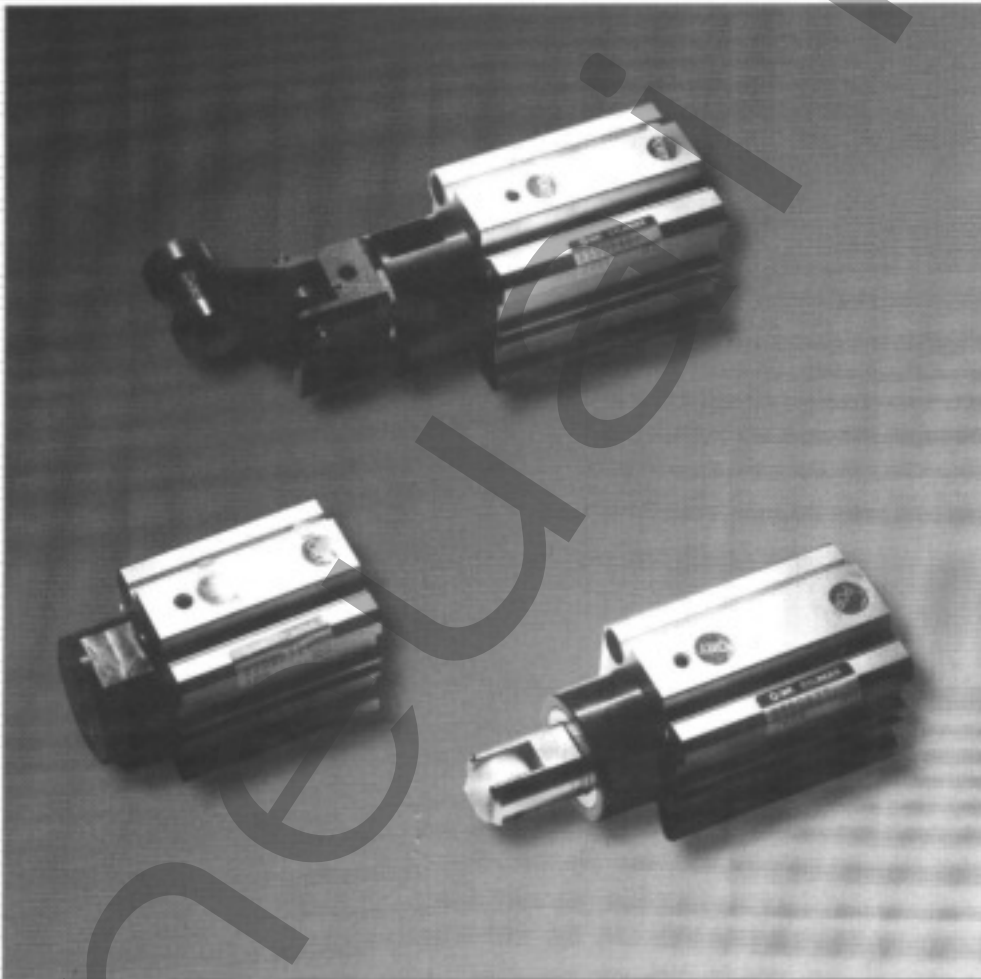


Air Cylinder

*RSQ Series*

Stopper Cylinder



4 Different Rod End Configurations  
Can be Mounted Directly on a Conveyor  
Through Hole or Tapped End Mounting  
Fixed Mounting Height  
Auto Switch Capable

# Labor Saving Automation for Conveyor Lines

A through hole mount is standard; tapped ends are optional.

**Series RSQ** (Fixed mounting height)  
 $\phi 20$ ,  $\phi 32$ ,  $\phi 40$ ,  $\phi 50$



## Available Models

Select options for many applications.

*Type:* Fixed mounting height

*Action:* Double acting, single acting (spring extended), double acting with spring.

*Rod end configuration:* Round bar, non-rotating, roller, lever

*Mounting:* Through hole; both ends tapped.

## The $\phi 32$ is equipped with an easy to maintain shock absorber.

The shock absorber incorporated in the lever is adjustment-free and easy-to-maintain. ( $\phi 32$ ,  $\phi 40$ ,  $\phi 50$ )

## Auto Switch Option Available

Compact auto switch mounting enables miniaturization of machines and designs.

## Optional Setting for Roller Direction and Roller Lever

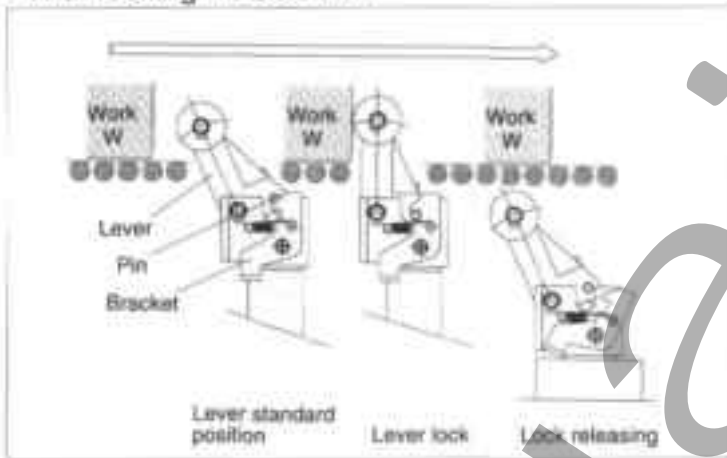


# Stopper Cylinder Series RSQ

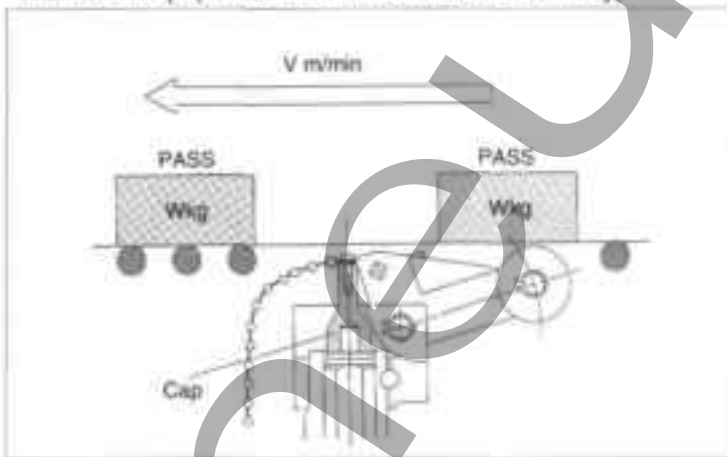
## Lever selected according to applications

- Prevent repulsion due to light pallet ..... Locking mechanism
- Partial passing of work ..... With cancel cap

### • With locking mechanism



### • Cancel cap (mechanism to hold lever horizontally)



## INDEX

Series RSQ / fixed mounting height	
How to Order	P.1
Model, specifications, rod end configuration, standard stroke, operating conditions, weight	P.2
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Non-rotating (basic)	P.6
Roller (basic)	P.7
Lever (basic)	P.8
Lever (shock absorber/regulator, with cancel cap)	P.9
Lever (with locking mechanism, and cancel cap)	P.10
Series RSDQ/auto switch model	
Auto switch specifications/air mounted	P.11
Auto switch internal circuit	P.12
Auto-switch connector, hysteresis, mounting	P.13
Auto switch correct mounting position	
Mounting height	P.14

## Series Variation

Series	Mounting	Action	Rod end configuration	Standard variation				Bore size (mm)	Standard strokes (mm)					
				Built-in magnet	With long connector	With cancel cap	With eye-bush fitting		10	15	20	25	30	
RSQ	Through hole	Double acting	Round bar	•	•	•	•	•	•	•	•	•	•	•
			Roller	•	•	•	•	•	•	•	•	•	•	•
	Both ends tapped	Double acting with spring	Non-rotating	•	•	•	•	•	•	•	•	•	•	•
			Lever Adjustable	•	•	•	•	•	•	•	•	•	•	•
		Single acting	Lever Adjustable	•	•	•	•	•	•	•	•	•	•	

# Stopper Cylinder / Fixed Mounting Height

## Series RSQ

Bore Size :  $\phi 20$ ,  $\phi 32$ ,  $\phi 40$ ,  $\phi 50$

### How to Order

Standard Model

RSQ B 20 F 15 D R XC18

With Auto Switch

RSDQ B 20 F 15 D R A73 S XC18

With auto switch •

**Mounting •**

A	Both ends tapped
B	Through hole

**Bore size •**

20	20mm
32	32mm
40	40mm
50	50mm

**Piping •**

-	Threaded ports
F	Built-in one-touch fitting

**Cylinder stroke (mm) •**

$\phi 20$	10, 15, 20
$\phi 32$	10, 15, 20
$\phi 40, \phi 50$	20, 25, 30

**Action •**

D	Double acting
B	Double acting with spring
T	Single acting/spring extended

**Rod end configuration •**

Code	Rod end configuration	Application
-	Round bar	-----
<b>K</b>	<b>Non-rotating</b>	-----
R	Roller	-----
*L	Lever (adjustment free)	Bar type (rv $\phi 3$ , $\phi 4$ , $\phi 6$ )
<b>B</b>	Lever (Energy absorbent, adjustable)	-----
<b>C</b>		With cancel cap
<b>D</b>		With locking mechanism
<b>E</b>		With locking mechanism and cancel cap

\* The lever model is applied only to bore sizes  $\phi 32$ ,  $\phi 40$ , and  $\phi 50$ .

