

# 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**

**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**

Nil	M thread	ø12, ø16
TN	Rc	ø20 to ø50
TF	NPT	
F	G	
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

**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

**Auto switch**

• **Made to Order Specifications**  
For details, refer to page 1374.

• **Number of auto switches**

Nil	2 pcs.
S	1 pc.

• **Auto switch**

Nil	Without auto switch
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\* For the applicable auto switch model, refer to the table below.

• **Rod end configuration**

Symbol	Configuration	Application
Nil	Round 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 mechanism
E		With lock & cancel

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

• **Action**

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

### Applicable Auto Switch/Refer to pages 1719 to 1827 for further information on auto switches.

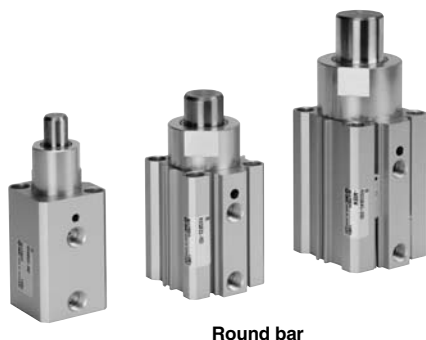
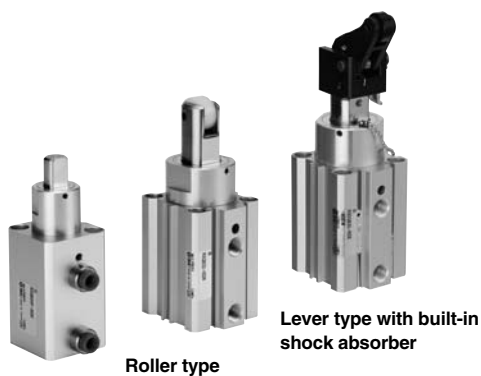
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load									
					DC	AC	Perpendicular		In-line		0.5 (Nil)	1 (M)	3 (L)			5 (Z)	None (N)							
							ø12	ø16, ø20, ø32 to ø50	ø12	ø16, ø20, ø32 to ø50														
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC							
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○									
		2-wire		M9BV				M9B	●	●	●	○	—	○										
		—		J79C				—	●	—	●	●	—	—										
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NVV	M9NV	●	●	●	○	—	○	IC circuit								
				3-wire (PNP)				M9PVV	M9PV	●	●	●	○	—	○									
				2-wire				M9BVV	M9BV	●	●	●	○	—	○									
				3-wire (NPN)				M9NAV	M9NA	○	○	●	○	—	○									
				3-wire (PNP)				M9PAV	M9PA	○	○	●	○	—	○									
				2-wire				M9BAV	M9BA	○	○	●	○	—	○									
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5V, 12 V	—	A96V	A96	●	—	●	—	—	—	IC circuit								
				—				A72	—	A72H	●	—	●	—	—		—							
				2-wire				A93V	—	A93	●	—	●	—	—		—							
		Connector		Yes/No				Yes/No	2-wire	24 V	5V, 12 V	100 V or less	—	A90V	A90	●	—	●	—	—	—	IC circuit		
														12 V	—	A73C	—	●	—	●	●		—	—
														12 V	—	A80C	—	●	—	●	●		—	—
														5 V, 12 V	24 V or less	A79W	—	●	—	●	—		—	—

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9NV  
 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 1386 for details.  
 \* For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.  
 \* When D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V)L types with ø32 to ø50 are mounted on a side other than the port side, order auto switch mounting brackets separately. Refer to page 1386 for details.

# Series RSQ



**Made to Order Specifications**  
(For details, refer to pages 1836 and 1872.)

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

## Spring Force (Single acting)

Bore size (mm)	(N)	
	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.

## Model

Bore size (mm)		12	16	20	32	40	50
Mounting	Through-hole	Note 1)	●	●	●	●	●
	Both ends tapped style	●	●	●	●	●	●
Built-in magnet		●	●	●	●	●	●
Piping	Screw-in type	M5 x 0.8		1/8 Note 2)			
	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

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

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

## Bore Size/Standard Stroke

Bore size (mm)	Rod end configuration (mm)		
	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			20, 25, 30

## Mass

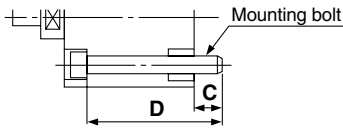
Action	Bore size (mm)	Rod end configuration	Cylinder stroke (mm)				
			10	15	20	25	30
Double acting	12	Round bar, Chamfered, Roller	0.07	—	—	—	—
	16	Round bar, Chamfered, Roller	0.14	0.15	—	—	—
	20	Round bar, Chamfered, Roller	0.23	0.24	0.25	—	—
Single acting, Spring extend	32	Round bar, Chamfered, 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.

