper A**	Urethane	
9	**Bumper B**	Urethane	
10	**Return spring**	Steel wire	Zinc chromated (Except double acting)
11	**Element**	Sintered metallic BC	ø20 to ø50 (Single acting only)

No.	Description	Material	Note
12	**Retaining ring**	Carbon tool steel	ø20 to ø50 (Single acting only)
13	**Plug with fixed orifice**	Alloy steel	ø12, ø16 only (Single acting only)
14	**Hexagon socket head set screw**	Chromium molybdenum steel	Except ø12
15	**Hexagon socket head set screw**	Chromium molybdenum steel	Non-rotating type only
16	**Magnet**	—	
17	**Hexagon socket head cap screw**	Alloy steel	ø12 only
18	**Rod seal**	NBR	
19	**Gasket**	NBR	
20	**Piston seal**	NBR	
21	**Roller A**	Resin	
22	**Spring pin**	Carbon tool steel	

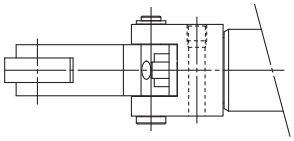
Built-in shock absorber
Lever rod end type (Fixed)
(ø32, ø40, ø50 only)



Lever rod end type (With lock mechanism and cancel cap)
(ø32, ø40, ø50 only)



Only one roller is provided for ø32.



Component Parts

No.	Description	Material	Note
23	**Lever**	Cast iron	
24	**Lever holder**	Rolled steel	
25	**Roller B**	Resin	
26	**Shock absorber**	—	ø32-RB1007-X225 ø40, 50-RB1407-X552
27	**Lever spring**	Stainless steel wire	
28	**Type C retaining ring for axis**	Carbon tool steel	
29	**Lever pin**	Carbon steel	
30	**Roller pin**	Carbon steel	
31	**Steel balls**	High carbon chrome bearing steel	
32	**Hexagon socket head set screw**	Chromium molybdenum steel	
33	**Hexagon socket head set screw**	Chromium molybdenum steel	
34	**One-side tapered pin**	Carbon steel	

No.	Description	Material	Note
35	**Bracket**	Carbon steel	
36	**Pin B**	Carbon steel	
37	**Spacer**	Carbon steel	
38	**Round head Phillips screw**	Rolled steel	
39	**Pin A**	Rolled steel	
40	**Bracket spring**	Steel wire	
41	**Hexagon socket head set screw**	Chromium molybdenum steel	
42	**Spring washer**	Steel wire	
43	**Urethane ball**	Urethane	
44	**Hexagon socket head set screw**	Chromium molybdenum steel	
45	**Adjustment bolt**	Bearing steel	
46	**Cancel cap**	Aluminium alloy	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.			Contents
	Double acting	Double acting with spring loaded	Single acting	
12	RSQ12D-PS	RSQ12T-PS		Set of above nos. ⑱, ⑲, ⑳
16	RSQ16D-PS	RSQ16B-PS	RSQ16T-PS	
20	RSQ20D-PS	RSQ20B-PS	RSQ20T-PS	
32	RSQ32D-PS	RSQ32B-PS	RSQ32T-PS	
40	RSQ40D-PS	RSQ40B-PS	RSQ40T-PS	
50	RSQ50D-PS	RSQ50B-PS	RSQ50T-PS	

∗ Seal kit includes ⑱, ⑲, ⑳. Order the seal kit, based on each bore size.
∗ Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

Replacement Parts: Shock Absorber

Bore size (mm)	Kit no.
32	RB1007-X225
40, 50	RB1407-X552

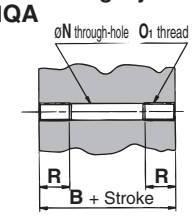
Rod End Configuration: Round Bar Type

Basic style: Through-hole mounting, Screw mounting

These 5 figures show the piston rod extended.

Screw mounting style: Both ends tapped style (mm)

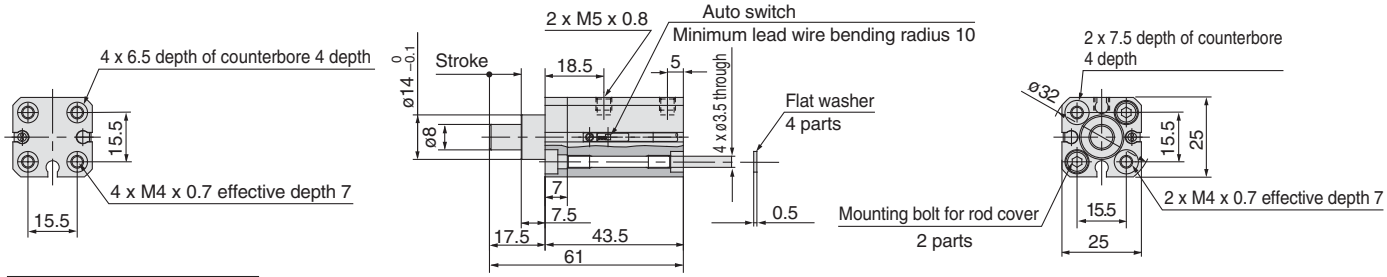
RS□QA



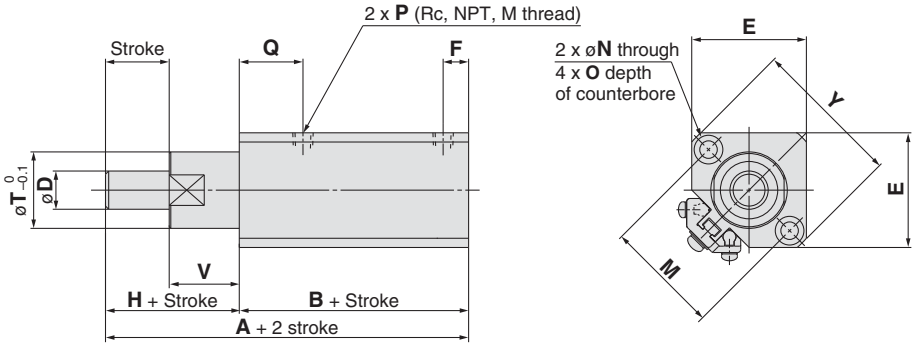
Model	B	N	O_1	R
RS□QA16	41.5	3.5	M4 x 0.7	7
RS□QA20	45	5.5	M6 x 1	10
RS□QA32	48	5.5	M6 x 1	10
RS□QA40	52.5	5.5	M6 x 1	10
RS□QA50	54	6.6	M8 x 1.25	14

∗ Dimensions other than above are the same as below drawings.

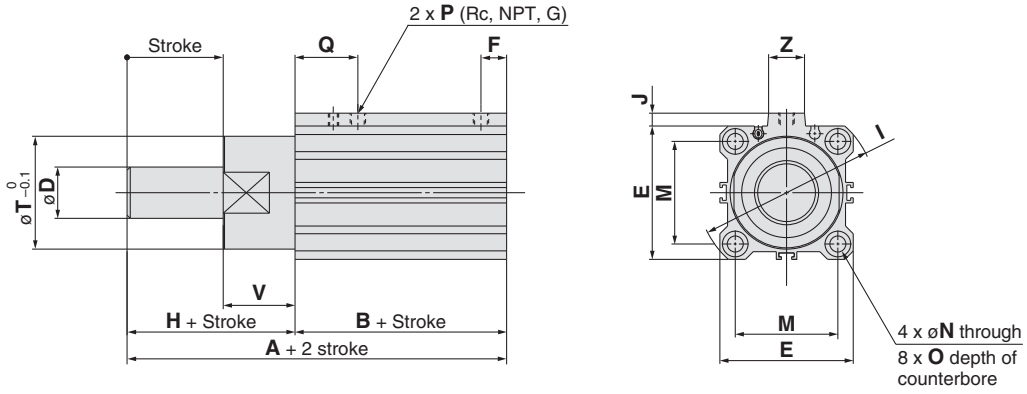
Bore size: ø12 **RS□QB12-10□**



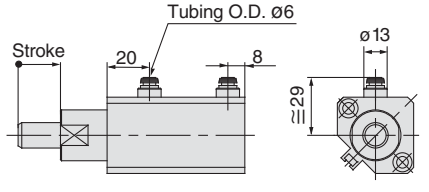
Bore size: ø16, ø20 **RS□QB $\frac{16}{20}$-□□**



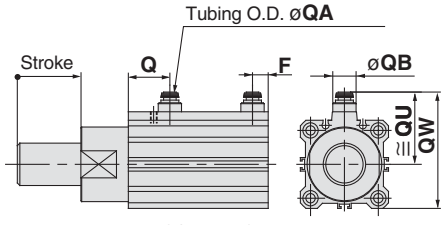
Bore size: ø32, ø40, ø50 **RS□QB $\frac{32}{40}$$\frac{}{50}$-□□**



Built-in One-touch fittings (ø20 to ø50)



ø20



ø32 to ø50

Built-in One-touch Fittings (mm)

Bore size (mm)	Applicable tubing O.D. QA	F	Q	QB	QU	QW
32	6	7.5	20	13	38	60.5
40	6	8	24.5	13	42	68
50	8	9.5	26	16	50	82

(mm)

Bore size (mm)	A	B	D	E	F	H	I	J	M	N	O	P	Q	T	V	Y	Z
16	59.5	41.5	10	29	6	18	—	—	28	3.5	6.5 depth 4	M5 x 0.8	17	20	18	38	—
20	67	45	12	36	8	22	—	—	36	5.5	9 depth 7	1/8	20	24	22	47	—
32	68	48	20	45	7.5	20	60	4.5	34	5.5	9 depth 7	1/8	20	36	20	—	14
40	80.5	52.5	25	52	8	28	69	5	40	5.5	9 depth 7	1/8	24.5	44	28	—	14
50	82	54	25	64	8	28	86	7	50	6.6	11 depth 8	1/8	24.5	56	28	—	19

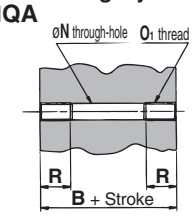
Note 1) M thread (M5 x 0.8) is applicable for ø12 and ø16 piping ports.
TF (G thread) for ø20 also indicates M5 x 0.8.
Note 2) For the auto switch mounting position and its mounting height, refer to page 14.
Note 3) These figures show the piston rod extended.
Note 4) In the case of single acting type, a One-touch fitting is on the rod side only.

Rod End Configuration: Chamfered (Non-rotating piston rod)

Basic style: Through-hole mounting, Screw mounting

These 5 figures show the piston rod extended.

Screw mounting style: Both ends tapped style
RS□QA

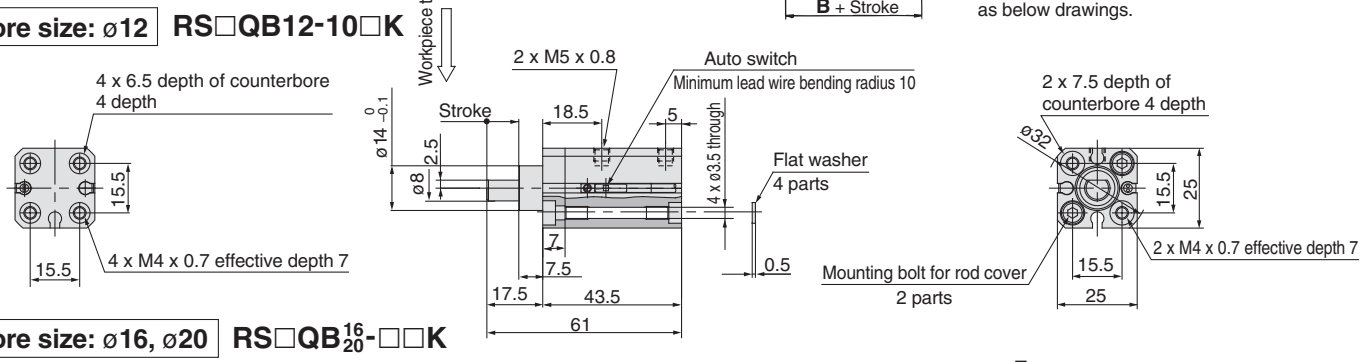


(mm)

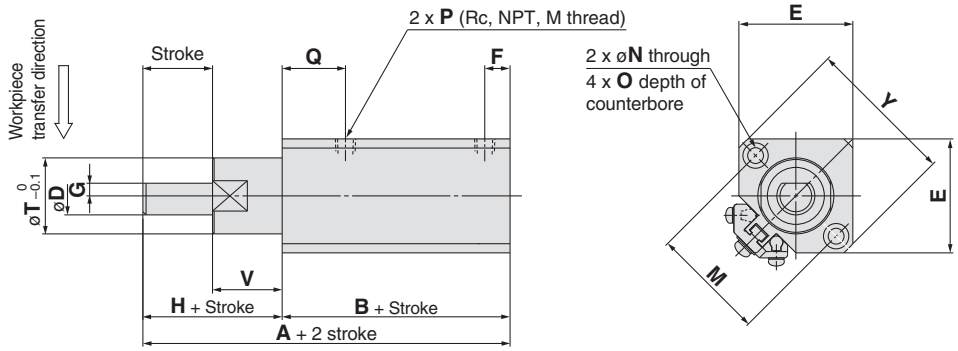
Model	B	N	O_1	R
RS□QA16	41.5	3.5	M4 x 0.7	7
RS□QA20	45	5.5	M6 x 1	10
RS□QA32	48	5.5	M6 x 1	10
RS□QA40	52.5	5.5	M6 x 1	10
RS□QA50	54	6.6	M8 x 1.25	14

* Dimensions other than above are the same as below drawings.