#### Auto switch mounting bracket

Bore size (mm)	Mounting Bracket	Note	Applicable auto switch
20	BQ-1	• Switch mounting screw (M3 x 0.5 x 8) • Square nut	D-A7, A8 D-A7□ H A8□ H A-7□ G
32 40 50	BQ-2	• Switch mounting nut (M3 x 0.5 x 10) • Switch spacer	A8□ C D-F79 D-J79 D-J79□ G

**Port type**

-	PT
XC18	Air port:NPT

**Number of switches**

-	2 pcs.
S	1 pc.

**Type of auto switch (Rail mounted)**

-	Without auto switch
---	---------------------

**Reed switch (See P.11 for details.)**

No.	Auto switch	Lead wire entry	Indicator lamp
A72	D-A72	Grommet (Vertical cable access)	Provided (One color)
A73	D-A73		Not provided
A80	D-A80	Grommet (Horizontal cable access)	Provided (One color)
A72H	D-A72H		Not provided
A73H	D-A73H		Provided (One color)
A76H	D-A76H		Not provided
A80H	D-A80H	Connector	Provided (One color)
A73C	D-A73C		Not provided
A80C	D-A80C		Provided (Two colors)
A79W	D-A79W	Grommet	Provided (Two colors)

**Solid state switch (See P.11 for details.)**

No.	Auto switch type	Lead wire entry	Features of indicator lamp
F79	D-F79	Grommet (Vertical cable access)	One color
F79P	D-F79P		
J79	D-J79	Grommet (Horizontal cable access)	Two colors
F79V	D-F79V		
F79Vx	D-F79Vx		
F79W	D-F79W		
F79WV	D-F79WV	Grommet (Horizontal cable access)	Two colors, holding type with diagonal output
F79Wx	D-F79Wx		
F79WVx	D-F79WVx		
F79WVx	D-F79WVx	Grommet (Horizontal cable access)	Two colors, holding type with diagonal output
F79WVx	D-F79WVx		
F79WVx	D-F79WVx	Grommet (Horizontal cable access)	Two colors, standard
F79WVx	D-F79WVx		
F79C	D-F79C	Connector	One color

\* The standard lead wire length is 0.5m. "L" is added for 3m long lead wire. (Applicable to all models) (Ex. J-A73L D-A73L) Consult your Local SMC representative for 5m lead wire.

Note: Shaded areas in bold type—Special Order; Unshaded areas—Made to Order

Fixed mounting height **Series RSQ**

**Model**

Construction	Mounting	Action	Bore size (mm)	Rod end configuration	Applicable auto switch	
					Reed switch	Solid state
Fixed mounting height	<ul style="list-style-type: none"> <li>Both ends tapped (RSQF)</li> <li>Through bore (RSQB)</li> </ul>	<ul style="list-style-type: none"> <li>Double acting</li> <li>Double acting with spring</li> <li>Single acting/overcenter</li> </ul>	<ul style="list-style-type: none"> <li>ø20, ø32, ø40, ø50</li> </ul>	Round bar, non-rotating, roller, lever	D-A7, D-A8	D-F7, D-J7



**Specifications**

Action	Double acting, double acting with spring, single acting/spring retained
Fluid	Air
Proof pressure	1.5MPa (15.3kgf/cm <sup>2</sup> , 220PSI)
Max. operating pressure	1.0MPa (10.2kgf/cm <sup>2</sup> , 150 PSI)
Ambient and fluid temperature	Standard: -10°C ~ 70°C (14~130°F) wide: with -10°C 60°C (14~140°F)
Lubrication	Non lube
Cushion	Both sides rubber cushion
Stroke length tolerance	±1%
Mounting	Through hole, Both ends tapped
Auto switch	Available

**Rod end configuration**

Round bar, non-rotating, roller, lever with built in shock absorber (only ø32, ø40, ø50)

**Bore/standard stroke** (mm)

Bore size (mm)	Rod end configuration		
	Round bar, non-rotating	Roller	Lever with built-in shock absorber
ø20	10, 15, 20	10, 15, 20	—
ø32	—	—	10, 15, 20
ø40	20, 25, 30	30, 25, 30	30, 25, 30
ø50	—	—	30, 25, 30

**Weight** (kg)

Action	Bore size (mm)	Rod end configuration	Cylinder stroke (mm)				
			10	15	20	25	30
Double acting	ø20	Round bar, non-rotating, roller	0.23	0.24	0.25	—	—
		Round bar, non-rotating, roller	0.42	0.44	0.46	—	—
Single acting	ø32	Lever with built-in shock absorber	0.51	0.53	0.55	—	—
Double acting with spring	ø40	Round bar, non-rotating, roller	—	—	0.74	0.80	0.86
		Lever with built-in shock absorber	—	—	0.97	1.01	1.05
	ø50	Round bar, non-rotating, roller	—	—	1.03	1.07	1.11
		Lever with built-in shock absorber	—	—	1.26	1.30	1.34

1 Kg = 2.2 Lbs.

**Spring force (Roller, Round Bar, and Chamfered Types)**

Bore size (mm)	ø20	ø32	ø40, ø50
Installed Load	0.35kg	0.9kg	1.4kg
Maximum Operating Load	1.5kg	1.9kg	2.9kg

**Spring force (Lever Type with Shock Absorber)**

Bore size (mm)	ø32	ø40, ø50
Installed Load	2.2kg	1.7kg
Maximum Operating Load	4.9kg	4.9kg

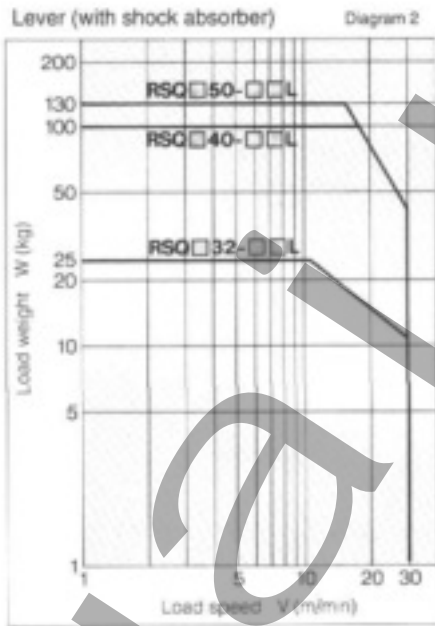
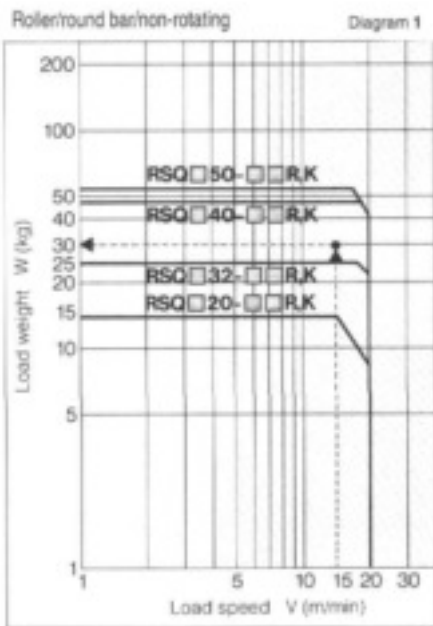
# Series RSQ

## Operating range for each rod end configuration

**Example** The roller with a load speed of 15m/min and load weight of 30kg

### How to understand the diagram

To select a cylinder for the above specifications, find the intersection of the horizontal axis representing the speed of 15m/min and the vertical axis representing the weight of 30kg in the diagram shown below and select the model **RSQ □ 40** positioned within the operating range of the cylinder.

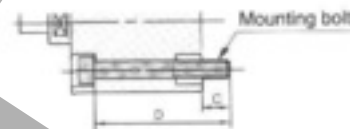


### Mounting bolts for RSQB

**Mounting** : Bolts for through hole model RSQB are as shown in table.

**How to order** : State "Bolt" followed by dimensions and quantity as shown.

**Example** Bolt M5 x 65L (4mg) 4 bolts

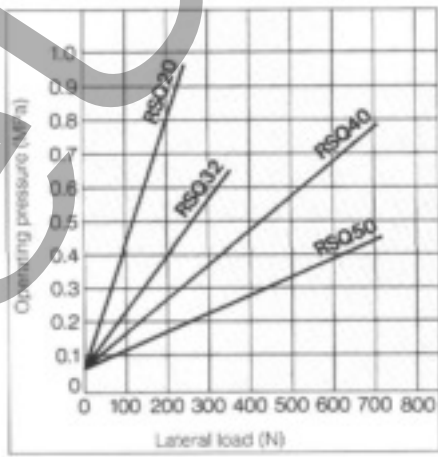


Model	C	D	Mounting bolt
RSQB20-10 □	7	55	M5 x 55L
-15 □		60	M5 x 60L
-20 □		65	M5 x 65L
RSQB32-10 □	9	60	M5 x 60L
-15 □		65	M5 x 65L
-20 □		70	M5 x 70L
RSQB40-20 □	9.5	75	M5 x 75L
-25 □		80	M5 x 80L
-30 □		85	M5 x 85L
RSQB50-20 □	9	75	M6 x 75L
-25 □		80	M6 x 80L
-30 □		85	M6 x 85L

## Lateral load and operating pressure

The greater lateral load needs higher cylinder operation pressure. Set the operation pressure by using the diagram as a guideline.