Ordering: Add the word "Bolt" in front of the bolts to be used.

**Example) Bolt M5 x 65L 4 pcs.**



Cylinder model	C	D	Mounting bolt
RSQB12-10□ <small>Note)</small>	5	40	M3 x 45L
RSQB16-10□	5	48	M3 x 55L
-15□		53	M3 x 60L
RSQB20-10□		7	55
-15□	7	60	M5 x 60L
-20□		65	M5 x 65L
RSQB32-10□		9	60
-15□	9	65	M5 x 65L
-20□		70	M5 x 70L

Cylinder model	C	D	Mounting bolt
RSQB40-20□	9.5	75	M5 x 75L
-25□	9.5	80	M5 x 80L
-30□		85	M5 x 85L
RSQB50-20□		9	75
-25□	9	80	M6 x 80L
-30□		85	M6 x 85L

Note) When using the through-hole mounting for a size  $\phi 12$  cylinder, be sure to use the flat washer which is attached.

## Operating Ranges by Rod End Configuration

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

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

<How to read the graphs>

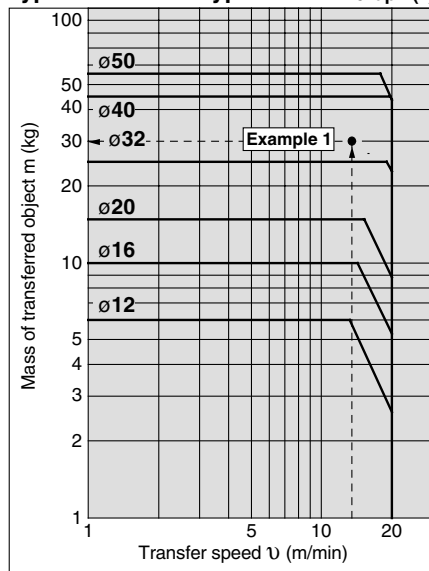
To select a cylinder based on the specifications above, find the intersection of the speed of 15 m/min. on the horizontal axis and the mass of 30 kg on the vertical axis in graph (1) below, and select RSQ□40-□□R that falls in the cylinder operating range.

<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 mass of 60 kg on the vertical axis in graph (3) below, and select RSQ□40-□□D that falls in the cylinder operating range.

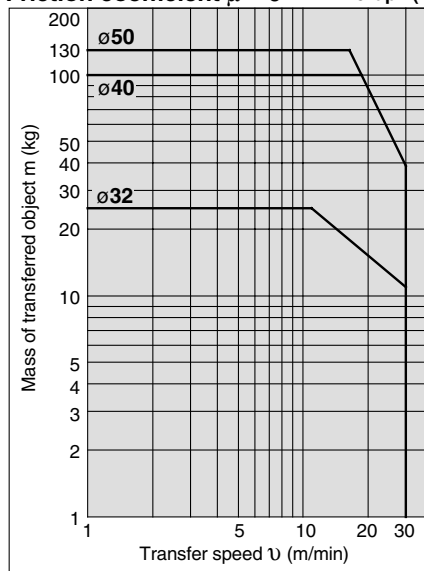
### Roller Type/Round Bar Type/Chamfered Type

Graph (1)



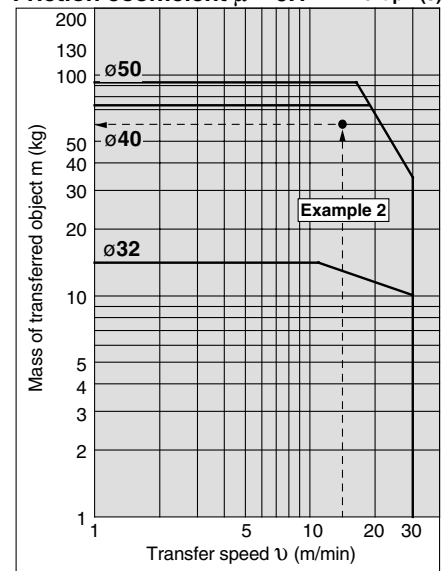
### Lever Type (With shock absorber)

Friction coefficient  $\mu = 0$  Graph (2)



### Lever Type (With shock absorber)

Friction coefficient  $\mu = 0.1$  Graph (3)