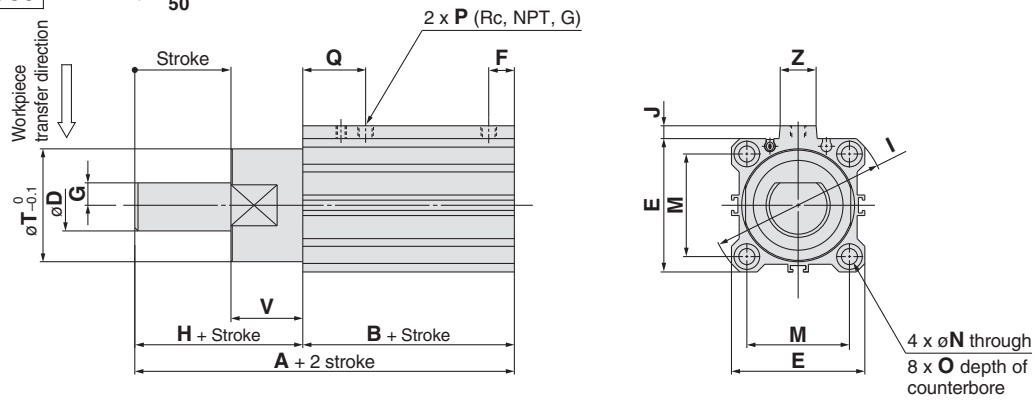
Bore size: ø12 **RS□QB12-10□K**



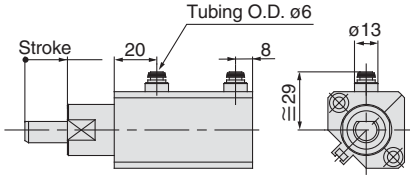
Bore size: ø16, ø20 **RS□QB$^{16}_{20}$-□□K**



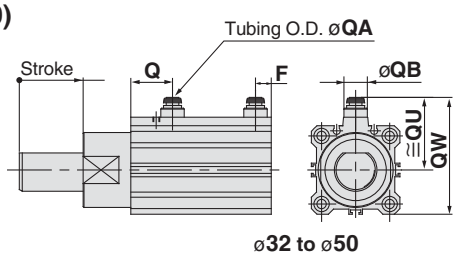
Bore size: ø32, ø40, ø50 **RS□QB$^{32}_{40}_{50}$-□□K**



Built-in One-touch fittings (ø20 to ø50)



ø20



ø32 to ø50

Built-in One-touch Fittings (mm)

Bore size (mm)	Applicable tubing O.D. QA	F	Q	QB	QU	QW
32	6	7.5	20	13	38	60.5
40	6	8	24.5	13	42	68
50	8	9.5	26	16	50	82

(mm)

Bore size (mm)	A	B	D	E	F	G	H	I	J	M	N	O	P	Q	T	V	Y	Z
16	59.5	41.5	10	29	6	3	18	—	—	28	3.5	6.5 depth 4	M5 x 0.8	17	20	18	38	—
20	67	45	12	36	8	4	22	—	—	36	5.5	9 depth 7	1/8	20	24	22	47	—
32	68	48	20	45	7.5	8	20	60	4.5	34	5.5	9 depth 7	1/8	20	36	20	—	14
40	80.5	52.5	25	52	8	10	28	69	5	40	5.5	9 depth 7	1/8	24.5	44	28	—	14
50	82	54	25	64	8	10	28	86	7	50	6.6	11 depth 8	1/8	24.5	56	28	—	19

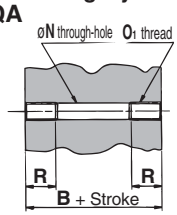
Note 1) M thread (M5 x 0.8) is applicable for ø12 and ø16 piping ports.
TF (G thread) for ø20 also indicates M5 x 0.8.
Note 2) For the auto switch mounting position and its mounting height, refer to page 14.
Note 3) These figures show the piston rod extended.
Note 4) In the case of single acting type, a One-touch fitting is on the rod side only.

Rod End Configuration: Roller Type

Basic style: Through-hole mounting, Screw mounting

These 5 figures show the piston rod extended.

Screw mounting style: Both ends tapped style
RS□QA



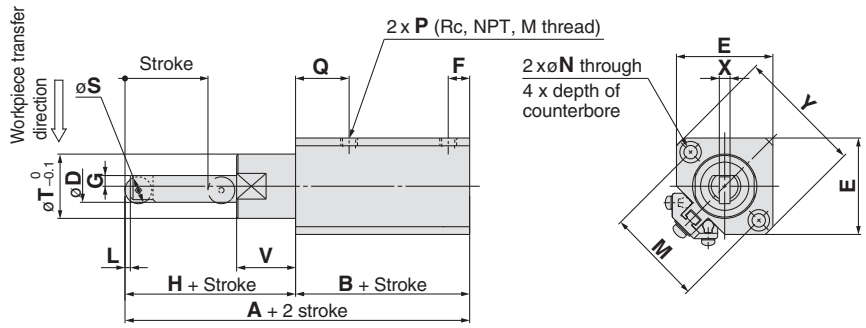
(mm)

Model	B	N	O_1	R
RS□QA16	41.5	3.5	M4 x 0.7	7
RS□QA20	45	5.5	M6 x 1	10
RS□QA32	48	5.5	M6 x 1	10
RS□QA40	52.5	5.5	M6 x 1	10
RS□QA50	54	6.6	M8 x 1.25	14

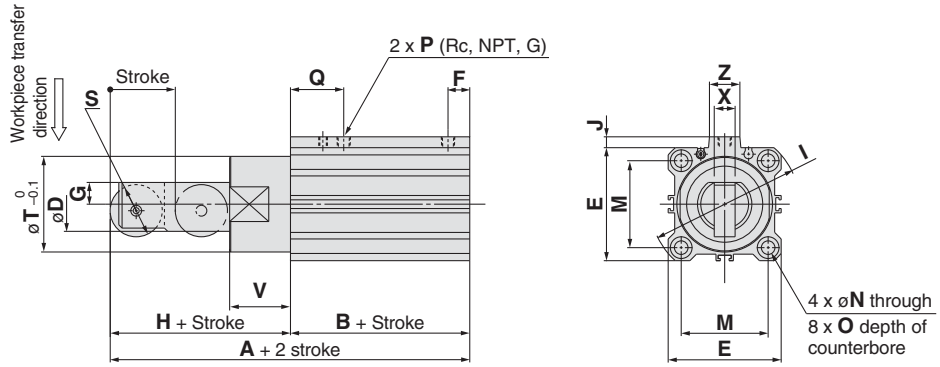
* Dimensions other than above are the same as below drawings.

Bore size: ø12 **RS□QB12-10□R**

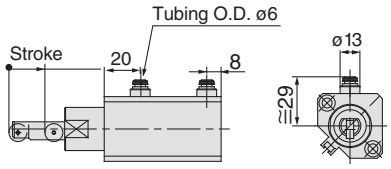
Bore size: ø16, ø20 **RS□QB $^{16}_{20}$-□□R**



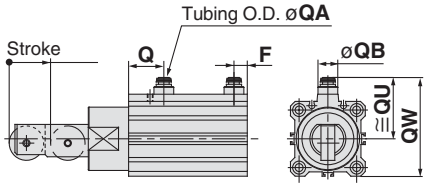
Bore size: ø32, ø40, ø50 **RS□QB $^{32}_{40}_{50}$□□R**



Built-in One-touch fittings (ø20 to ø50)



ø20



ø32 to ø50

Built-in One-touch Fittings (mm)

Bore size (mm)	Applicable tubing O.D. **QA**	F	Q	QB	QU	QW
32	6	7.5	20	13	38	60.5
40	6	8	24.5	13	42	68
50	8	9.5	26	16	50	82

(mm)

Bore size (mm)	A	B	D	E	F	G	H	I	J	L	M	N	O	P	Q	S	T	V	X	Y	Z
16	68	41.5	10	29	6	3	26.5	—	—	2	28	3.5	6.5 depth 4	M5 x 0.8	17	8	20	18	3.5	38	—
20	78	45	12	36	8	4	33	—	—	2	36	5.5	9 depth 7	$^1/_8$	20	10	24	22	4	47	—
32	87	48	20	45	7.5	8	39	60	4.5	3	34	5.5	9 depth 7	$^1/_8$	20	18	36	20	8	—	14
40	105.5	52.5	25	52	8	10	53	69	5	4	40	5.5	9 depth 7	$^1/_8$	24.5	24	44	28	9	—	14
50	107	54	25	64	8	10	53	86	7	4	50	6.6	11 depth 8	$^1/_8$	24.5	24	56	28	9	—	19

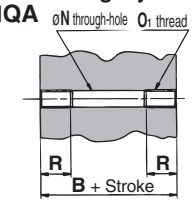
Note 1) M thread (M5 x 0.8) is applicable for ø12 and ø16 piping ports.
TF (G thread) for ø20 also indicates M5 x 0.8.
Note 2) For the auto switch mounting position and its mounting height, refer to page 14.
Note 3) These figures show the piston rod extended.
Note 4) In the case of single acting type, a One-touch fitting is on the rod side only.

Rod End Configuration: Lever Type with Shock Absorber

Basic style: Through-hole mounting, Screw mounting

These 3 figures show the piston rod extended.

Screw mounting style: Both ends tapped style
RS□QA

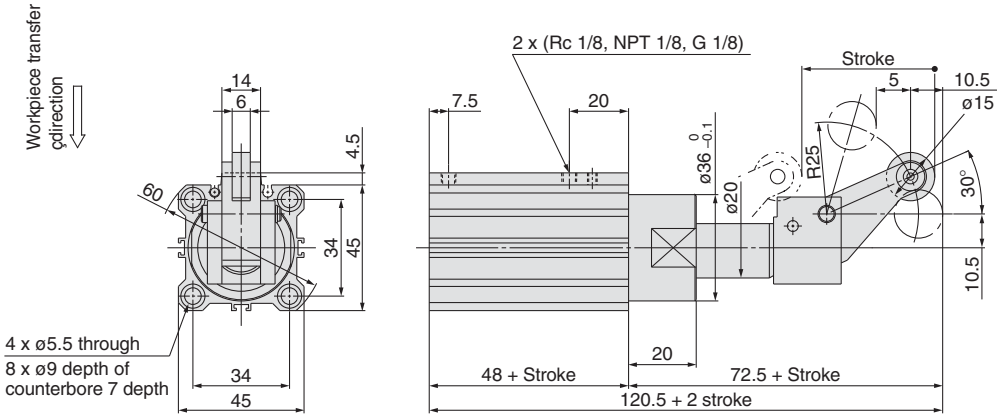


(mm)

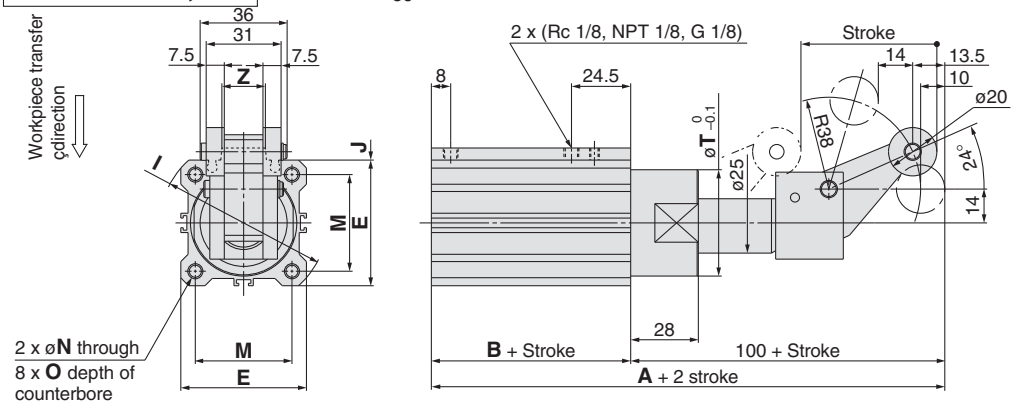
Model	B	N	O_1	R
RS□QA32	48	5.5	M6 x 1	10
RS□QA40	52.5	5.5	M6 x 1	10
RS□QA50	54	6.6	M8 x 1.25	14

∗ Dimensions other than above are the same as below drawings.

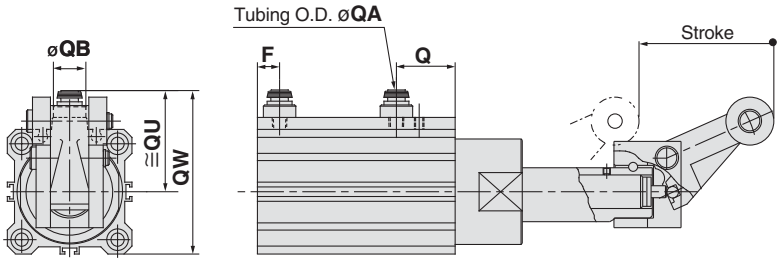
Bore size: ø32 **RS□QB32-□□L**



Bore size: ø40, ø50 **RS□QB $^{40}_{50}$-□□L**



Built-in One-touch fittings



Built-in One-touch Fittings (mm)

Bore size (mm)	Applicable tubing O.D. **QA**	F	Q	QB	QU	QW
32	6	7.5	20	13	38	60.5
40	6	8	24.5	13	42	68
50	8	9.5	26	16	50	82

(mm)

Bore size (mm)	A	B	E	I	J	M	N	O	T	Z
40	152.5	52.5	52	69	5	40	5.5	9 depth 7	44	14
50	154	54	64	86	7	50	6.6	11 depth 8	56	19

Note 1) For the auto switch mounting position and its mounting height, refer to page 14.
Note 2) These figures show the piston rod extended.
Note 3) In the case of single acting type, a One-touch fitting is on the rod side only.