(Applicable to the round bar, roller, and non-rotating)



### Precautions

- ❶ Flush piping thoroughly before connection in order to prevent dust or chips from entering the cylinder.
- ❷ Do not mark or damage the piston rod. This could cause damage to packing and result in fluid leakage.
- ❸ Do not apply oil to the sliding section of the piston rod.
- ❹ Do not apply rotary torque.
- ❺ Do not apply large-load energy to the model with a shock absorber when the shock absorber is absorbing energy (when the lever is upright).

### Maintenance

- ❶ When the shock absorber is replaced, securely tighten the locking screw so that it touches the threaded section of the new shock absorber. 0.3J (3kgf·cm)
- ❷ When changing the direction of the roller-stop, loosen the locking screws (in 2 places) on the rod cover. After changing their positions, tighten them firmly again.

## Built-in one-touch fitting / RSQ<sup>A</sup> □ F

Cylinder bore size	ø20	ø32	ø40	ø50
Applicable tube O.D./I.D.		ø6/4		ø8/6
Applicable tube material	Nylon tube, soft nylon tube, and polyurethane tube			

## Seal Kit—How to Order

RSQ □ 32 — □ D PS

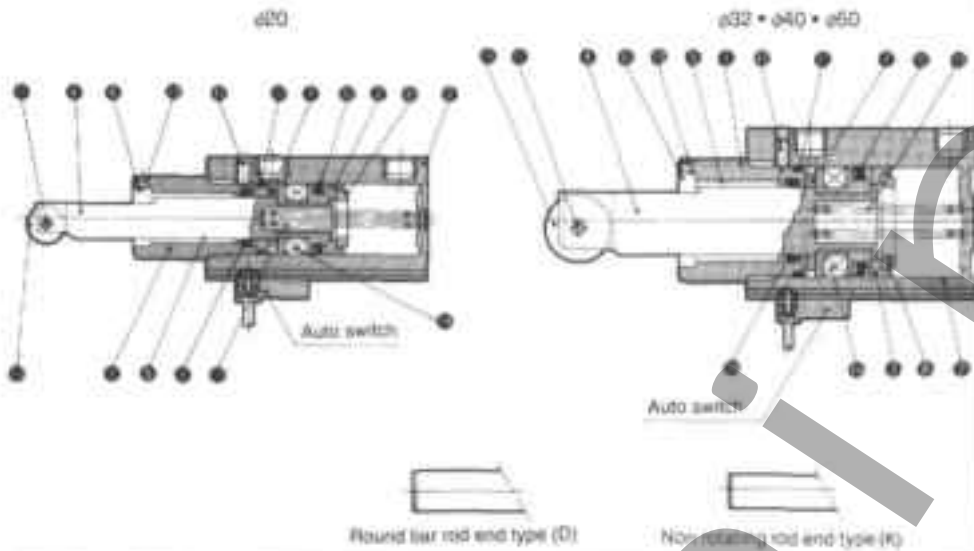
□ Bore size  
 20  
 32  
 40  
 50

□ D—Double Acting  
 S—Single Acting  
 DS—Double Acting/w/spring

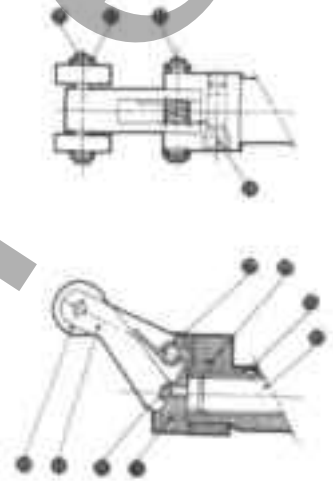
# Fixed mounting height *Series RSQ*

## Construction/parts list

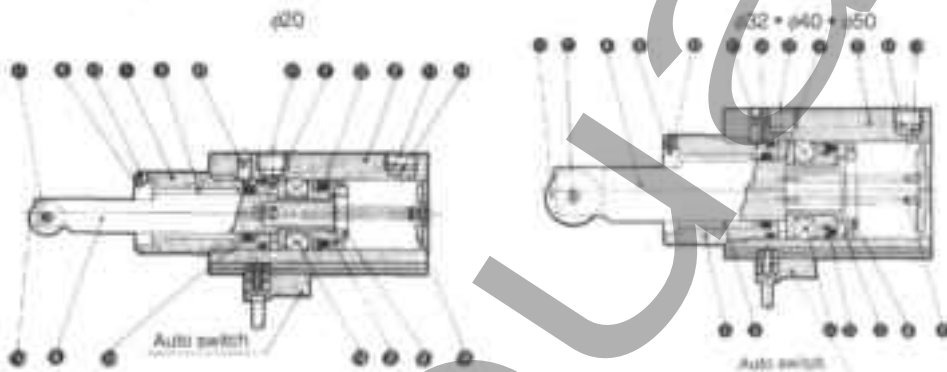
Double acting • double acting with spring • roller rod end



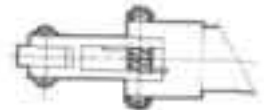
Lever rod end with built-in shock absorber (only  $\varnothing 32, \varnothing 40, \varnothing 50$ )



Single acting/roller rod end



Only 1 roller is provided for  $\varnothing 32$



### Parts List

No.	Description	Material	Remarks
1	Rod cover	Aluminum alloy	Hard black alumite
2	Cylinder tube	Aluminum alloy	Hard alumite
3	Piston	Aluminum alloy	Chromeplate
4	Piston rod	$\varnothing 2$ - Barbed end $\varnothing 2$ $\varnothing 4$ $\varnothing 6$ - Same	Hard chrome plating
5	Brush	Lead bronze casting	-
6	Non-rotating guide	Rolled plate	Use collar for round bar
7	Damper A	Urethane	-
8	Damper B	Urethane	-
9	Extend spring	Steel wire	Zinc chromate
10	Element	Stained metallic BC	-
11	Retaining ring	Steel wire	-
12	Hexagon socket set screw	Chrome-nickel steel	-
13	Hexagon socket set screw	Chrome-nickel steel	-
14	Rubber magnet	Synthetic rubber	-
15	Extend spring E	Steel wire	-

### Parts List

No.	Description	Material	Remarks
<b>Roller type</b>			
16	Roller A	Resin	-
17	Spring pin	Carbon tool steel	-
<b>Lever type</b>			
18	Lever	Cast iron	Peckrytine
19	Lever holder	Carbon steel	Black zinc chromate
20	Roller B	Resin	-
21	Shock absorber	-	-
22	Lever spring	Stainless wire	-
23	C type retaining ring for shaft	Carbon tool steel	-
24	Lever pin	Carbon steel	-
25	Roller pin	Carbon steel	-
26	Steel ball	High carbon chromium bearing steel	-
27	Hexagon socket set screw	Chrome-nickel steel	-
28	Hexagon socket set screw	Chrome-nickel steel	-
29	One side tapered pin	Carbon steel	-

### Spare Parts/Packing List (Renewal Part No.)

No.	Description	Material	Double acting, double acting with spring				Single acting			
			$\varnothing 20$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 20$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$
1	Rod packing	NBR	DYR-12	DYR-20	PNY-25	PNY-25	DYR-12	DYR-20	PNY-25	PNY-25
2	Gasket	NBR	D-18	C-29	C-36	C-46	C-18	C-29	C-36	C-46
3	Piston packing	NBR	NLP-00A NLP-20L	NLP-30A NLP-32L	NLP-40A NLP-42L	NLP-50A NLP-52L	PPY-20	PPY-32	SPY-40	SPY-50

Parts with a \* mark are used only for the double acting model with spring.