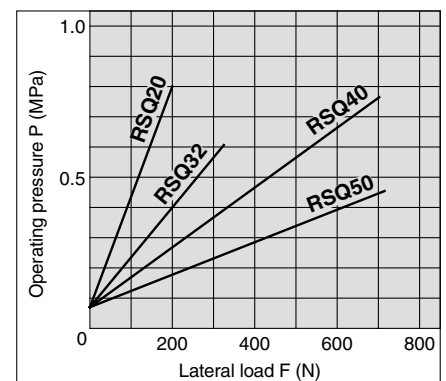
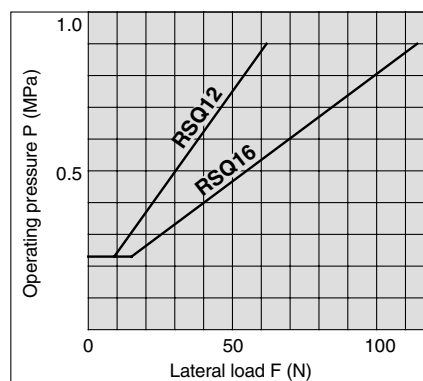
\* Lever-type mass of transferred object and transfer speed graphs (graphs (2) and (3)) show the values at room temperature (20 to 25°C).

\* 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.)



RSQ

RSG

RS□

MI□

D-□

-X□

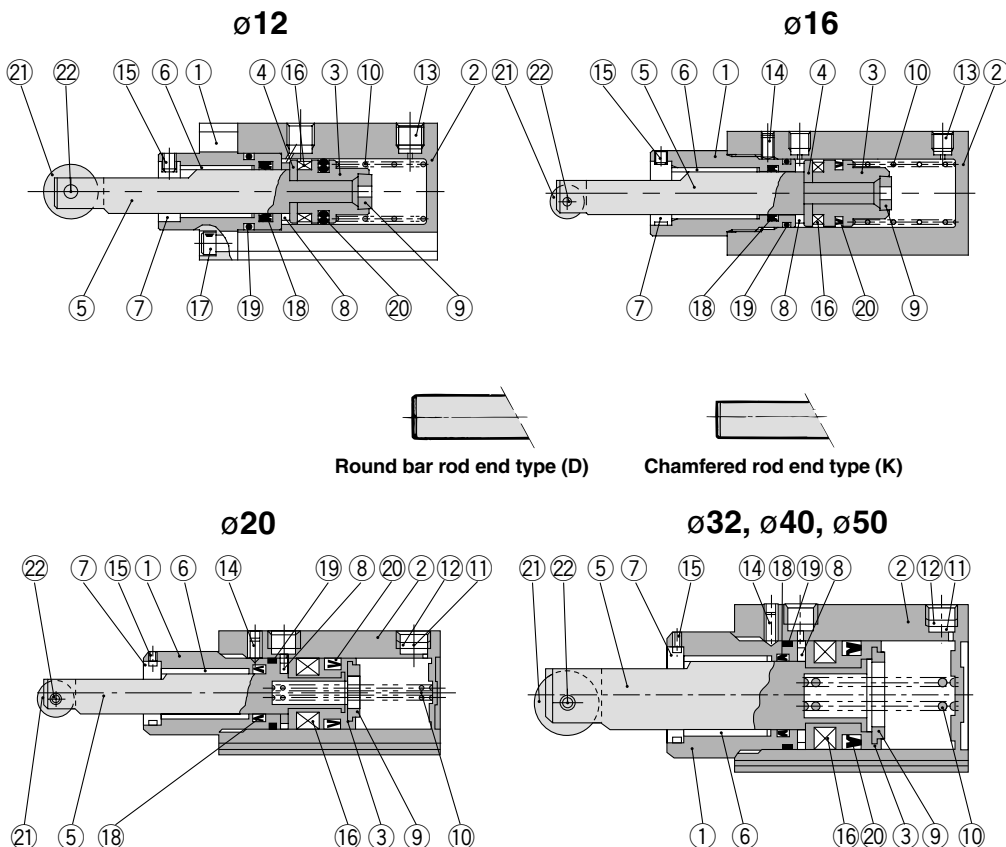
Individual

-X□

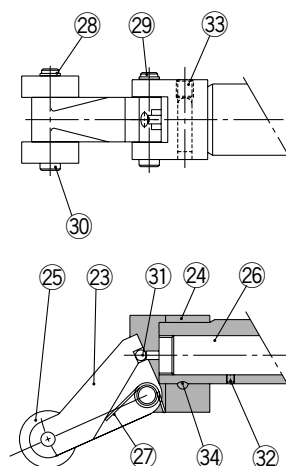
# Series RSQ

## Construction

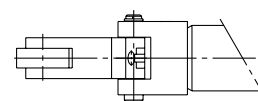
### Roller rod end



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



Only one roller is provided for ø32.