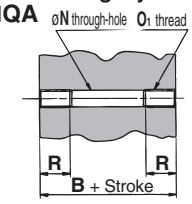
Rod End Configuration: Lever Type with Shock Absorber

Variable energy absorbing type/ Through-hole mounting, Screw mounting style Adjustable shock absorber stroke

These 3 figures show the piston rod extended.

Screw mounting style: Both ends tapped style (mm)

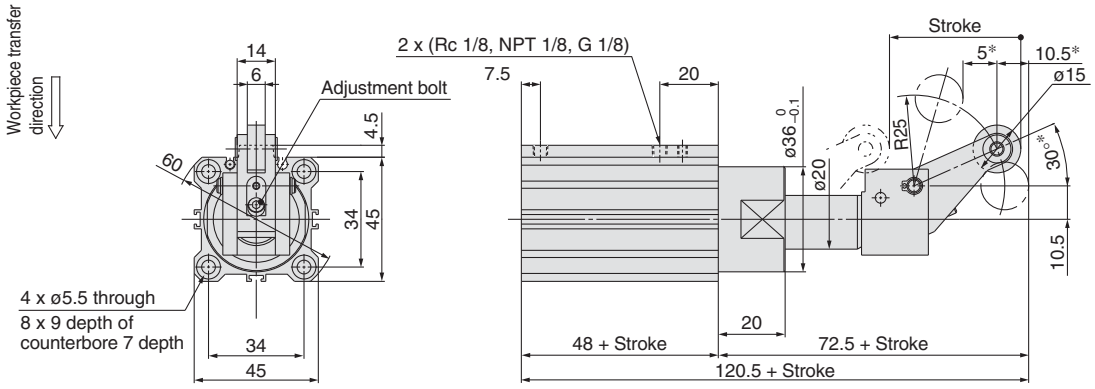
RS□QA



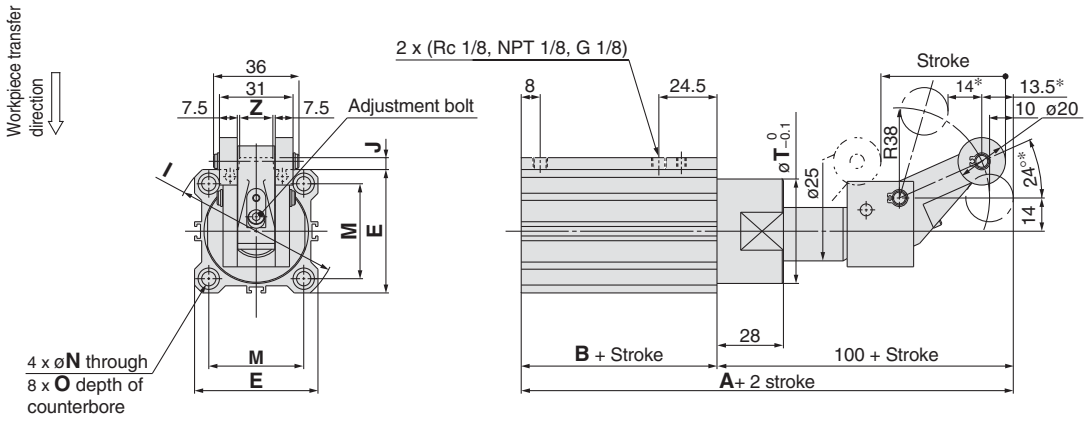
Model	B	N	O_1	R
RS□QA32	48	5.5	M6 x 1	10
RS□QA40	52.5	5.5	M6 x 1	10
RS□QA50	54	6.6	M8 x 1.25	14

∗ Dimensions other than above are the same as below drawings.

Bore size: ø32 **RS□QB32-□□B**

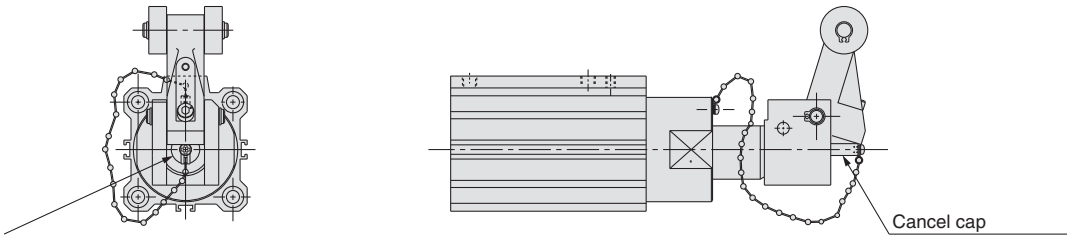


Bore size: ø40, ø50 **RS□QB$^{40}_{50}$-□□B**



With cancel cap **RS□QB□-□□C**

∗ Dimensions when equipped with cancel cap are the same as the drawing above.



∗ These figures show dimensions when set for maximum energy absorbing capacity. (mm)

Bore size (mm)	A	B	E	I	J	M	N	O	T	Z
40	152.5	52.5	52	69	5	40	5.5	9 depth 7	44	14
50	154	54	64	86	7	50	6.6	11 depth 8	56	19

Note 1) For the auto switch mounting position and its mounting height, refer to page 14.
Note 2) These figures show the piston rod extended.
Note 3) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 4) The figures show the dimensions when the adjustment bolt is lowered (when energy absorption is at its maximum).
However, these dimensions change within the ranges shown below as the adjustment bolt is raised (energy absorption is reduced).
ø32···30°* → 20°*, 10.5* → 9*, 5* → 6*
ø40, 50···24°* → 16°*, 13.5* → 11.5*, 14* → 16*

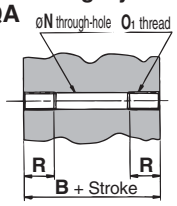
Rod End Configuration: Lever Type with Shock Absorber

Variable energy absorbing type/ Through-hole mounting, Screw mounting style With lock mechanism

These 3 figures show the piston rod extended.

Screw mounting style: Both ends tapped style (mm)

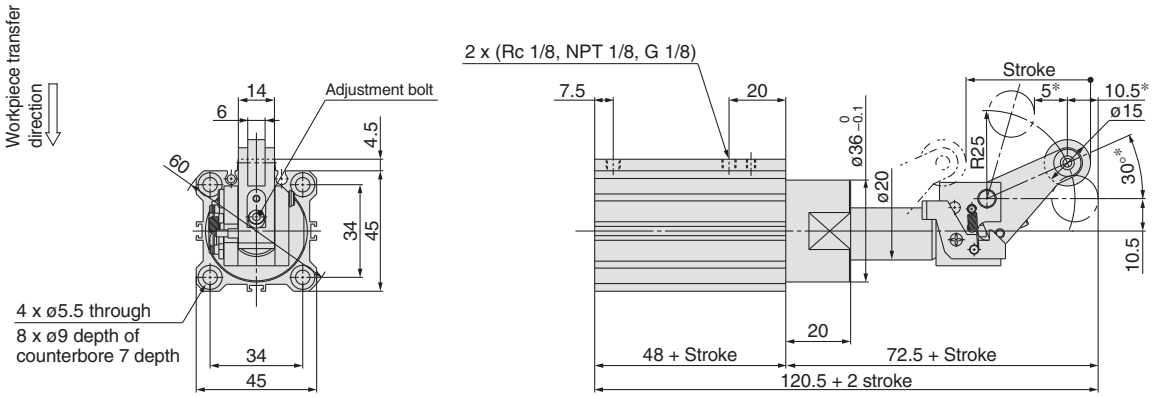
RS□QA



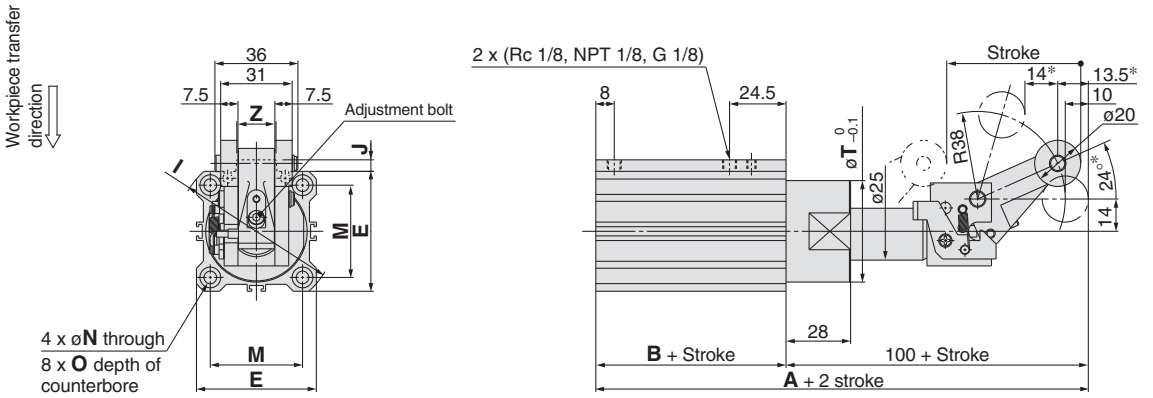
Model	B	N	O_1	R
RS□QA32	48	5.5	M6 x 1	10
RS□QA40	52.5	5.5	M6 x 1	10
RS□QA50	54	6.6	M8 x 1.25	14

∗ Dimensions other than above are the same as below drawings.

Bore size: ø32 **RS□QB32-□□D**

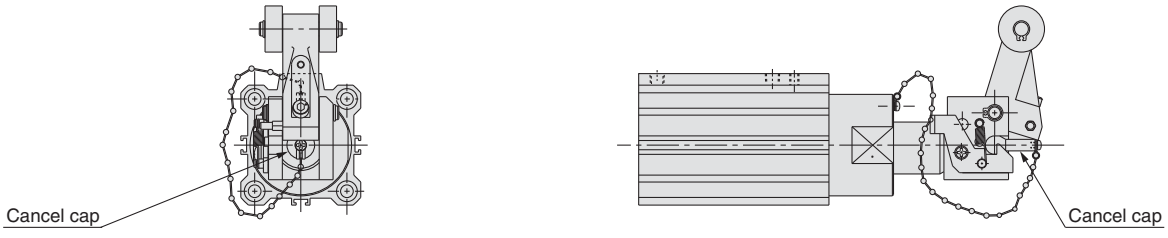


Bore size: ø40, ø50 **RS□QB $^{40}_{50}$-□□D**



With lock mechanism + Cancel cap **RS□QB□□-□□E**

∗ Dimensions when equipped with lock and cancel cap are the same as the figure drawing.



∗ These figures show dimensions when set for maximum energy absorbing capacity. (mm)

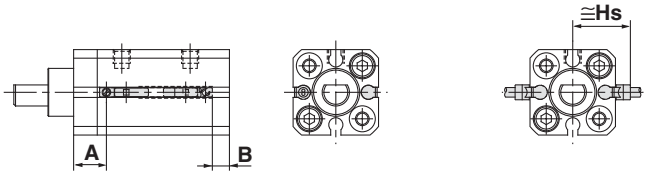
Bore size (mm)	A	B	E	I	J	M	N	O	T	Z
40	152.5	52.5	52	69	5	40	5.5	9 depth 7	44	14
50	154	54	64	86	7	50	6.6	11 depth 8	56	19

Note 1) For the auto switch mounting position and its mounting height, refer to page 14.
Note 2) These figures show the piston rod extended.
Note 3) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 4) The figures shows the dimensions when the adjustment bolt is lowered (when energy absorption is at its maximum).
However, these dimensions change within the ranges shown below as the adjustment bolt is raised (energy absorption is reduced).
ø32···30°* → 20°*, 10.5* → 9*, 5* → 6*
ø40, 50···24°* → 16°*, 13.5* → 11.5*, 14* → 16*

Auto Switch Mounting 1

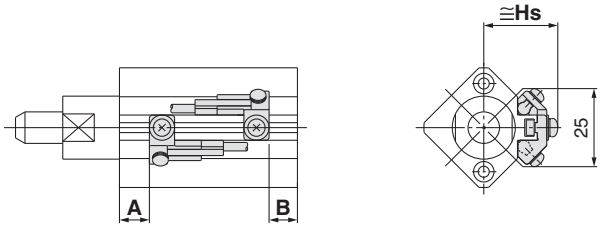
Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

ø12 **D-A9□** **D-A9□V**
D-M9□ **D-M9□V**
D-M9□W **D-M9□WV**
D-M9□A **D-M9□AV**



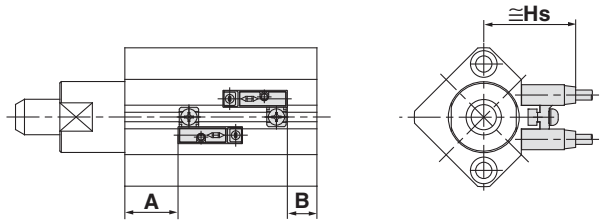
D-A9□
D-M9□
D-M9□W
D-A9□V
D-M9□V
D-M9□WV
D-M9□A
D-M9□AV

ø16, 20

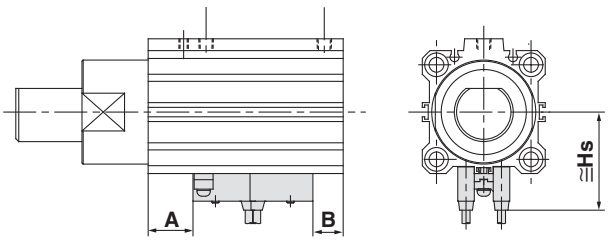


D-A7□
D-A80
D-A7□H
D-A80H
D-F7□
D-J79
D-F7□W
D-J79W
D-F79F
D-F7NT
D-F7BA
D-A73C
D-A80C
D-J79C
D-A79W
D-F7□WV
D-F7□V
D-F7BAV