# Series RSQ

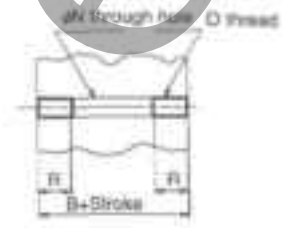
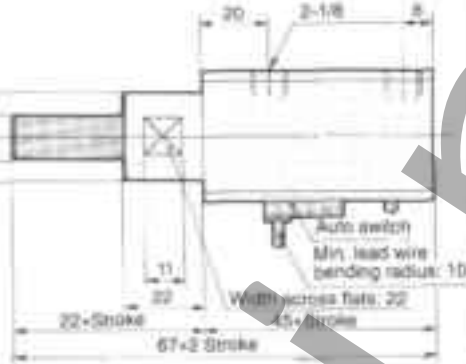
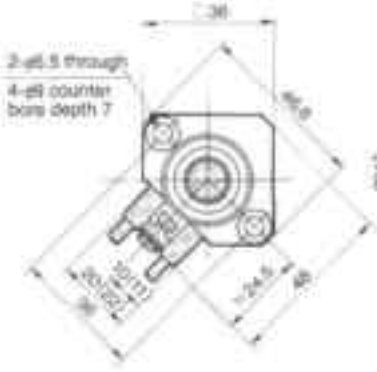
Rod end configuration

## Round bar

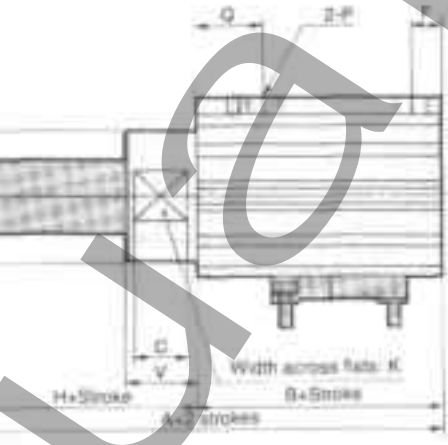
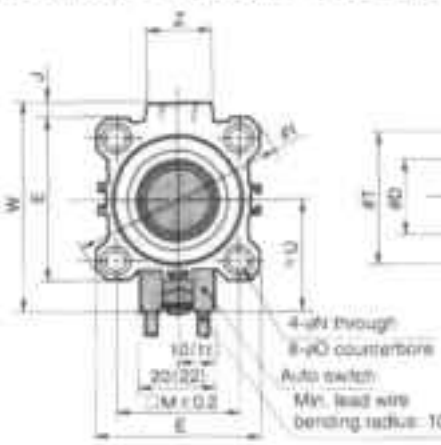
Basic through hole mounting, thread mounting

Thread mounting/both ends tapped

Bore size  $\varnothing 20$ /RS □ QB20



Bore size  $\varnothing 32, \varnothing 40, \varnothing 50$ /RS □ QB32, 40, 50



Model	B	N	Q	R
RS □ QA20	45	5.5	M6x1	10
RS □ QA32	48	5.5	M6x1	10
RE □ QA40	52.5	5.5	M6x1	10
RS □ QA50	54	6.6	M8x1.25	14

\* Dimensions other than the 20 above are the same as those of the basic type (at the MR).

Bore size (mm)	A	B	C	D	E	F	H	J	K	M	N	Counter bore	Q (thread)	P	Q	R	T	U	V	W	Z
20	68	48	15	21	40	7.5	20	4.5	50	34	5.5	5 depth 7	M6 x 1	1.8	20	12	36	21.5	20	58.6	18
40	80.5	52.5	18	25	52	8	28	6	41	40	5.5	5 depth 7	M6 x 1	1.8	24.5	10	44.7	35	28	56	18
50	82	54	21	25	54	8	38	7	50	50	6.6	11 depth 8	M8 x 1.25	1.8	34.5	14	54.1	41	28	80	22

Note 1: Dimensions for strokes without an auto switch are the same as for those with an auto switch.  
 Note 2: The figure shows the dimensions of auto switches D1 and D2.  
 Note 3: Numbers in parentheses indicate the dimensions of B-A223M, A201, F75, and J76.

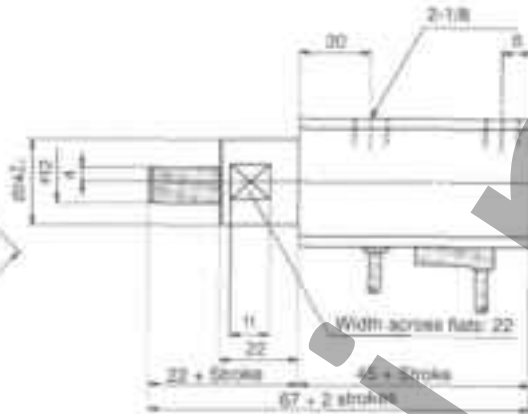
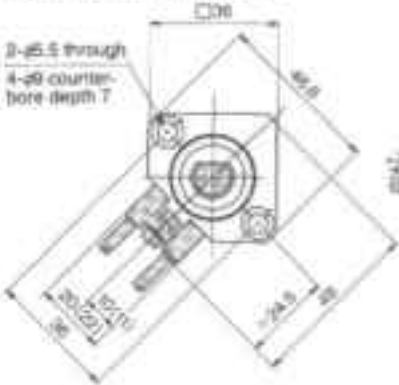
Note 4: The figure shows an unthreaded piston rod.  
 Note 5: For single acting, one of both wings is provided only on the rod side.



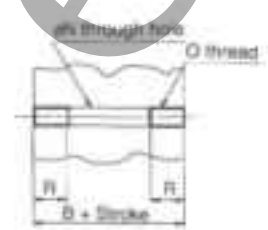
Fixed mounting height **Series RSQ**

Rod end configuration  
**Non-rotating**  
Basic through hole mounting, thread mounting

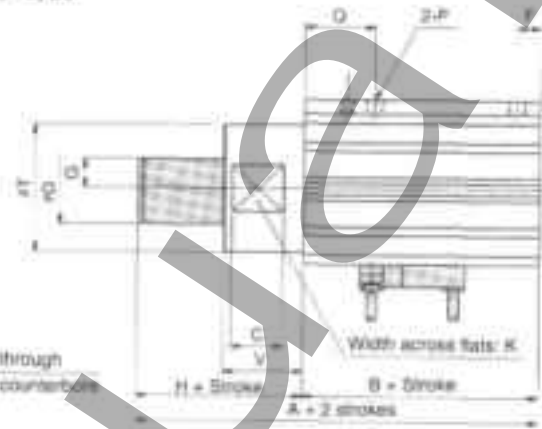
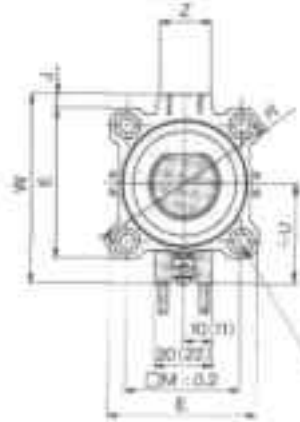
Bore size  $\varnothing 20$ /RS/□QB20



Thread mount/both ends tapped



Bore size  $\varnothing 32$ ,  $\varnothing 40$ ,  $\varnothing 50$ /RS/□QB32, 40, 50



Model	B	N	O	R
RS□QA20	45	5.5	M8x1	10
RS□QA32	48	5.5	M8x1	10
RS□QA40	52.5	5.5	M8x1	10
RS□QA50	54	6.6	M8x1.25	14

\* Dimensions other than the above are the same as those of the basic type (at the left)

Bore size (mm)	A	B	C	D	E	F	G	H	I	J	K	M	N	Countersink	O thread	P	Q	R	T	U	V	W	Z
20	68	48	15	20	45	7.5	20	60	4.5	32	34	8.5	9 depth 7	M8 x 1	10	25	15	36	21.5	20	58.5	19	
32	80.5	52.5	18	25	55	8	25	65	5	41	40	8.5	9 depth 7	M8 x 1	10	24.5	18	44	28	28	66	18	
50	82	54	21	35	64	10	28	75	7	50	50	8.8	11 depth 8	M8 x 1.25	18	24.5	14	50	41	38	90	22	

(Note 1) Dimensions for models without an O-ring seal are the same as above.

(Note 2) The figure shows the dimensions of plus and minus tolerance.

(Note 3) Numbers in parentheses indicate the dimensions of G3/8", AN31 P7L and 27.

(Note 4) The figure shows an extended piston rod.

(Note 5) For single acting, 3-way 2-position fittings are provided only on the rod side.

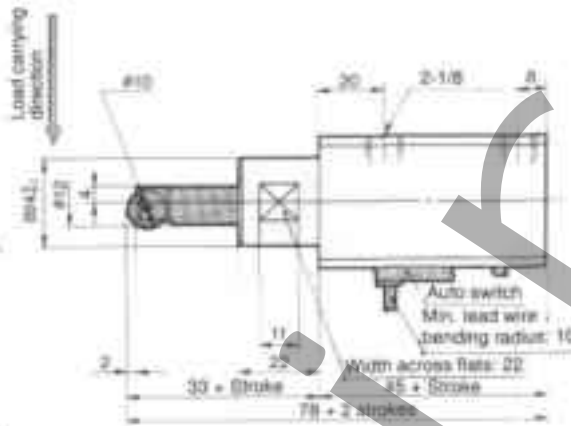
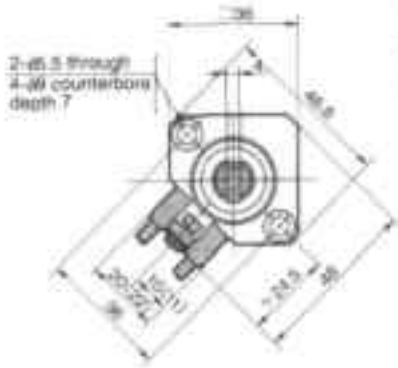
# Series RSQ