### Component Parts

No.	Description	Material	Note
1	<b>Rod cover</b>	Aluminum alloy	Anodized*
2	<b>Cylinder tube</b>	Aluminum alloy	Hard anodized
3	<b>Piston</b>	Aluminum alloy	Chromated
4	<b>Spacer for switch</b>	Aluminum alloy	ø12, ø16 only
5	<b>Piston rod</b>	ø12, ø16, ø20 Stainless steel ø32, ø40, ø50 Carbon steel	Hard chrome plated
6	<b>Bushing</b>	Copper alloy	
7	<b>Non-rotating guide</b>	Rolled steel	Non-rotating type only
8	<b>Bumper A</b>	Urethane	
9	<b>Bumper B</b>	Urethane	
10	<b>Return spring</b>	Steel wire	Zinc chromated (Except double acting)
11	<b>Element</b>	Sintered metallic BC	ø20 to ø50 (Single acting only)
12	<b>Retaining ring</b>	Carbon tool steel	ø20 to ø50 (Single acting only)
13	<b>Plug with fixed orifice</b>	Alloy steel	ø12, ø16 only
14	Hexagon socket head set screw	Chromium molybdenum steel	Except ø12
15	Hexagon socket head set screw	Chromium molybdenum steel	
16	<b>Magnet</b>	—	
17	Hexagon socket head cap screw	Alloy steel	ø12 only
18	<b>Rod seal</b>	NBR	
19	<b>Gasket</b>	NBR	
20	<b>Piston seal</b>	NBR	

### Roller type

21	<b>Roller A</b>	Resin	
22	<b>Spring pin</b>	Carbon tool steel	

### Component Parts (For single acting)

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

### 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.

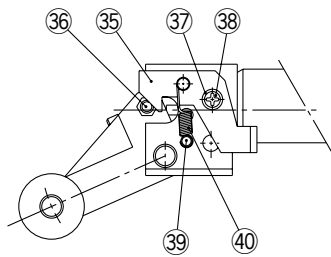
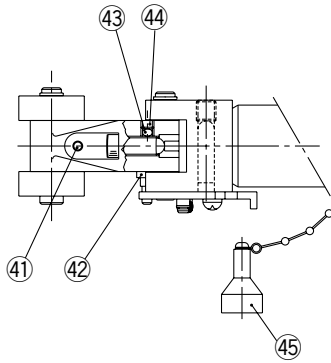
\* Since the seal kit does not include a grease pack, order it separately.

Grease pack part no.: GR-S-010 (10g)

### Replacement Parts: Shock Absorber

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

## Lever rod end type (With lock mechanism and cancel cap) ( $\phi 32$ , $\phi 40$ , $\phi 50$ )



### Component Parts

No.	Description	Material	Note
<b>With lock mechanism</b>			
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	
<b>With cancel cap</b>			
45	Cancel cap	Aluminum alloy	

**RSQ**

**RSG**

**RS**

**MI**

**D**

**-X**

Individual  
**-X**

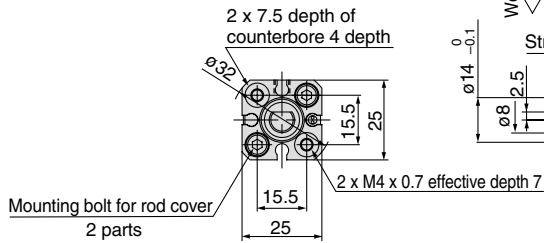


## Rod End Configuration: Chamfered (Non-rotating piston rod)

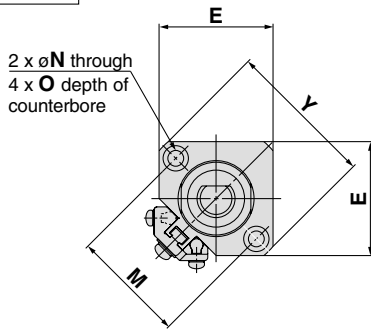
### Basic style: Through-hole mounting, Screw mounting

These 5 figures show the piston rod extended.