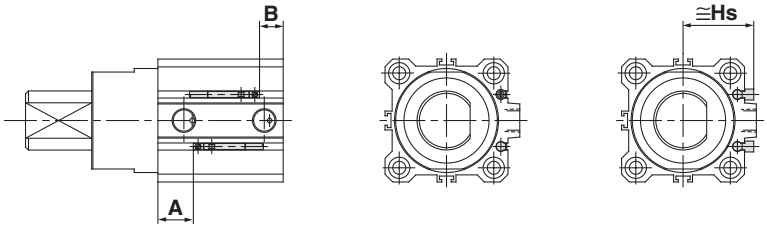
ø16, ø20



ø32 to ø50



ø32 to ø50
D-A9□ **D-A9□V**
D-M9□ **D-M9□V**
D-M9□W **D-M9□WV**
D-M9□A **D-M9□AV**



Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

Auto Switch Proper Mounting Position

(mm)

Auto switch model / Bore size (mm)	D-A9□ D-A9□V		D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C D-F7□/J79 D-F7□V/J79C D-F7BAV/F7BA D-F7□W/J79W D-F7□WV/F79F		D-F7NT		D-A79W	
	A	B	A	B	A	B	A	B	A	B	A	B
12	9	7	13	11	—	—	—	—	—	—	—	—
16	9	9	13	13	11.5	11.5	12	12	17	17	9	9
20	15	7	19	11	17.5	9.5	18	10	23	15	15	7
32	17	11	21	15	18	12	18.5	12.5	23.5	17.5	15.5	9.5
40	21.5	11	25.5	15	22.5	12	23	12.5	28	17.5	20	9.5
50	29.5	4.5	33.5	8.5	30.5	5.5	31	6	36	11	28	3

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

Auto Switch Mounting Height

(mm)

Auto switch model / Bore size (mm)	D-A9□V	D-M9□V D-M9□WV D-M9□AV	D-A7□ D-A80	D-A7□H D-A80H/F7□ D-J79/F7□W D-F7BA D-J79W D-F79F D-F7NT	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAV	D-J79C	D-A79W
	Hs	Hs	Hs	Hs	Hs	Hs	Hs	Hs
12	17	19.5	—	—	—	—	—	—
16	23.5	23.5	22.5	23.5	29.5	26	29	25
20	25.5	25.5	24.5	25.5	31.5	28	31	27
32	27	29	31.5	32.5	38.5	35	38	34
40	30.5	32.5	35	36	42	38.5	41.5	37.5
50	36.5	38.5	41	42	48	44.5	47.5	43.5

Operating Range

(mm)

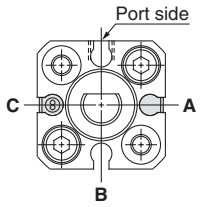
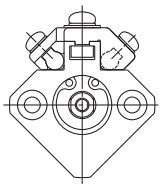
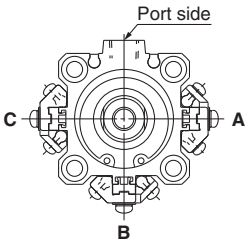
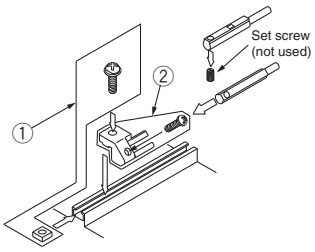
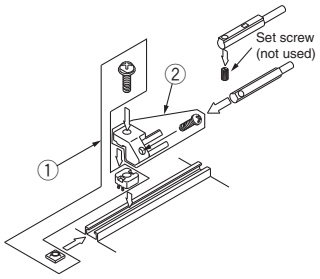
Auto switch model	Bore size (mm)					
	12	16	20	32	40	50
D-A9□/A9□V	6	9.5	9	9.5	9.5	9.5
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	3	5	5.5	6	6	7
D-A7□/A80 D-A7H/A80H D-A73C/A80C	—	12	12	12	11	10
D-A79W	—	13	13	13	14	14
D-F7□/J79 D-F7□V/J79C D-F7□W/J7□WV D-F7BA/F7BAV D-F79F/F7NT	—	6	5.5	6	6	6

∗ Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion) There may be the case to change substantially depending on an ambient environment.

∗ The values above for a bore size ø12 and over ø32 of D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V) types are measured when the conventional switch installation groove is attached without using the auto switch mounting bracket BQ2-012.

Auto Switch Mounting 2

Auto Switch Mounting Bracket: Part No.

<table>
<tr><td rowspan="2">Auto switch mounting surface
Auto switch model</td><td colspan="4">Bore size (mm)</td></tr>
<tr><td>ø12</td><td>ø16, ø20</td><td colspan="2">ø32, ø40, ø50</td></tr>
<tr><td></td><td> 
</td><td>  </td><td colspan="2"> 
</td></tr>
<tr><td></td><td>Auto switch mounting surface</td><td>Auto switch mounting surface</td><td colspan="2">Auto switch mounting surface</td></tr>
<tr><td></td><td>A, B, C side</td><td>Only auto switch mounting rail surface</td><td>Port side</td><td>A, B, C side</td></tr>
<tr><td>D-A9□
D-A9□V
D-M9□
D-M9□V
D-M9□W
D-M9□WV
D-M9□A
D-M9□AV</td><td>Auto switch mounting brackets are not required.</td><td>①BQ-1
②BQ2-012
Two kinds of auto switch mounting brackets are used as a set.
 
</td><td>Auto switch mounting brackets are not required.</td><td>①BQ-2
②BQ2-012
Two kinds of auto switch mounting brackets are used as a set.
 
</td></tr>
</table>

Note 1) For each cylinder series, when a compact auto switch is mounted on the three sides (A, B and C above) other than the port side of bore sizes ø32 to ø50, the auto switch mounting brackets above are required. Order them separately from cylinders.
Ordering example:
RSDQB32-20-M9BW.....1 unit
BQ-2.....2 pcs.
BQ2-012.....2 pcs.

Note 2) Auto switch mounting brackets and auto switches are shipped together with cylinders.

Auto switch model	Bore size (mm)				
	16	20	32	40	50
D-A7□/A80 D-A73C/A80C D-A7□H/A80H D-A79W D-F7□/J79 D-F7□V D-J79C D-F7□W/J79W D-F7□WV D-F7BA/F7BAV D-F79F/F7NT	BQ-1		BQ-2		

Note 3) Auto switch mounting brackets and auto switches are shipped together with cylinders.

[Mounting screw set made of stainless steel]
The following set of mounting screws made of stainless steel (including nuts) is available. Use it in accordance with the operating environment. (Please order BQ-2 separately, since auto switch spacers (for BQ-2) are not included.)
BBA2: For D-A7/A8/F7/J7 types
D-F7BA/F7BAV auto switches are set on the cylinder with the stainless steel screws above when shipped. When an auto switch is shipped independently, BBA2 is attached.

Note 4) When D-M9□A(V) type is mounted on a side other than the ø32, ø40 or ø50 port side, order auto switch mounting brackets BQ2-012S or BQ-2, or a stainless steel screw set BBA2 separately.

Note 5) Refer to the Auto Switch Guide for the details of BBA2.

Auto Switch Mounting Bracket Weight

Auto switch mounting bracket part no.	Weight (g)
BQ-1	1.5
BQ-2	1.5
BQ2-012	5

Besides the models listed in How to Order, the following auto switches are applicable.

Other Applicable Auto Switches/Refer to the Auto Switch Guide for detailed auto switch specifications.

Auto switch type	Model	Electrical entry (Fetching direction)	Features
Reed	D-A73	Grommet (Perpendicular)	—
	D-A80		Without indicator light
	D-A73H, A76H	Grommet (In-line)	—
	D-A80H		Without indicator light
Solid state	D-F7NV, F7PV, F7BV	Grommet (Perpendicular)	—
	D-F7NWV, F7BWV		Diagnostic indication (2-colour indication)
	D-F7BAV		Water resistant (2-colour indication)
	D-F79, F7P, J79	Grommet (In-line)	—
	D-F79W, F7PW, J79W		Diagnostic indication (2-colour indication)
	D-F7BA		Water resistant (2-colour indication)
	D-F7NT		With timer

∗ For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to the Auto Switch Guide for details.
∗ Normally closed (NC = b contact), solid state switch (D-F9G/F9H types) are also available. Refer to the Auto Switch Guide for details.
∗ D-A7/A8/F7/J7 cannot be mounted on ø12.

Stopper Cylinder/Adjustable Mounting Height

Series RSG

ø40, ø50

How to Order

RSG 40 □ – 30 D □ – □

With auto switch **RSDG** 40 □ – 30 D □ – M9BW □ – C – □

With auto switch
(Built-in magnet)

Bore size

40	40 mm
50	50 mm

Port type

—	Rc
TN	NPT
TF	G
F	Built-in One-touch fittings

Cylinder stroke (mm)

40, 50	20, 25, 30

Action

D	Double acting
B	Double acting with spring loaded
T	Single acting (Spring extend)

Number of auto switches

—	2 pcs.
S	1 pc.

Auto switch

—	Without auto switch

∗ For the applicable auto switch model, refer to the table below.

Rod end configuration

Symbol	Configuration	Application
—	Round bar type	—
K	Chamfered type	—
R	Roller type	—
L	Lever type (Non-adjustable)	Basic style
B	Lever type (Energy absorbing, Adjustable deformation)	—
C		With cancel cap
D		With lock menchanism
E		With lock & cancel

Made to Order Specifications
For details, refer to page 18.

Auto switch mounting bracket Note)
Note) This symbol is indicated when the D-A9□ or M9□ type auto switch is specified.
This mounting bracket does not apply to other auto switches (D-C7□ and H7□, etc.) (—)

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) RSDG50-25D

Applicable Auto Switches/Refer to the Auto Switch Guide for further information on auto switches.

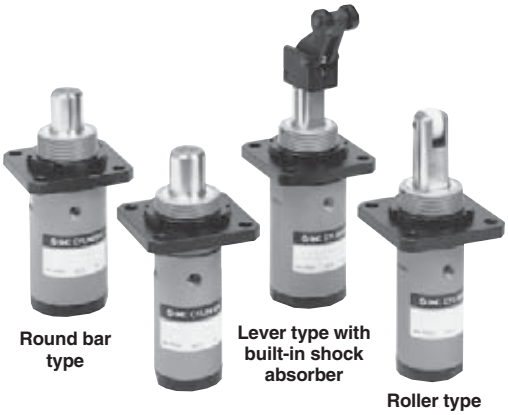
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length (m): 0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9NV**	**M9N**	●	—	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	●	—	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	●	—	●	○	—	○	—	
		Connector					—	**H7C**	●	—	●	●	●	—		
	Diagnostic indication (2-colour indication)	Grommet		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-colour indication)			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	○	○	●	○	—	○	—	
	With diagnostic output (2-colour indication)			4-wire (NPN)	5 V, 12 V		—	**H7NF**	●	—	●	○	—	○	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	—	Relay, PLC
							100 V or less	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	
		Connector	Yes			12 V	—	—	**C73C**	●	—	●	●	●	—	—	
			No				24 V or less	—	**C80C**	●	—	●	●	●	—	IC circuit	

∗1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.
∗2 1 m type lead wire is only applicable to D-A93.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) H7CN

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

∗ Since there are other applicable auto switches than listed, refer to page 28 for details.
∗ For details about auto switches with pre-wired connector, refer to the Auto Switch Guide.
∗ D-A9□/M9□/M9□W auto switches are shipped together (not assembled). (Only auto switch mounting brackets are assembled before shipped.)



Model

Bore size (mm)		40	50
Mounting	Flange	●	●
Built-in magnet		●	●
Piping	Screw-in type	Rc 1/8	
	Built-in One-touch fittings	ø6/4	ø8/6
Action		Double acting, Single acting (Spring extended), Double acting with spring loaded	
Rod end configuration	Round bar type	●	●
	Chamfered type	●	●
	Roller type	●	●
	Lever type	●	●

Spring Force (Single acting)

(N)

Bore size (mm)	Extended	Compressed
40, **50**	13.7	27.5

∗ For Round bar type, Chamfered type and Roller type.

Specifications

Action	Double acting, Double acting with spring loaded, Single acting (Spring extended)
Fluid	Air
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Ambient and fluid temperature	Without auto switch: –10 to 70°C With auto switch: –10 to 60°C
Lubrication	Not required (Non-lube)
Cushion	Rubber bumper
Stroke length tolerance	$^{+1.4}_{0}$
Mounting	Flange style

∗ No freezing (for cylinders with or without an auto switch)

Made to Order Specifications

Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port position

Bore Size/Standard Stroke

(mm)

Bore size (mm)	Rod end configuration
	Round bar type, Chamfered type, Roller type, Lever type with shock absorber
40	20, 25, 30
50	20, 25, 30

Weight

(kg)

Action	Bore size (mm)	Rod end configuration	Cylinder stroke (mm)		
			20	25	30
Double acting Single acting, Spring extend	**40**	Round bar type, Chamfered type, Roller type	1.14	1.17	1.2
		Lever type with built-in shock absorber	1.38	1.41	1.44
Double acting with spring loaded	**50**	Round bar type, Chamfered type, Roller type	1.34	1.37	1.4
		Lever type with built-in shock absorber	1.56	1.59	1.62

Operating Ranges by Rod End Configuration

(Example 1) For roller type with transfer speed of 15 m/min. and the weight of transferred object of 30 kg.