Frod end configuration

## Roller

Basic through hole mounting, threaded mounting

Bore size  $\varnothing 20/RS \square QB20$



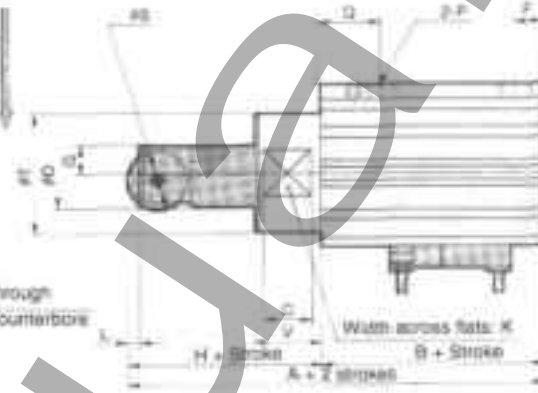
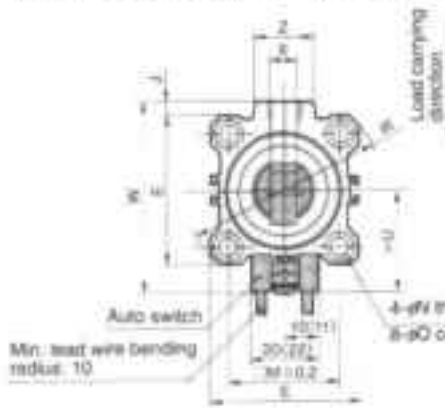
Threaded mounting, both ends tapped



Model	B	N	O	R
RS □ QA20	45	5.5	M6x1	10
RS □ QA32	48	5.5	M6x1	10
RS □ QA40	52.5	5.5	M6x1	10
RS □ QA50	54	5.6	M6x1.5	14

\*Dimensions other than the above are the same as those of the basic (at the left)

Bore size  $\varnothing 32, \varnothing 40, \varnothing 50/RS \square QB32, 40, 50$



Stroke mm	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Counterbore	O thread	P	Q	R	S	T	U	V	W	X	Z
20	37	46	15	30	45	7.5	11	19	8	4.5	32	3	3x	5.5	4 depth 7	M6 x 1	1.8	20	10	18	36	11.1	20	36.5	8	18
40	105.5	52.5	18	35	52	8	11	23	8	5	41	4	40	5.5	4 depth 7	M6 x 1	1.8	24.5	15	24	44	35	38	66	8	10
50	107	54	21	35	54	8	10	23	8	5	50	4	50	5.6	11 depth 8	M6 x 1.5	1.8	24.5	14	24	50	41	38	66	8	22

Note 1: Dimensions for models without an auto switch are the same as the above.  
 Note 2: The figures show the dimensions of auto switches D, AT and H-AR.  
 Note 3: Numbers in parenthesis indicate the dimensions of D, A, C, L, AR01, 02, and JTR.

Note 4: The figure shows an extended version rod.  
 Note 5: For angle acting, one each forage are provided only on the out side.

Model and configuration  
**Lever with built-in shock absorber**

Basic/through hole mounting, thread mounting

Fixed mounting height **Series RSQ**

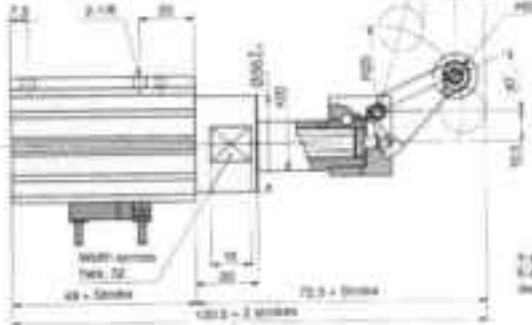
Thread mounting both ends tapped



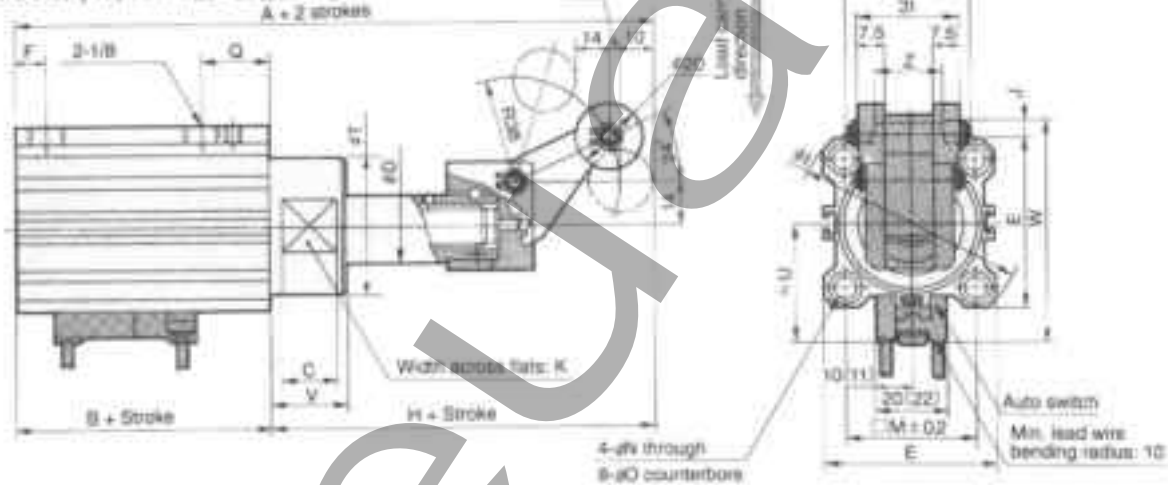
Dimensions other than those shown in this table  
table are the same as FM drawings below

Model	B	N	O	R
RS-QA30	46	5.5	M5x1	10
RS-QA40	52.5	6.5	M6x1	10
RS-QA50	54	8.6	M6x1.25	14

Bore size  $\varnothing 32/RS-Q-32$   $\pm 0.015$



Bore size  $\varnothing 40, 50/RS-Q$   $\pm 0.015$



Bore size (mm)	A	B	C	D	E	F	H	J	K	M	N	S counterbore	O thread	Q	R	T	U	V	W	Z
32	152	52.5	18	25	52	9	110	5	41	40	5.5	3 degree 7'	M5 x 1	34.5	10	44	35	28	36	18
40	154	54	21	28	54	9	100	7	50	50	6.5	11 degree 8'	M6 x 1.25	34.5	14	36.5	41	28	30	22
50	154	54	21	28	54	9	100	7	50	50	6.5	11 degree 8'	M6 x 1.25	34.5	14	36.5	41	28	30	22

Note 1: Dimensions for models without an auto switch are the same as the above.  
 Note 2: The figures show the dimensions for auto switch O.A. and D.A.B.  
 Note 3: Numbers in parenthesis indicate the dimension in ( ) in ( ) mm, ( ) in ( ) mm, and ( ) in ( ) mm.

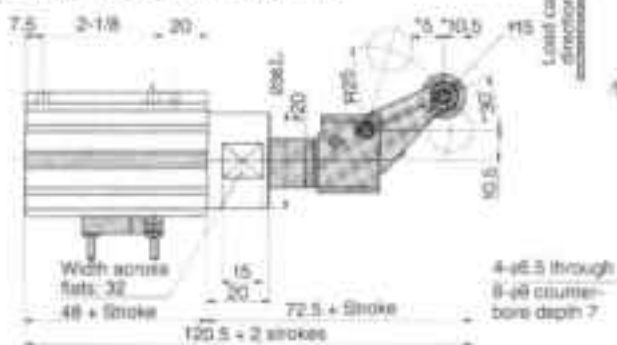
Note 4: The figure shows an extended piston rod.  
 Note 5: For single acting, one lead wire are provided only in the full size.

Item	Stock Assembled Part Number
32	RB1502-0225
40	RB1401-0225
50	RB1407-0225

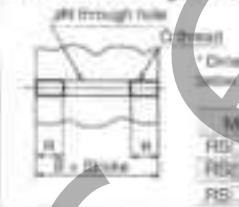
Rod end configuration  
**Lever with built-in shock absorber**  
 Variable energy absorption through adjusting fluid viscosity