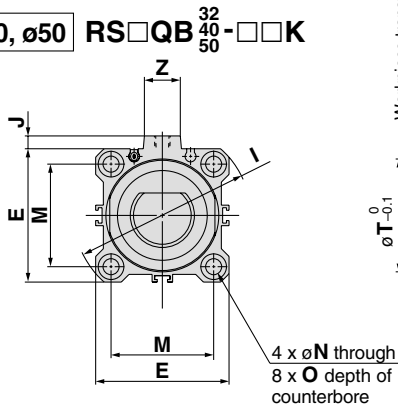
Bore size:  $\phi 12$  RS□QB12-10□K



Bore size:  $\phi 16, \phi 20$  RS□QB<sup>16</sup>/<sub>20</sub>-□□K

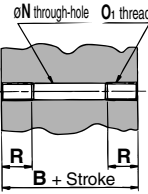


Bore size:  $\phi 32, \phi 40, \phi 50$  RS□QB<sup>32</sup>/<sub>40</sub>/<sub>50</sub>-□□K



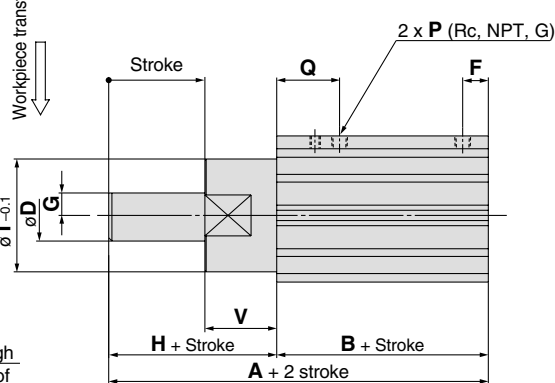
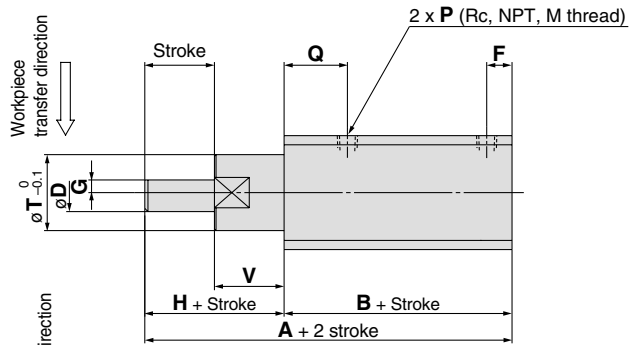
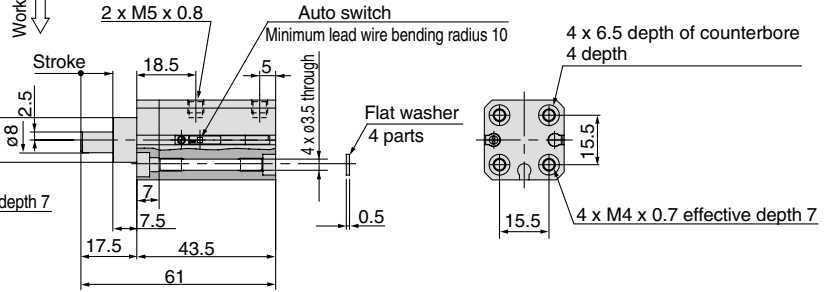
Screw mounting style: Both ends tapped style (mm)

RS□QA

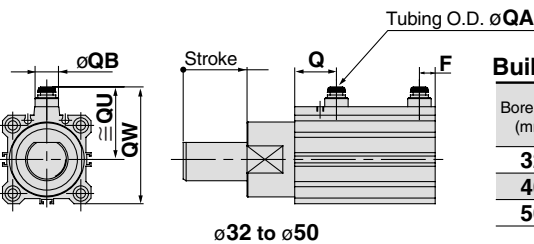
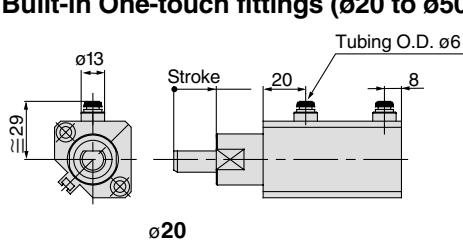


Model	B	N	$\phi_1$	R
RS□QA16	41.5	3.5	M4 x 0.7	7
RS□QA20	45	5.5	M6 x 1	10
RS□QA32	48	5.5	M6 x 1	10
RS□QA40	52.5	5.5	M6 x 1	10
RS□QA50	54	6.6	M8 x 1.25	14

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



### Built-in One-touch fittings ( $\phi 20$ to $\phi 50$ )



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

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  $\phi 12$  and  $\phi 16$  piping ports.  
 TF (G thread) for  $\phi 20$  also indicates M5 x 0.8.

Note 2) For the auto switch mounting position and its mounting height, refer to page 1384.

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.

RSQ  
 RSG  
 RS□  
 MI□

D-□  
 -X□  
 Individual  
 -X□