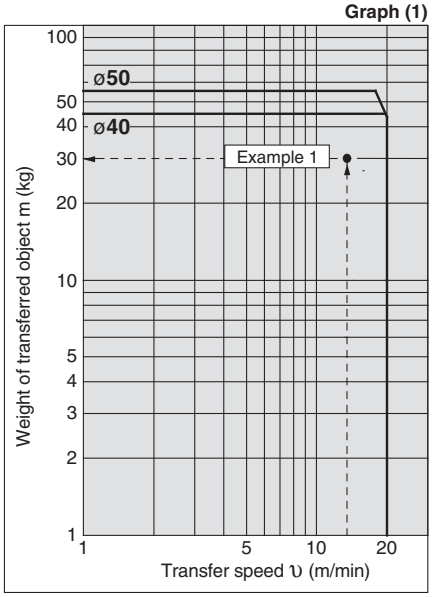
<How to read the graphs>
To select a cylinder based on the specifications above, find the intersection of the speed of 15 m/min. on the horizontal axis and the weight of 30 kg on the vertical axis in graph (1) below, and select **RSG□40-□□R** that falls in the cylinder operating range.

(Example 2) Transfer speed of 15 m/min., Weight of transferred object of 60 kg, Friction coefficient μ = 0.1, Lever type (Lever type with lock mechanism)

<How to read the graphs>
To select a cylinder based on the specifications above, find the intersection of the speed of 15 m/min. on the horizontal axis and the weight of 60 kg on the vertical axis in graph (3) below, and select **RSG□40-□□D** that falls in the cylinder operating range.

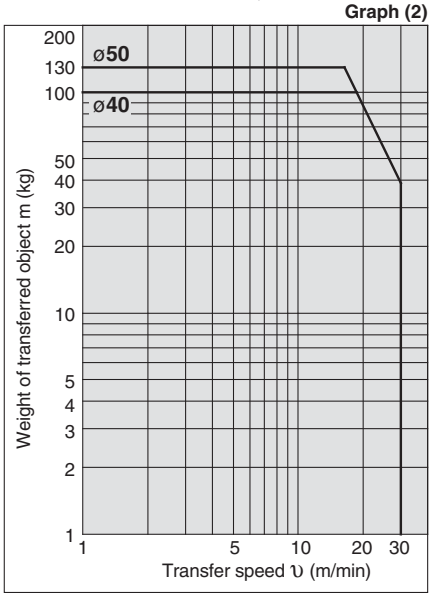
Roller Type/Round Bar Type/ Chamfered Type

Graph (1)



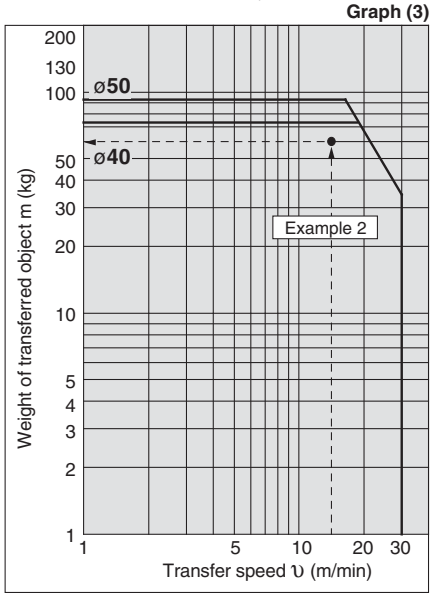
Lever Type (With shock absorber) Friction coefficient μ = 0

Graph (2)



Lever Type (With shock absorber) Friction coefficient μ = 0.1

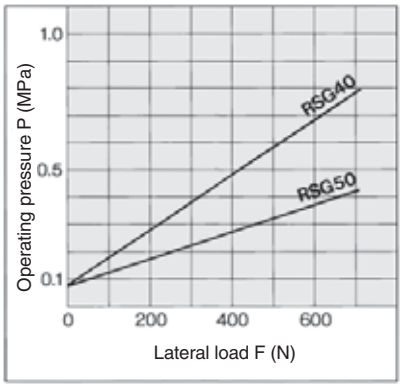
Graph (3)



∗ Lever-type weight of transferred object and transfer speed graphs (graphs (2) and (3)) show the values at room temperature (20 to 25°C).
∗ When selecting cylinders, confirm the Specific Product Precautions as well.

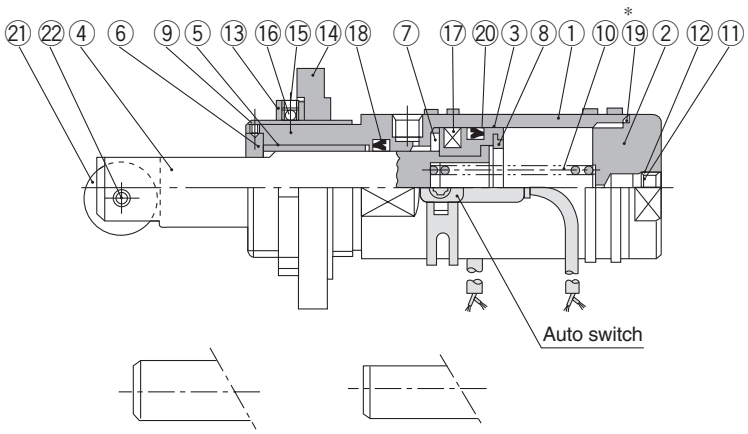
Lateral Load and Operating Pressure

The larger the lateral load, the higher the operating pressure required for the stopper cylinder. Set the operating pressure using the graphs as a guide.
(Applicable for round bar, roller and chamfered type rod end configurations.)



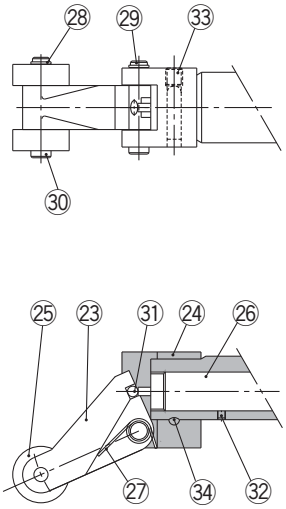
Construction

Roller rod end

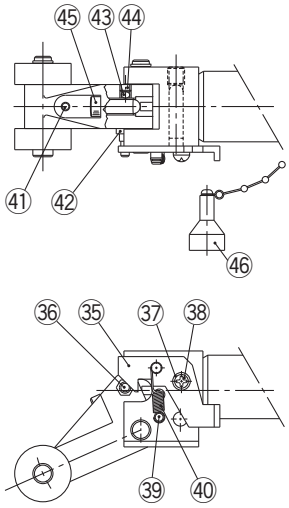


Round bar rod end type (D) Chamfered rod end type (K)

Lever rod end with shock absorber type (Fixed)



Lever rod end type (With lock mechanism and cancel cap)



Component Parts

No.	Description	Material	Note
1	**Tube cover**	Aluminium alloy	Hard anodised
2	**Head cover**	Aluminium alloy	Anodised
3	**Piston**	Aluminium alloy	Chromated
4	**Piston rod**	Carbon steel	Hard chrome plated
5	**Bushing**	Bearing alloy	
6	**Non-rotating guide**	Rolled steel	Use collar for round bar type.
7	**Bumper A**	Urethane	
8	**Bumper B**	Urethane	
9	**Hexagon socket head set screw**	Chromium molybdenum steel	
10	**Return spring**	Steel wire	Zinc chromated (Except double acting)
11	**Retaining ring**	Carbon tool steel	(Single acting only)
12	**Element**	Sintered matallic BC	(Single acting only)
13	**Lock nut**	Carbon steel	
14	**Flange**	Cast iron	
15	**Hexagon socket head set screw**	Chromium molybdenum steel	
16	**Ball**	Resin	
17	**Magnet**	—	
18	**Rod seal**	NBR	
*19	**Gasket**	NBR	Used Only for double acting and double acting with spring loaded.
20	**Piston seal**	NBR	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.			Contents
	Double acting	Double acting with spring loaded	Single acting	
40	RSG40D-PS	RSG40B-PS	RSG40T-PS	Set of above nos. ⑱, ⑲, ⑳
50	RSG50D-PS	RSG50B-PS	RSG50T-PS	

∗ Seal kit includes ⑱, ⑲, ⑳. Order the seal kit, based on each bore size.
∗ Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

Component Parts (For single acting)

No.	Description	Material	Note
Roller type			
21	**Roller A**	Resin	
22	**Spring pin**	Carbon tool steel	
Lever type			
23	**Lever**	Cast iron	
24	**Lever holder**	Rolled steel	
25	**Roller B**	Resin	
26	**Shock absorber**	—	RB1407-X552
27	**Lever spring**	Stainless steel wire	
28	**Type C retaining ring for shaft**	Carbon tool steel	
29	**Lever pin**	Carbon steel	
30	**Roller pin**	Carbon steel	
31	**Steel balls**	High carbon chrome bearing steel	
32	**Hexagon socket head set screw**	Chromium molybdenum steel	
33	**Hexagon socket head set screw**	Chromium molybdenum steel	
34	**One-side tapered pin**	Carbon steel	
With lock mechanism			
35	**Bracket**	Carbon steel	
36	**Pin B**	Carbon steel	
37	**Spacer**	Carbon steel	
38	**Round head Phillips screw**	Rolled steel	
39	**Pin A**	Rolled steel	
40	**Bracket spring**	Steel wire	
41	**Hexagon socket head cap set screw**	Chromium molybdenum steel	
42	**Spring washer**	Steel wire	
43	**Urethane ball**	Urethane	
44	**Hexagon socket head cap set screw**	Chromium molybdenum steel	
45	**Adjustment bolt**	Bearing steel	
With cancel cap			
46	**Cancel cap**	Aluminium alloy	

Replacement Parts: Shock Absorber

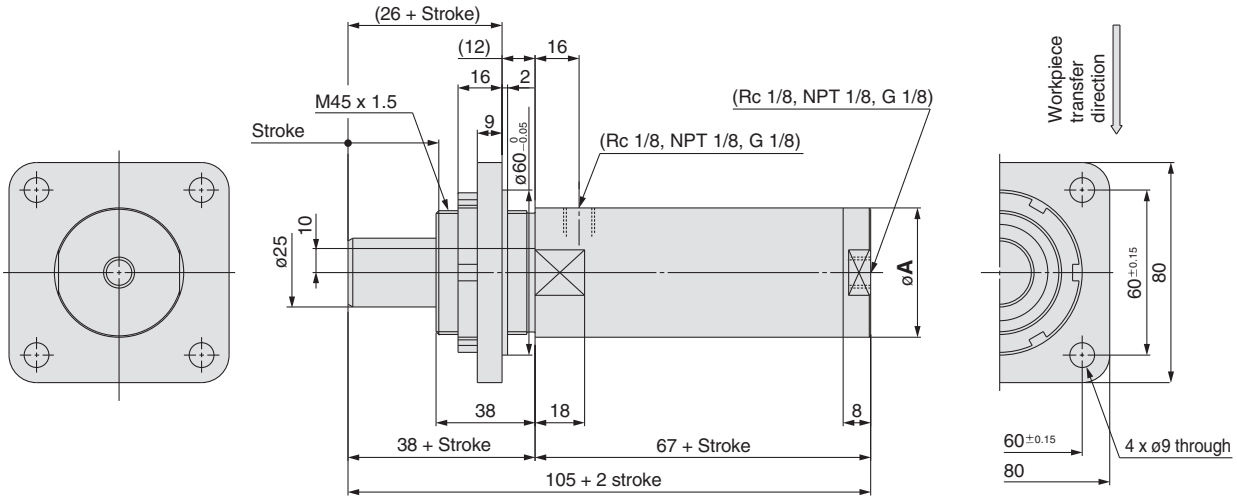
Bore size (mm)	Kit no.
40, 50	RB1407-X552

Rod End Configuration: Round Bar Type

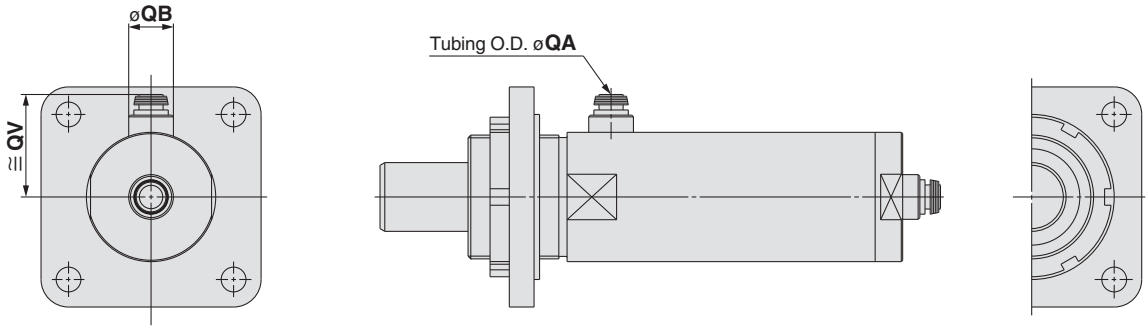
Basic style: Flange mounting

These 2 figures show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□**



Built-in One-touch fittings



(mm)

Bore size (mm)	A	QA	QB	QV
40	47	6	13	33
50	58	8	16	38.5

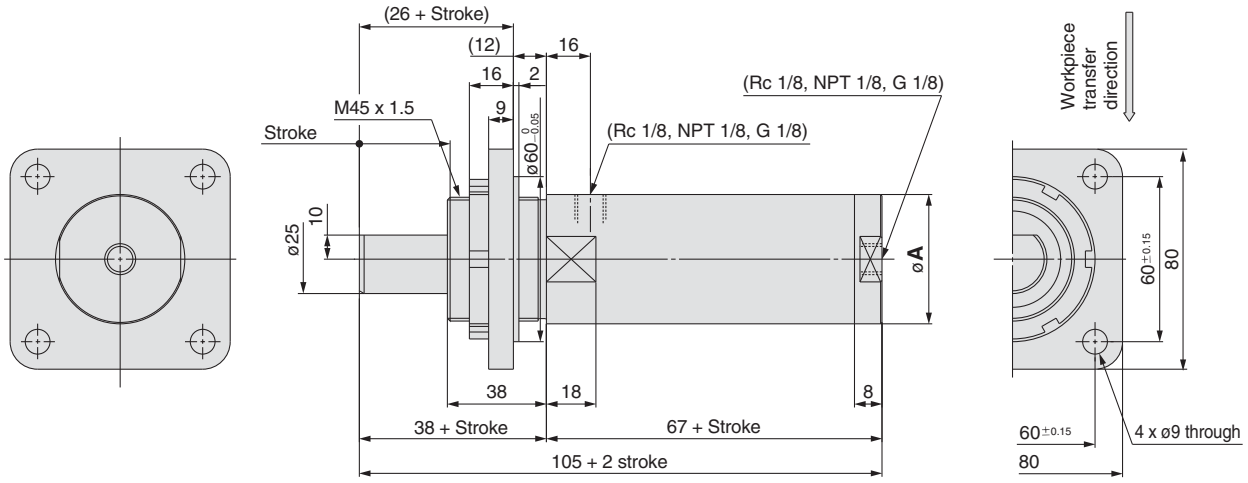
Note 1) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 2) These figures show the piston rod extended.
Note 3) For the auto switch mounting position and its mounting height, refer to page 27.