### Stroke adjusting shock absorber

Bore size  $\phi 32$ /RS  $\square$  Q  $\square$  32  $\square$  B

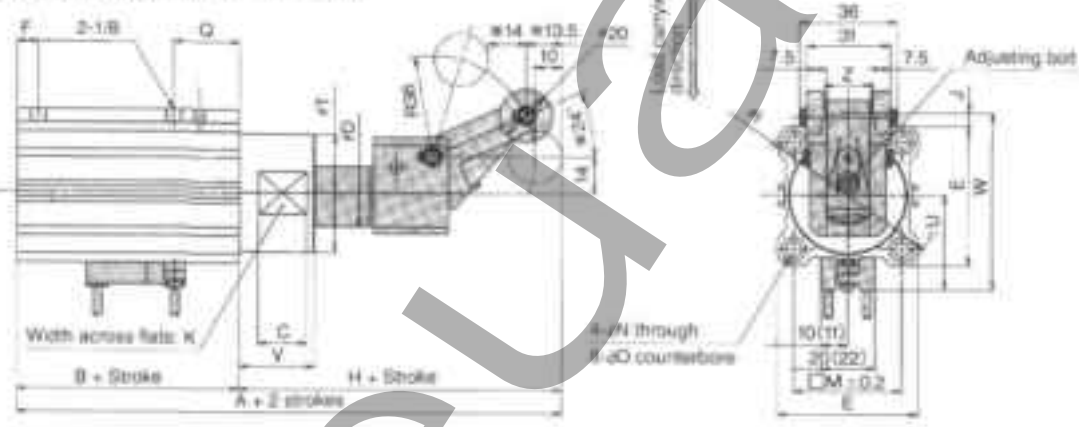


Thread mounting both ends tapped



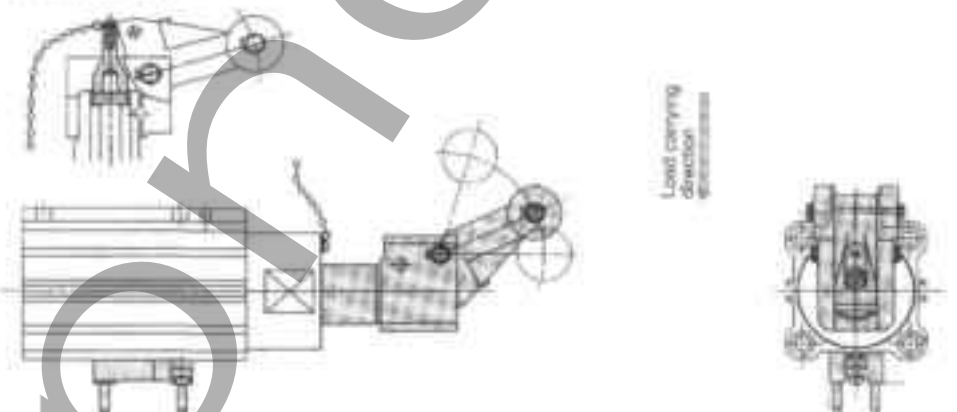
Model	B	N	Q	R
RD-QA32	48	5.5	M6x1	10
RS-QA40	52	5.5	M6x1	10
RS-QA50	54	5.5	M6x1.5	14

Bore size  $\phi 40$ , 50/RS  $\square$  Q  $\square$  B



With cancel cap/RS  $\square$  Q  $\square$  G

\*Dimensions of the model with a cancel cap are the same as those shown in the above drawings.



\* Dimensions for the maximum energy absorption

Bore size (mm)	A	B	C	D	E	F	H	I	J	K	M	N	Q counter-bore	Q	R	T	V	X	W	Z
40	5	52.5	18	25	52	8	100	88	5	41	40	5.5	9 depth 7	24.5	10	44.5	35	29	56	18
50	15	54	21	25	64	8	100	88	7	50	50	6.5	11 depth 8	24.5	14	56.5	41	35	80	20

Note 1) Dimensions for models without an air inlet are the same as the above.  
 Note 2) The figures show the dimensions of air switches D-A7 and D-A6.  
 Note 3) Numbers in parentheses indicate the dimensions of D-A7, D-A6, A80, F78, and J79.  
 Note 4) The figure shows an extended piston rod.  
 Note 5) For angle action, one fluid fitting is provided only on the rod side.  
 Note 6) The "x" symbol is subject to the adjusting lock adjustment.

Rod and configuration

Lever with built-in shock absorber

Variable energy absorption up to 1000 Nmm, fixed mounting

Fixed mounting height **Series RSQ**

Thread mounting both ends tapped

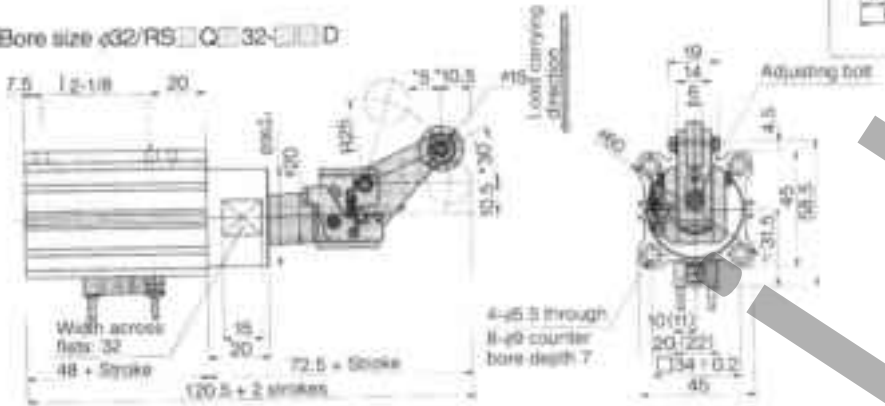


\* Dimensions other than those shown in the table below are the same as the drawings below:

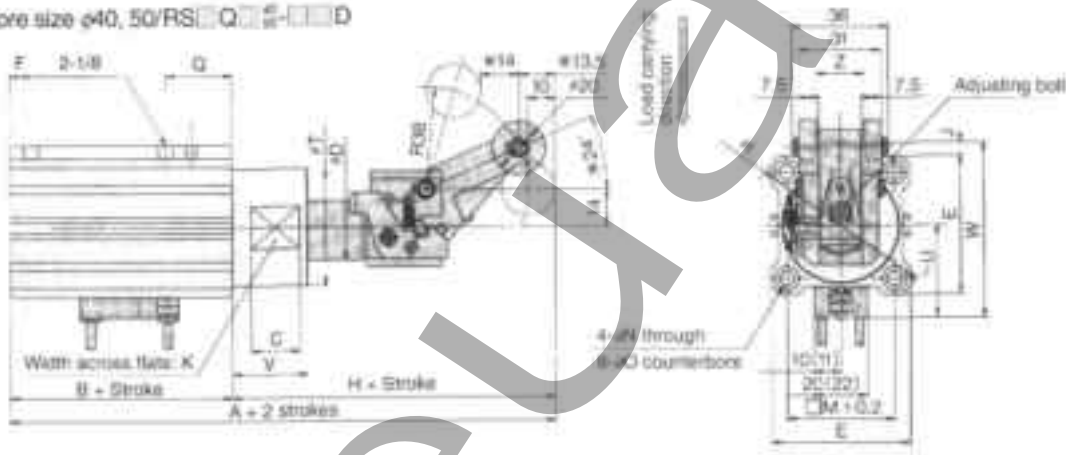
Model	B	H	O	R
RS-QA30	45	3.5	M1x1	10
RS-QA40	52.5	3.5	M1x1	10
RS-QA50	55	6.8	M1x1.5	14

With locking mechanism

Bore size  $\varnothing 32$ /RS-Q-32-□□□□□D

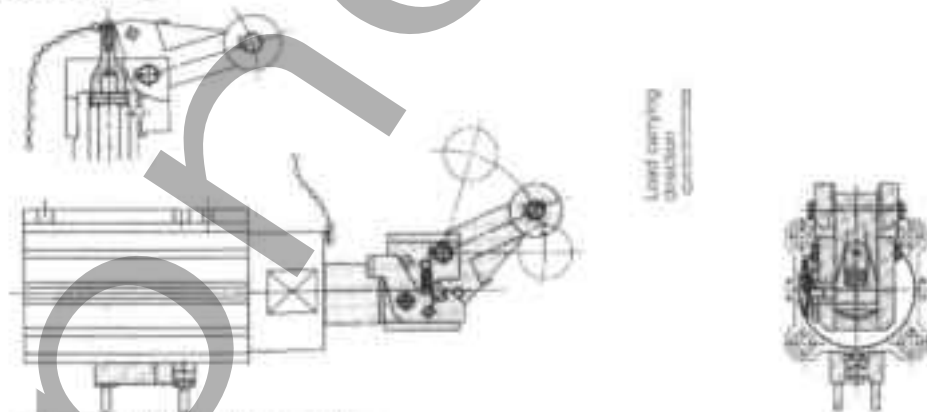


Bore size  $\varnothing 40, 50$ /RS-Q-□□□□□□□□D



With locking mechanism + cancel cap/RS-Q-□□□□□□□□□□E

\* Dimensions of the model with a cancel cap are the same as those shown in the above drawings.



\* Dimensions for the maximum energy absorption

Bore size (mm)	A	B	C	D	E	F	H	I	J	K	M	N	□ counterbore	□	W	T	U	V	W	Z
40	150.5	50.5	18	25	50	8	100	66	5	41	40	5.5	□ depth 7	24.5	10	44	15	26	65	13
50	200	64	21	25	64	8	100	66	7	50	50	5.5	□ depth 8	24.5	14	56.2	47	28	80	22

Note 1) Dimensions of model without an auto switch are the same as the above.

Note 2) The figure shows dimensions of auto switches D-A7 and D-A8.

Note 3) Numbers in parentheses indicate the dimensions of D-AFC24, A800, F70, and 270.

Note 4) The figure shows an extended adjust rod.

Note 5) For single acting, one fixed string is provided only on the rod end.

Note 6) The "□" section is subject to the adjusting O-R adjustment.

# Series RSDQ Auto Switch Specifications



## Applicable auto switch model

	Auto switch model	Lead wire only (feature)
Reed switch	D-A7, A8	Grommet (Vertical cable access)
	D-A7ZH, A80H	Grommet (Horizontal cable access)
	D-A73C, A80C	Connector
	D-A79W	Grommet (two colors)
Solid state switch	D-F7, J7	Grommet (Horizontal cable access)
	D-F71V	Grommet (Vertical cable access)
	D-J79C	Connector
	D-F71W, J79W	Grommet (two colors/horizontal cable access)
	D-F71WV	Grommet (two colors/vertical cable access)
	D-F71P	Grommet (two colors/digital output/horizontal cable access)
	D-F79A	Grommet (two colors/wired/horizontal cable access)

## Reed Switch Specifications / Rail Mounted

Autoswitch model	D-A72 D-A72H	D-A73 D-A73H	D-A76H	D-A80 D-A80H	D-A73C	D-A80C	D-A79W			
Application	Relay Sequence controller		IC	Relay, Sequence controller, IC	Relay, Sequence controller	Relay, Sequence controller, IC	Relay, Sequence controller			
Load voltage	200VAC	24VDC	100VAC	4-8VDC	Max. 2V VDC	4-24VDC (3VAC/DC)	24VDC	Max. 24VAC/DC	24VDC	
Max. load current and load current range	5-10mA	5-40mA	5-25mA	20mA	50mA	40mA	10mA	5-40mA	50mA	5-40mA
Internal voltage (drop)	Max. 2.4V		Max. 0.8V	0	0	Max. 2.4V	0	Max. 4V	0	Max. 4V
Indicator lamp	ON: Red light emitting diode			-	Off: Red light emitting diode	-	Two colors Normally open - No light emitting diode Normally closed - Green light emitting diode			
Protection circuit for contact failure point	-									

- Load current — None
- Response time — 1.2ms

- Lead wire — Oil proof vinyl, #24, 0.2mm $\phi$ , 2-wire (red, black), 0.5m \*
- Impact resistance — 300m/s $^2$  (30 G)
- Insulation resistance — 10M $\Omega$  or more under test voltage 500VDC (between case and cable)

- Withstand voltage — 1500VAC 1 min. (between case and cable)
- Ambient temperature — 0-140°F (10-60°C)

- Protection structure — IEC529 spec IP67, waterproof (JIS C 0030), silver
- \* Suffix L for the model with a 3m-long lead wire. (Example) D-A72L.

## Solid State Switch Specifications/Rail Mounted Type

Auto switch model	D-F79 D-F79V	D-F7P D-F7PV	D-J79 D-J79V	D-J79C	D-F79W D-F79WV	D-F79P	D-J79W	D-F79WV	D-F79P (30-Ampere rated)	D-F7LP (High-speed output)	
Wiring	3-wire		2-wire		3-wire		2-wire		4-wire		
Output	NPN		-		NPN		-		NPN		
Application	Relay, IC, Sequence controller		24VDC relay, Sequence controller		Relay, Sequence controller		Relay, IC, Sequence controller		24VDC relay, Sequence controller		
Power voltage	5-24VDC	5-24VDC	-		12-24VDC	5-24VDC	-		5-24VDC	24VDC	
Current consumption	Max. 15mA	Max. 15mA	-		Max. 10mA	Max. 12mA	-		Max. 10mA	Max. 20mA	
Load voltage	Max. 28VDC	-	10-28VDC		Max. 28VDC	-	10-28VDC		Max. 28VDC		
Load current	Max. 150mA	Max. 100mA	5-100mA		Max. 80mA	Max. 40mA	0-40mA		Max. 40mA		
Internal voltage drop (when load voltage is 15V)	Max. 0.8V		Max. 3V		Max. 0.8V		Max. 4V		Max. 0.8V		
Leak current	Max. 10 $\mu$ A		Max. 1mA		Max. 10 $\mu$ A		Max. 1mA		Max. 10 $\mu$ A		
Indicator lamp	ON: Red light emitting diode					Response position - Red light emitting diode First response position - Green light emitting diode					

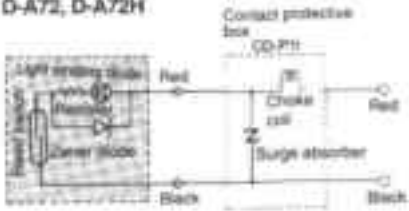
- Response time — 1.2ms
- Lead wire — Oil proof vinyl, #24, 0.2mm $\phi$ , 2-wire (red, black), 2-wire (red, white, black), 0.5m \*
- Impact resistance — 300m/s $^2$  (30 G)
- Insulation resistance — 10M $\Omega$  or more under test voltage 300VDC (between case and cable)

- Withstand voltage — 1500VAC 1 min. (between case and cable)
- Ambient temperature — 0-140°F (10-60°C)
- Protection structure — IEC529 spec IP67, waterproof (JIS C 0030), silver
- \* Suffix L for the model with a 3m-long lead wire. (Example) D-F79L.

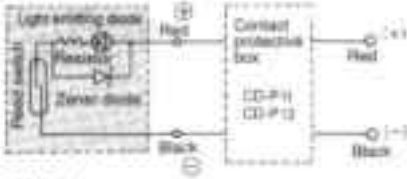
Auto switch internal circuit

Reed switch

D-A72, D-A72H



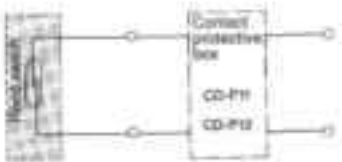
D-A73, D-A73H



D-A75H



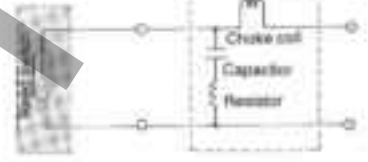
D-A80, D-A80H



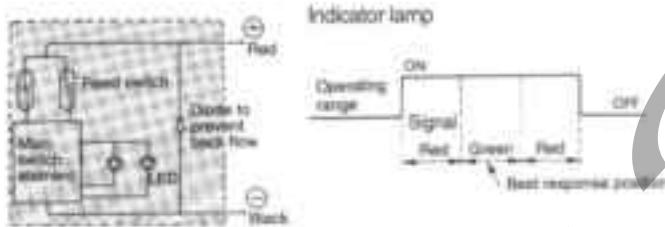
D-A73C



D-A80C

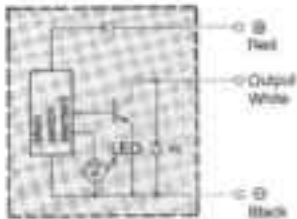


D-A79W / two colors



Solid state switch

D-F79, D-F7NV



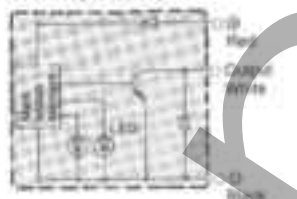
D-F7P, D-F7PV



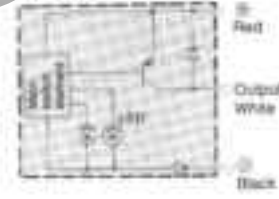
D-J79, D-J79C, D-F7BV



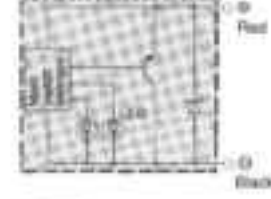
D-F77W, D-F7NWW



D-F7PW



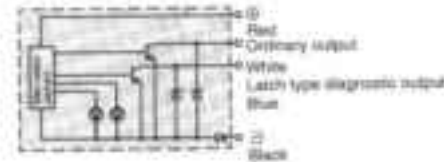
D-J79W, D-F7BW



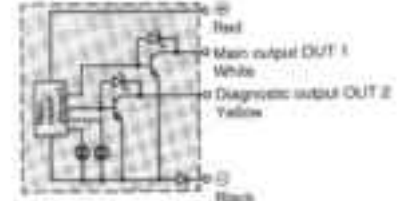
D-F7NTL



D-F7LF



D-F79F



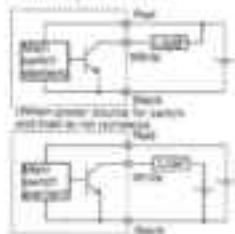
\* Solid state and Reed switches are interchangeable.  
 (Solid state switch)      (Reed switch)  
 D-F79      ↔      D-A7  
 D-J79      ↔      D-A7  
 D-J79C      ↔      D-A7

# Series RSDQ

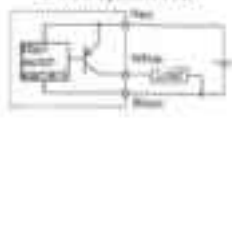
## Solid State Switch/Connection Method and Connection Example

### Basic wiring

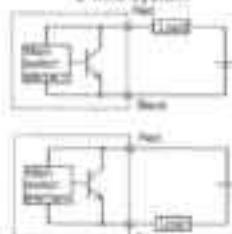
3 wire system NPN



3 wire system PNP

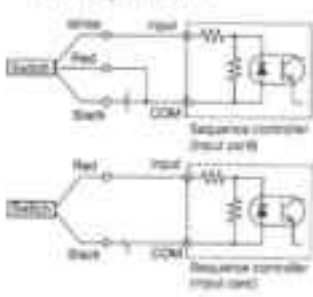


2 wire system

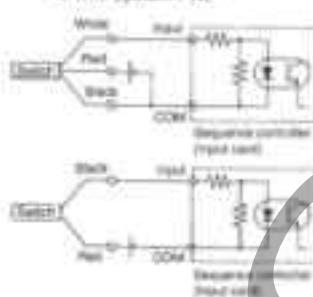


### Typical sequence controller connection circuits

3 wire system NPN



3 wire system PNP



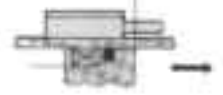
The connection method here shows the input conditions of the sequence controller. These conditions according to the load conditions.