Rod End Configuration: Chamfered Type (Non-rotating piston rod)

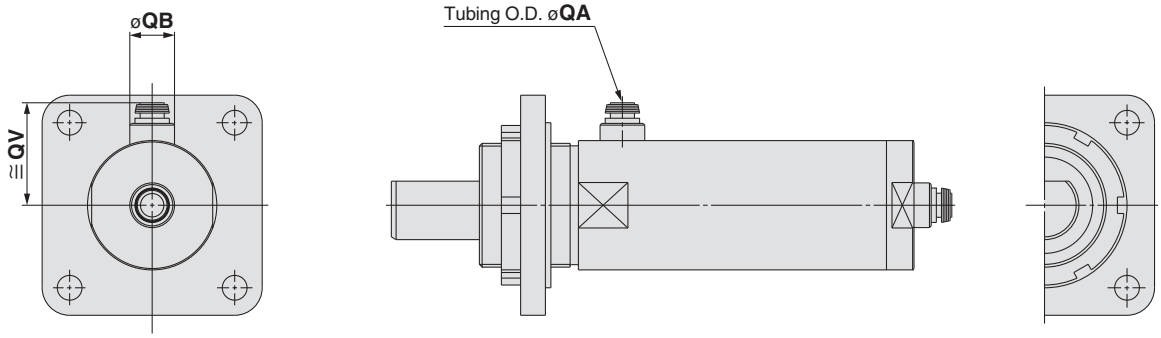
Basic style: Flange mounting

These 2 figures show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□K**



Built-in One-touch fittings



(mm)

Bore size (mm)	A	QA	QB	QV
40	47	6	13	33
50	58	8	16	38.5

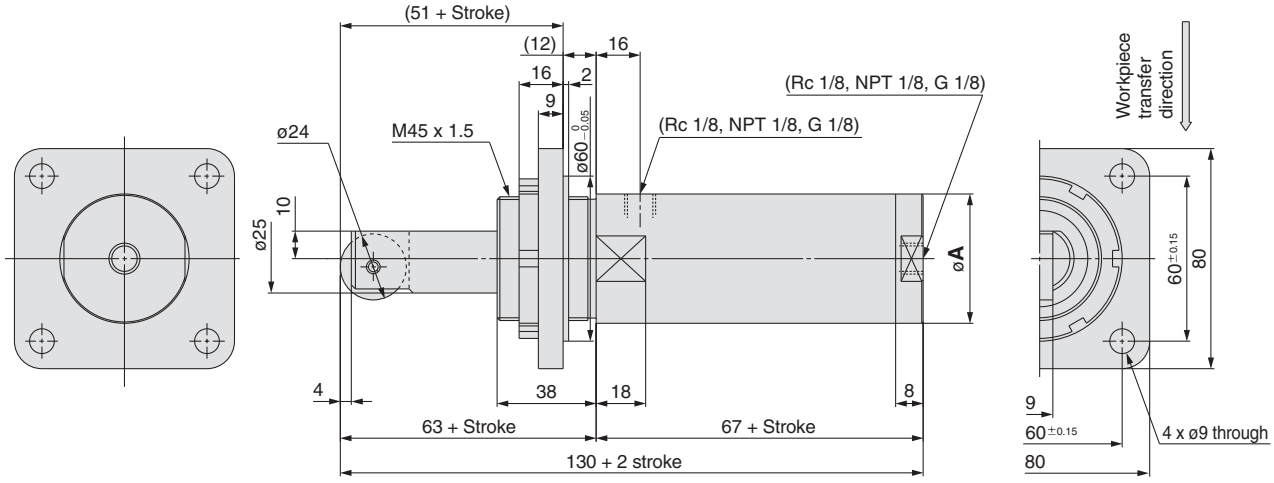
Note 1) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 2) These figures show the piston rod extended.
Note 3) For the auto switch mounting position and its mounting height, refer to page 27.

Rod End Configuration: Roller Type

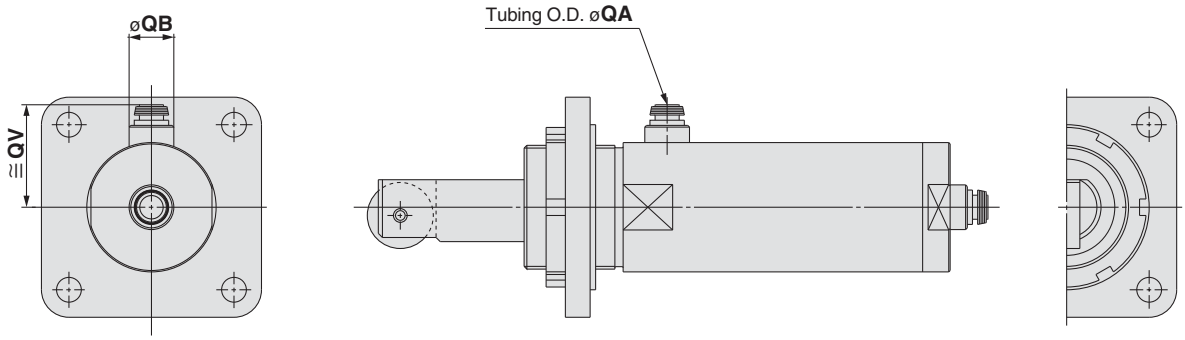
Basic style: Flange mounting

These 2 figures show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□R**



Built-in One-touch fittings



(mm)

Bore size (mm)	A	QA	QB	QV
40	47	6	13	33
50	58	8	16	38.5

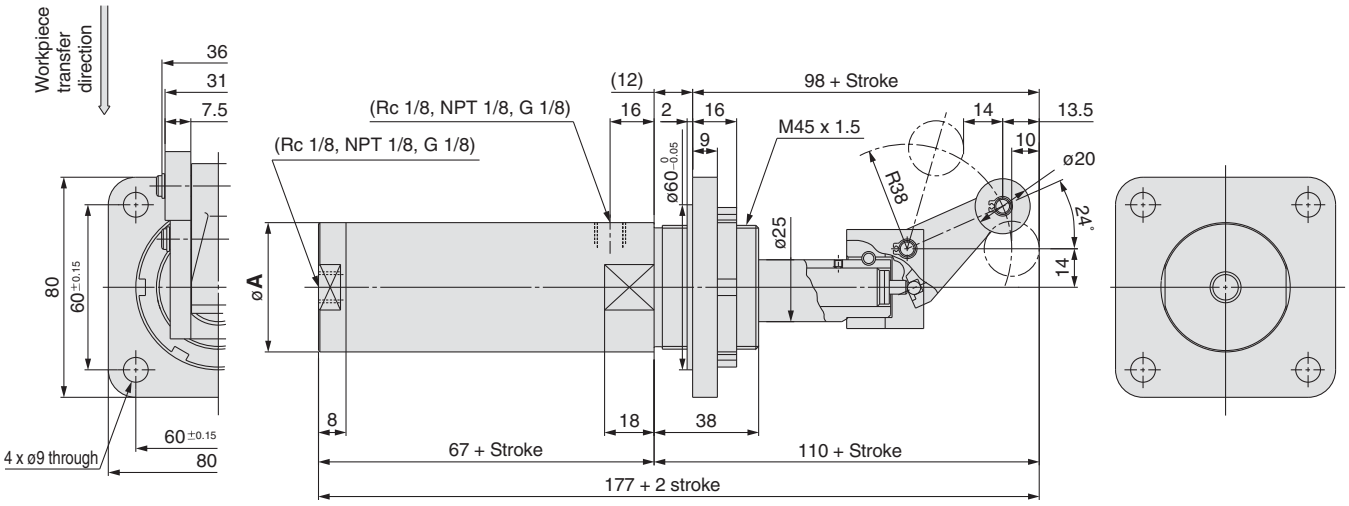
Note 1) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 2) These figures show the piston rod extended.
Note 3) For the auto switch mounting position and its mounting height, refer to page 27.

Rod End Configuration: Lever Type with Shock Absorber

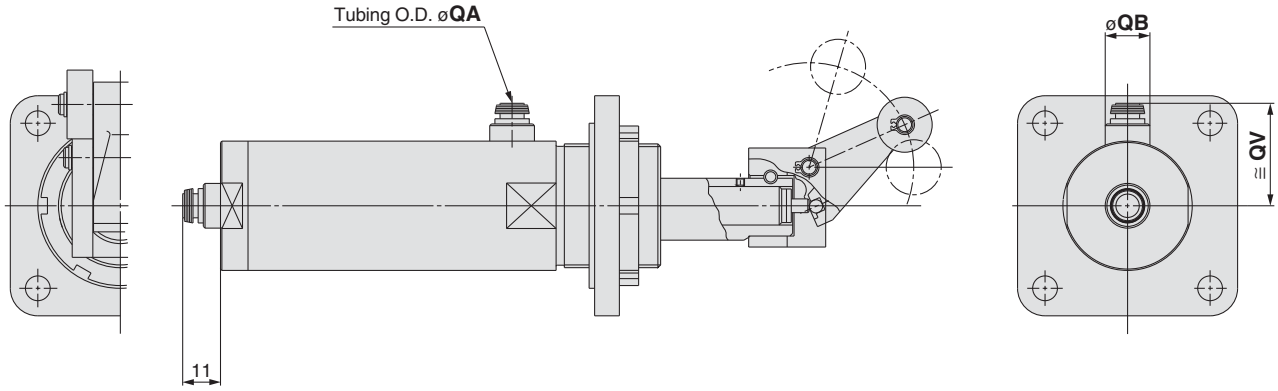
Basic style: Flange mounting

These 2 figures show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□L**



Built-in One-touch fittings



(mm)

Bore size (mm)	A	QA	QB	QV
40	47	6	13	33
50	58	8	16	38.5

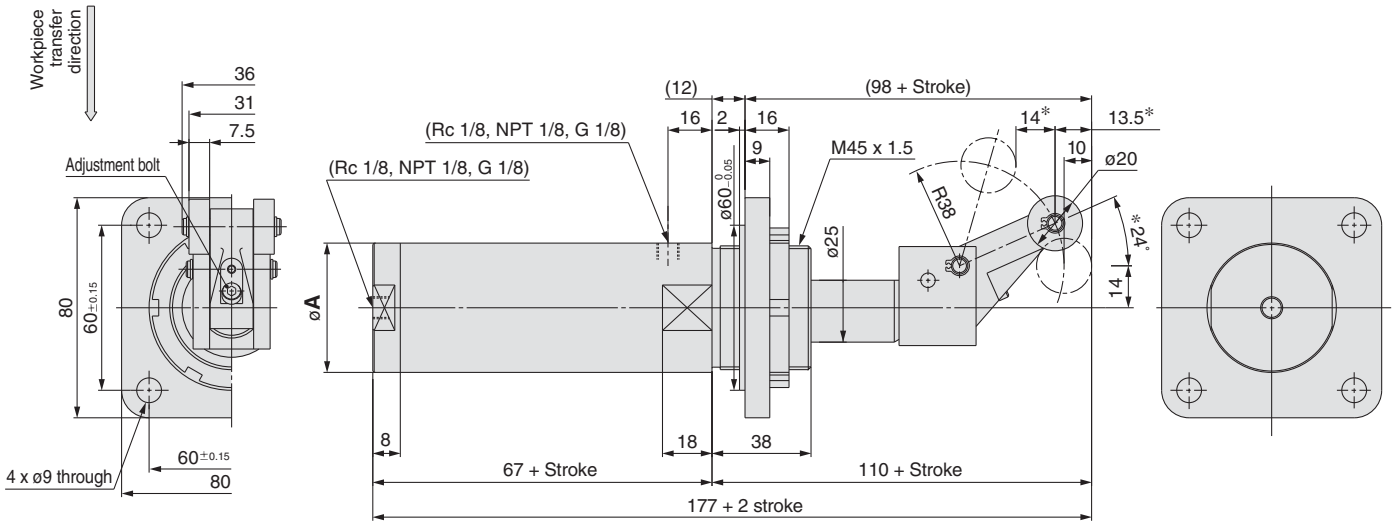
Note 1) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 2) These figures show the piston rod extended.
Note 3) For the auto switch mounting position and its mounting height, refer to page 27.

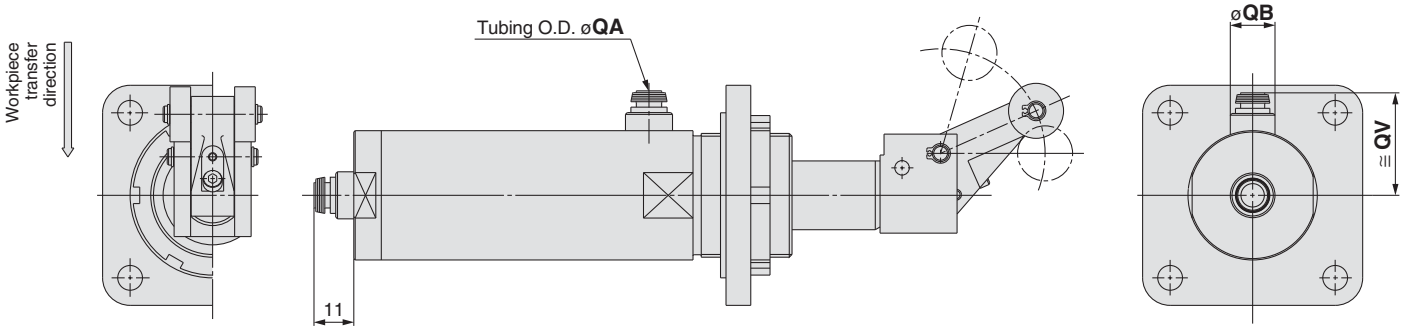
Rod End Configuration: Lever Type with Shock Absorber

Variable energy absorbing type/Flange mounting style

These 2 figures show the piston rod extended.

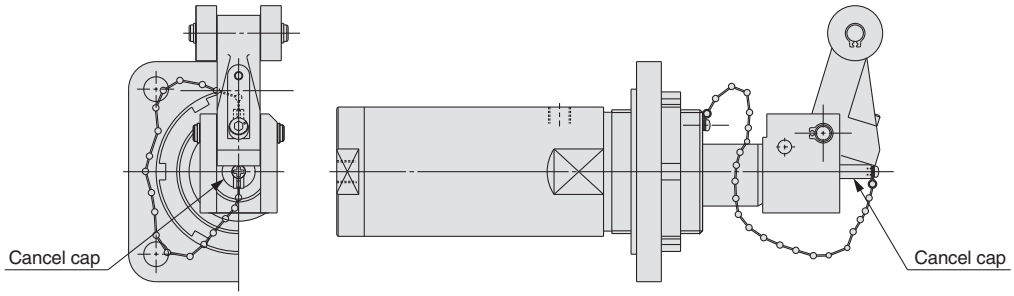
Adjustable shock absorber stroke **RS□G□-□□B**





With cancel cap **RS□G□-□□C**

* Dimensions when equipped with cancel cap are the same as the drawing above.



(mm)

Bore size (mm)	A	QA	QB	QV
40	47	6	13	33
50	58	8	16	38.5

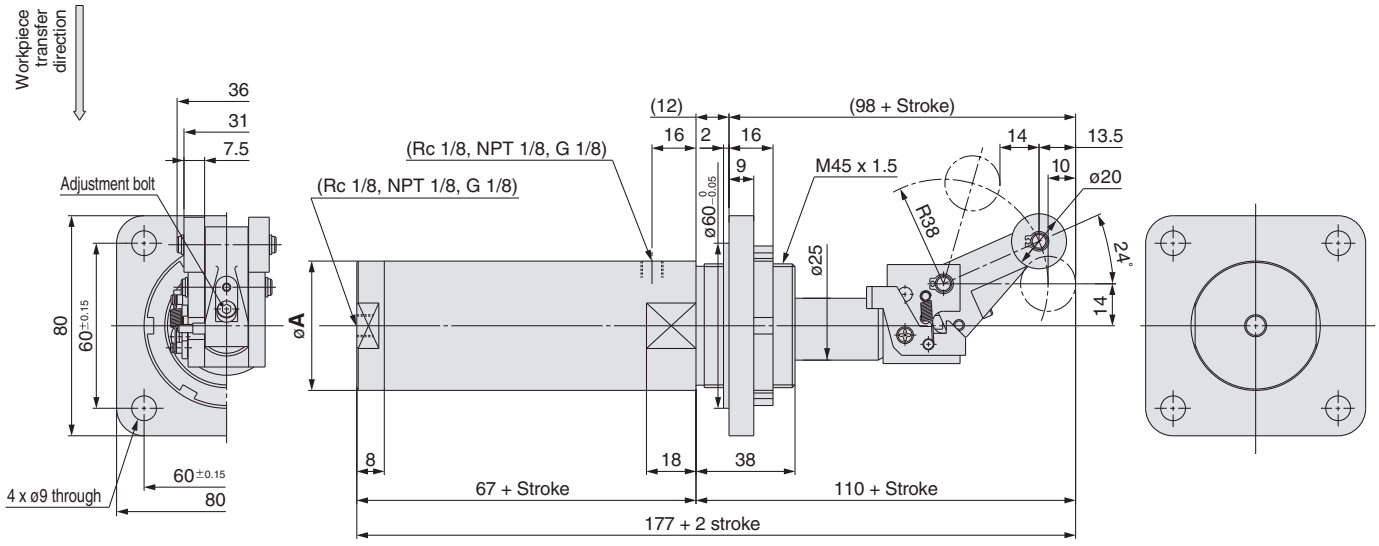
Note 1) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 2) These figures show the piston rod extended.
Note 3) For the auto switch mounting position and its mounting height, refer to page 27.
Note 4) The figure shows these dimensions when the adjustment bolt is lowered (when energy absorption is at its maximum).
However, these dimensions change within the ranges shown below as the adjusting bolt is raised (energy absorption is reduced).
24°* → 16°*, 13.5* → 11.5*, 14* → 16*

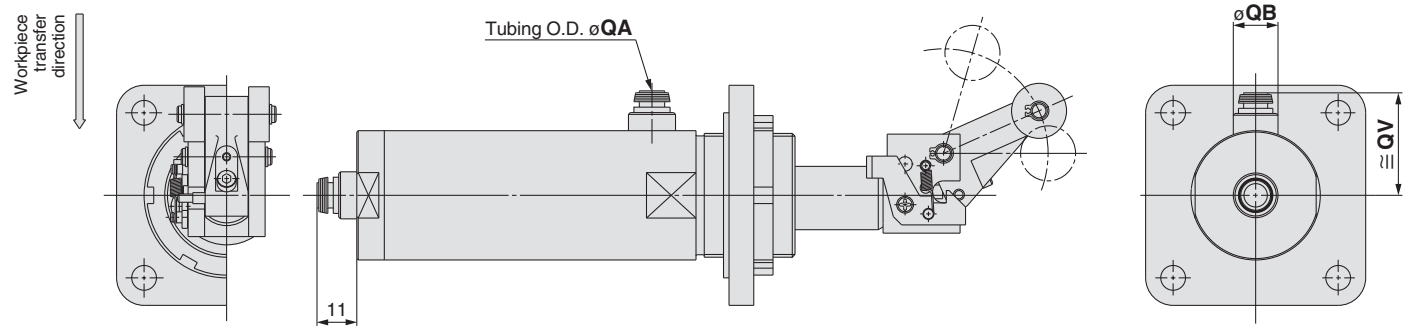
Rod End Configuration: Lever Type with Shock Absorber

Variable energy absorbing type/Flange mounting style

These 2 figures show the piston rod extended.

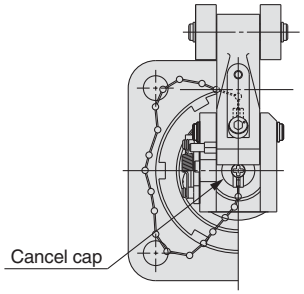
With lock mechanism RS□G□-□□D

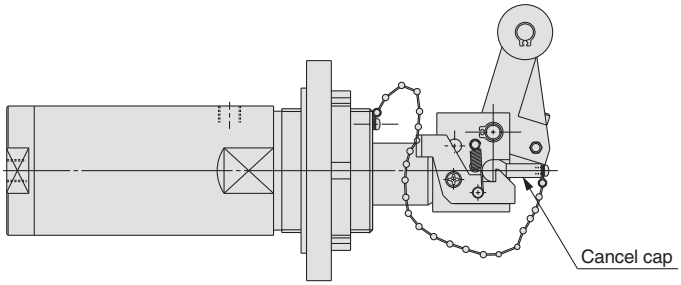




With lock mechanism + Cancel cap RS□G□-□□E

∗ Dimensions when equipped with lock and cancel cap are the same as the figure drawing.





(mm)

Bore size (mm)	A	QA	QB	QV
40	47	6	13	33
50	58	8	16	38.5

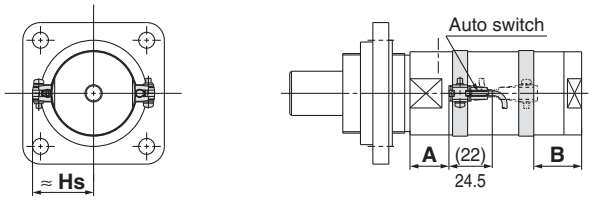
Note 1) In the case of single acting type, a One-touch fitting is on the rod side only.
Note 2) These figures show the piston rod extended.
Note 3) The figure shows these dimensions when the adjustment bolt is lowered (when energy absorption is at its maximum).
However, these dimensions change within the ranges shown below as the adjusting bolt is raised (energy absorption is reduced).
$24^{\circ *} \rightarrow 16^{\circ *}$, $13.5^{*} \rightarrow 11.5^{*}$, $14^{*} \rightarrow 16^{*}$

Auto Switch Mounting 1

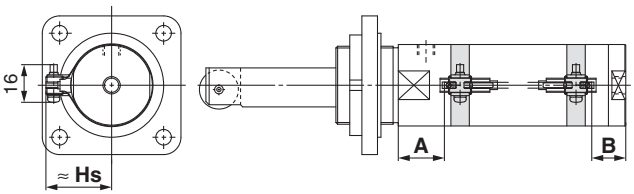
Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

Reed Auto Switch

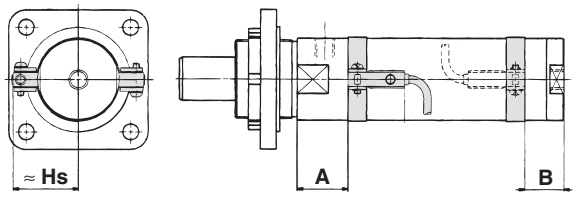
D-A9□



( ): For D-A96 type

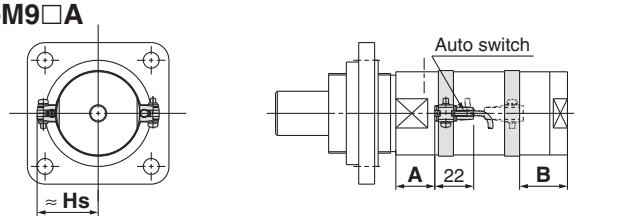


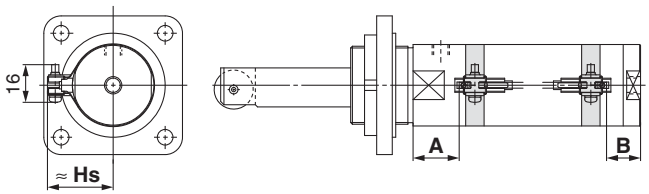
D-C7
D-C8
D-C73C
D-C80C



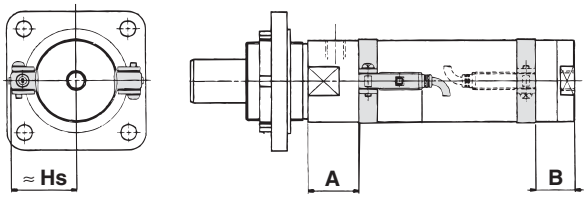
Solid State Auto Switch

D-M9□
D-M9□W
D-M9□A





D-H7
D-H7□W
D-H7NF
D-H7BA
D-H7C



Auto Switch Proper Mounting Position

(mm)

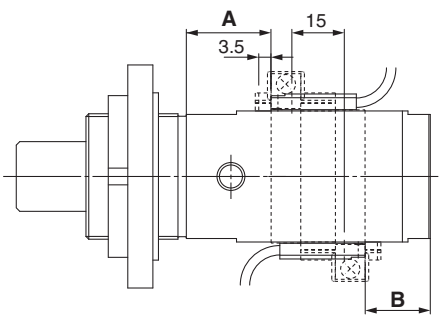
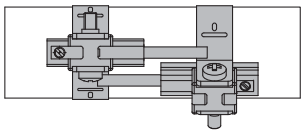
Auto switch model / Bore size (mm)	D-A9□ Note 2) D-A9□V		D-M9□(V) Note 2) D-M9□W D-M9□A(V)		D-C7□ D-C80 D-C73C D-C80C		D-H7BA D-H7□W D-H7 D-H7C D-H7NF	
	A	B	A	B	A	B	A	B
40	21.5	25.5	25.5	29.5	22.0	26.0	21.0	25.0
50	29.5	17.5	33.5	21.5	30.0	18	29.0	17.0

Auto Switch Mounting Height

(mm)

Auto switch model / Bore size (mm)	D-M9□V D-M9□WV D-M9□AV D-A9□V	D-M9□ D-M9□W D-M9□A D-A9□ D-H7□ D-H7□W D-H7NF D-H7BA D-C7/C8	D-H7C	D-C73C D-C80C
	Hs	Hs	Hs	Hs
40	36.0	35.0	38.0	37.5
50	41.5	40.5	43.5	43.0

Note 1) Adjust the auto switch after confirming the operating conditions in the actual setting.
Note 2) Auto switch mounting (The adjustment as shown in the figures below is required)

Auto switch model	With 2 auto switches	
	Different surfaces	Same surface
	 The proper auto switch mounting position is 6 mm inward from the switch holder edge.	 The auto switch is mounted by slightly displacing it in a direction (cylinder tube circumferential exterior) so that the auto switch and lead wire do not interfere with each other.

Auto Switch Mounting 2

Operating Range

Auto switch model	Bore size (mm)	
	40	**50**
D-A9□(V)	8	8
D-M9□(V) **D-M9□W(V)** **D-M9□A(V)**	4.5	5
D-C7□/C80 **D-C73C/C80C**	10	10
D-H7□/H7□W **D-H7BA/H7NF**	5	6
D-H7C	10	9.5

∗ Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion) There may be the case to change substantially depending on an ambient environment.

Auto Switch Mounting Bracket: Part No.

Auto switch model	Bore size (mm)	
	ø40	**ø50**
D-A9□(V) **D-M9□(V)** **D-M9□W(V)**	Note 1) BMA3-040	Note 1) BMA3-050
D-M9□A(V)	Note 2) BMA3-040S	Note 2) BMA3-050S
D-C7□/C80 **D-C73C/C80C** **D-H7□** **D-H7□W** **D-H7BA** **D-H7NF**	BMA2-040A	BMA2-050A

Note 1) Set part number which includes the auto switch mounting band (BMA2-□□□A) and the holder kit (BJ5-1/Switch bracket: Transparent). Since the switch bracket (made from nylon) are affected in an environment where alcohol, chloroform, methylamines, hydrochloric acid or sulfuric acid is splashed over, so it cannot be used. Please consult SMC regarding other chemicals.

Note 2) Set part number which includes the auto switch mounting band (BMA2-□□□AS/Stainless steel screw) and the holder kit (BJ4-1/Switch bracket: White).

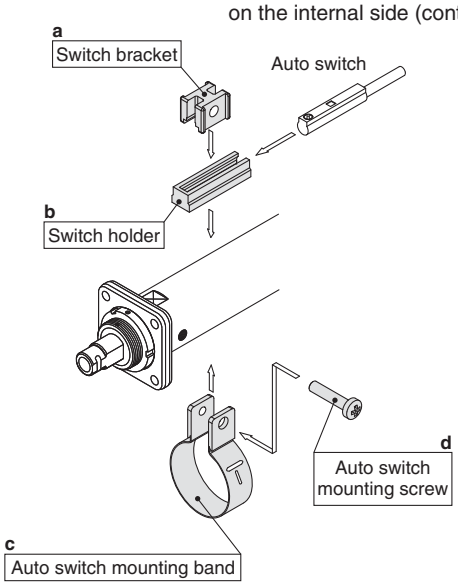
Note 3) For the D-M9 A(V) type auto switch, do not install the switch bracket on the indicator light.

[Mounting screw set made of stainless steel]

The following set of mounting screws made of stainless steel is available. Use it in accordance with the operating environment. (Please order the auto switch mounting bracket separately, since it is not included.)
D-H7BA auto switch is set on the cylinder with the stainless steel screws above when shipped. When an auto switch is shipped independently, BBA4 is attached.

Note 4) Refer to the Auto Switch Guide for the details of BBA4.

(1) BJ□-1 is a set of “a” and “b”.
BJ4-1 (Switch bracket: White)
BJ5-1 (Switch bracket: Transparent)
(2) BMA2-□□□A(S) is a set of “c” and “d”.
Band (c) is mounted so that the projected part is on the internal side (contact side with the tube).



Besides the models listed in How to Order, the following auto switches are applicable.
Refer to the Auto Switch Guide for detailed specifications.

Auto switch type	Part no.	Electrical entry (Direction)	Features
Reed	D-C73, C76	Grommet (In-line)	—
	D-C80		Without indicator light
Solid state	D-H7A1, H7A2, H7B		—
	D-H7NW, H7PW, H7BW D-H7BA		Diagnostic indication (2-colour)

∗ For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to the Auto Switch Guide for details.
∗ Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H types) are also available. Refer to the Auto Switch Guide for details.

Series RSQ/RSG
Specific Product Precautions 1

Be sure to read before handling.
Refer to Safety Instructions and Actuator and Auto Switch Precautions.

Selection

⚠ Danger

1. Use within the range of specifications.
If using beyond the specifications, excessive impacts or vibrations could be applied to the stopper cylinder and might cause breakage.

⚠ Danger

1. Do not allow a pallet to collide with the cylinder when the lever is upright.
In the case of the lever type with built-in shock absorber, if the next pallet runs into the lever when it is in the upright position (after the shock absorber has assimilated energy), the cylinder body will receive the full energy of the impact, and this should not be permitted.

2. Do not apply pressure from the head side of a single acting type cylinder.
If air is supplied from the head side of a single acting cylinder, blow-by of the air will occur.

3. Do not scratch or gouge the sliding portion of a piston.
Quenching of the piston rod has not been performed. If there is a danger of scratching or nicking the piston rod due to sharp edges, etc. on the contact area of a pallet, the pallet should not be used, as this can cause a malfunction.

4. When using a stopper cylinder for intermediate stopping of a load connected directly to a cylinder, etc.
The operating ranges shown in this catalogue apply only for stopping of a pallet on a conveyor. When using a stopper cylinder to stop a load connected directly to a cylinder, etc., the cylinder thrust will become a lateral load. In this case, refer to the instruction manual and select a cylinder remaining within the allowable energy and allowable lateral load ranges.

5. For the lever type with a built-in shock absorber (without a lock mechanism), the lever may be pushed back in the opposite direction to the transfer direction due to the return force of the shock absorber, if 10N of thrust or more in the transfer direction is not applied to the lever after the pallet collides with the lever.
If the lever must be continuously upright, select a lever with a lock mechanism.

6. The operating range for the lever type with a built-in shock absorber indicates the range in which the lever is not damaged due to the shock absorber's performance and cylinder rigidity. It is not the same as the range in which the lever can stop softly and fully.
Near the upper limit, collision may occur at the end. If a soft stop is required, sufficient clearance is necessary. Consult with SMC when a reliable soft stop is required near the upper limit.

Mounting

⚠ Caution

1. Do not apply rotational torque to the cylinder rod.
In order to prevent rotational torque from acting upon the cylinder rod, mount it so that the contacting surfaces of the pallet and cylinder are parallel to one another.

When mounting a cylinder, tighten the body lock nut, and then tighten the set screws (2 locations) which are included with the lock nut. (Except RSQ)

2. When the lever type with a built-in shock absorber is installed from the direction of the lever side, mounting holes must be machined in accordance with recommend hole diameters in the table below.
When it is installed from the direction of the lever side of the stopper cylinder as shown below, note that the lever's outer diameter is larger than the rod cover boss diameter.

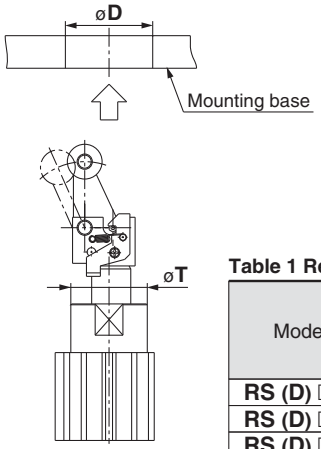


Figure 1

Lever type models

RS (D) □32/40/50-□□L
RS (D) □32/40/50-□□B
RS (D) □32/40/50-□□C
RS (D) □32/40/50-□□D
RS (D) □32/40/50-□□E

Table 1 Recommended hole diameter

Model	Rod cover boss O.D.	Recommended hole diameter for mounting base
	øT	øD
RS (D) □32	36	38
RS (D) □40	44	48
RS (D) □50	56	57

Operation

⚠ Caution

1. For models having the rod end configuration with the lever type with lock mechanism, do not apply any external force from the opposite side when the lever is locked. Doing so may cause the lock mechanism to break.
When moving pallets during conveyor adjustments, first lower the cylinder.

2. Do not use oil, etc. on the sliding parts of the piston rod.
This can cause trouble with retraction or other malfunctions.

3. Do not get your hands caught during cylinder operation.
Since the lever section moves up and down when the cylinder is in operation, take sufficient care to avoid getting your hands caught between the rod cover and the lever holder.

4. Do not expose the shock absorber to machining oil, water, or dust.
This will cause the shock absorber to become damaged, leading to air leaks.

Series RSQ/RSG
Specific Product Precautions 2

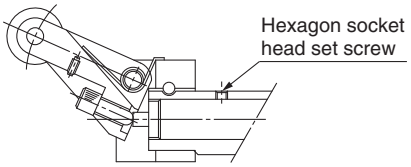
Be sure to read before handling.
Refer to Safety Instructions and Actuator and Auto Switch Precautions.

Maintenance

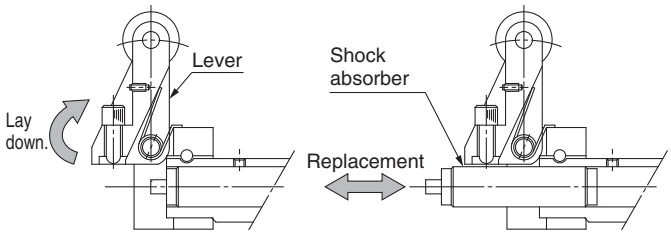
⚠ Caution

1. How to replace the shock absorber

1) Loosen the hexagon socket head set screw (M3) on the piston rod.



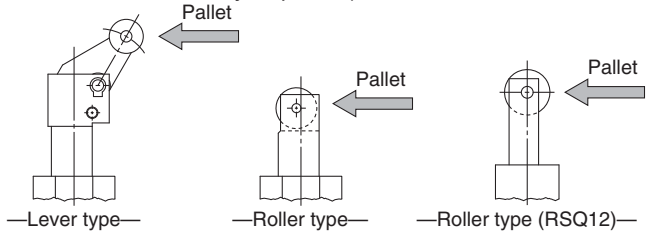
2) With the lever laid down as shown in the figure, pull out the shock absorber to remove it and replace this shock absorber with a new one.



3) Insert the hexagon socket head set screw into the piston rod, and then tighten it.
After the hexagon socket head set screw has been in contact with the end, tighten it further 1/4 turn as a guideline. If the hexagon socket head set screw is tightened excessively, this may cause it to break or the shock absorber to malfunction.
Tightening torque: 0.29 N·m

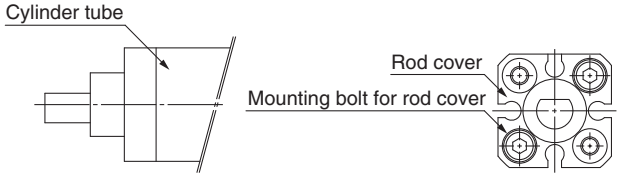
2. How to change the piston rod orientation

For the roller type and lever type, put the pallet in contact with the piston rod in the direction shown in the figure. (The piping port position has been made flush with the pallet contact surface at the factory shipment.)



RSQ12 / How to change the piston rod orientation

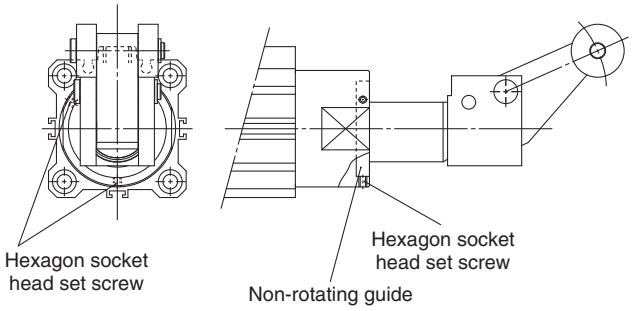
1) Loosen the hexagon socket head cap screws (2 locations) that secure the rod cover and cylinder tube.
2) Adjust the orientation of the rod cover to a desired position. The orientation of the rod cover can be changed in 90°steps.
3) Tighten two hexagon socket head cap screws on the diagonal line to secure the rod cover and cylinder tube. When tightening the hexagon socket head cap screws, apply the thread locking agent.
Tightening torque: 1.5 N·m
4) Make sure that the cylinder operates smoothly.



⚠ Caution

RSQ20 to 50 / How to change the piston rod orientation

1) Loosen two hexagon socket head cap screws (M3) on the rod cover that secure the non-rotating guide.
2) Adjust the orientation of the piston rod to a desired position.
Note) Put the pallet contact surface in parallel to the cylinder contact surface so that the rotational torque does not apply to the piston rod.
3) Tighten two hexagon socket head cap screws to secure the non-rotating guide. When tightening the hexagon socket head cap screws, apply the thread locking agent.
Tightening torque: 0.63 N·m
Note) The non-rotating guide is secured by two hexagon socket head cap screws. If one hexagon socket head cap screw is tightened excessively, the non-rotating guide may be in contact with the piston rod, causing malfunction. Therefore, tighten the hexagon socket head cap screws alternately and pay special attention so that the non-rotating guide is not in contact with the piston rod.
4) Make sure that the cylinder operates smoothly.



3. How to adjust the lever type, variable energy absorbing type

For the lever type, variable energy absorbing type, strokes of the shock absorber can be adjusted with an adjustment bolt included in order to stop in accordance with the transfer conditions.
Follow the procedures below to adjust strokes.

Procedures

1) Loosen the set screw (M4) on the lever side.
2) Adjust the adjustment bolt in accordance to the energy of the transferred object.
(The stroke of the shock absorber becomes larger (absorbing energy becomes bigger) when tightening the adjustment bolt, while it becomes smaller when loosening the bolt.)
3) After adjusting the adjustment bolt, fix the bolt with the set screw (M4) loosened in 1).
Tightening torque M4: 1.5 N·m