### Auto switch hysteresis

Switch contact point (ON)



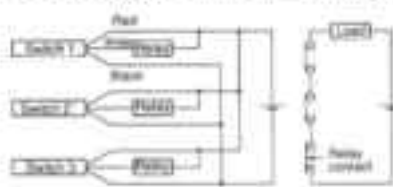
Switch resistor point (OFF)



The difference between the switch contact point (ON) and the resistor point (OFF) is normally 2mm max. For reed switches with 1mm max. for solid state switches. Contact SMC if hysteresis is a problem.

### AND (Serial), OR (Parallel) connection example

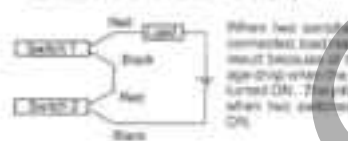
AND connection for 3-wire system NPN output



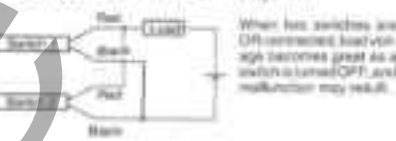
OR connection for 3-wire system NPN output



2 AND connections for 2-wire system



2 OR connections for 2-wire system



Source: Power voltage is 24VDC and output load voltage is 0V.  
Load voltage when switch is ON = Power voltage - (resistor voltage x 2)  
= 24V - (4.5V x 2)  
= 15V

Source: Load resistance is 100Ω and switch voltage is 24V.  
Load voltage when switch is OFF = (Load voltage x 2) / (Load resistance + 2R)  
= 24V / (100Ω + 2 x 100Ω)  
= 8V

### Contact Protective Box

D-A7 and D-A8 switches have no built-in contact protection circuit. Use this box for inductive loads, 5 meters or more of lead wires, or 100, 200VAC applications.

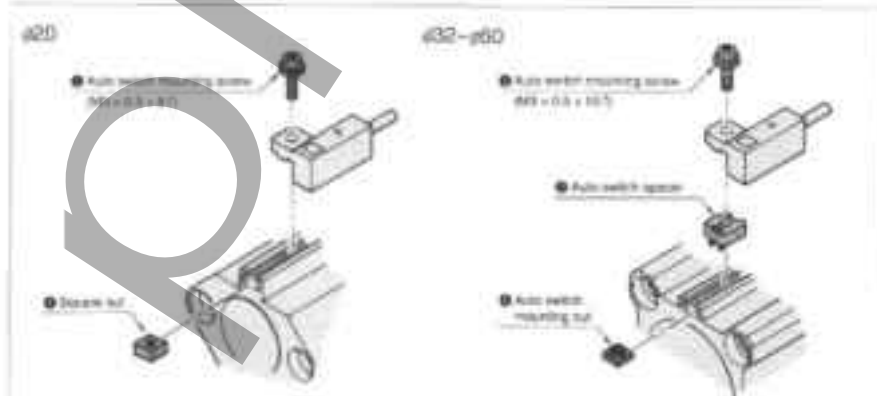
Model	Voltage	Lead wire length
CD-P11	100, 200VAC	0.5m
CD-P12	24VDC	

\* D-A8 switch is used for 100VAC or less. Since there is no voltage limitation, you can select a subsize model for your needs.

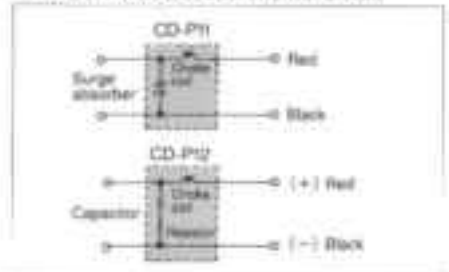


### How to Install Auto Switch

Install auto switch in the following manner.



### Contact Protection Box Internal Circuit



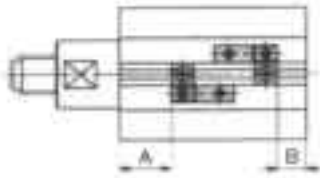
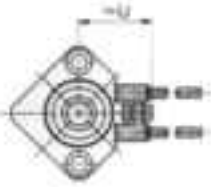


Auto Switch Mounting Position (Stroke End) / Mounting Height

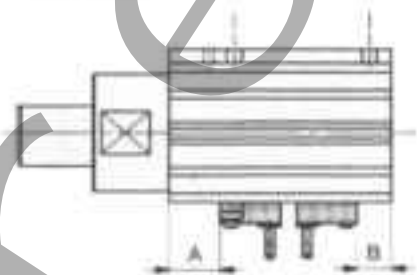
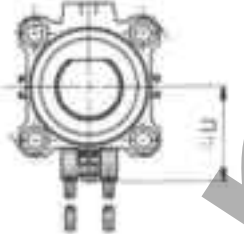
ø20

ø32 - ø50

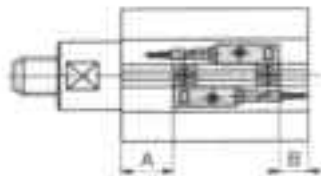
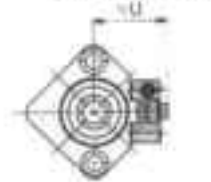
D-A7, D-A8



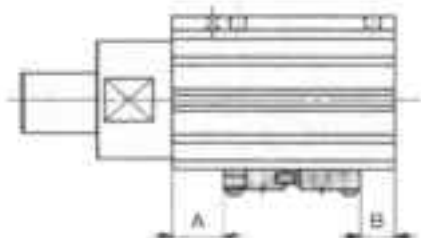
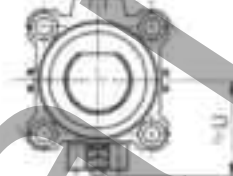
D-A7, D-A8



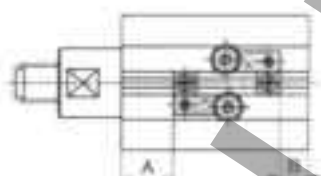
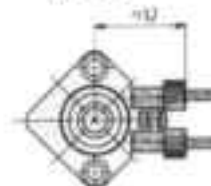
D-A7H, D-A80H  
D-F7, D-J79  
D-F79W, D-J79W



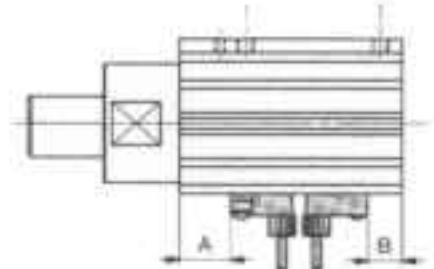
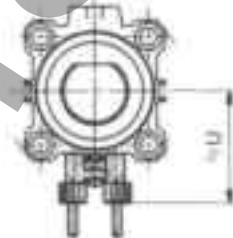
D-A7H, D-A80H  
D-F7, D-J79  
D-F79W, D-J79W



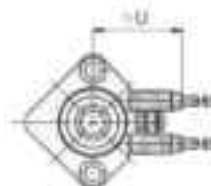
Connector type  
D-A73C, D-A80C  
D-J79C



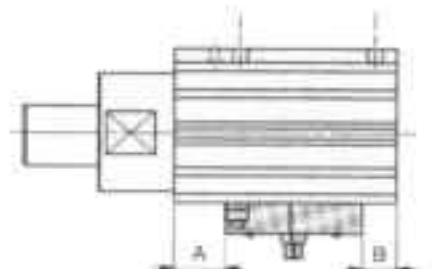
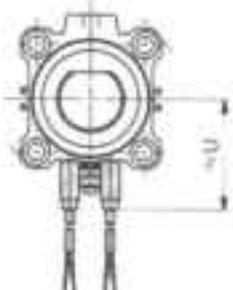
Connector type  
D-A73C, D-A80C  
D-J79C



D-A79W, D-F7WV  
D-F7IV



D-A79W, D-F7WV  
D-F7IV



Auto switch mounting position

Auto switch mounting height

mm.

Auto switch model	D-A7 D-A8		D-A7H D-A80H		D-F7BAL D-F7PW D-F7CF D-J79W		D-F79W D-F79WV		D-A7 D-A8	D-A7H D-A80H D-F7 D-J79 D-F79W D-J79W D-F7BAL D-F7PW D-F7CF		D-A73C D-A80C D-J79C	D-F7IV	D-J79C	D-A79W
	A	B	A	B	A	B	A	B		U	U				
30	18.0	10.0	15.0	7.0	22.0	14.0	18.5	10.5	24.5	25.5	21.5	28.0	31.0	27.0	
32	18.5	12.0	15.5	8.5	22.5	15.5	19.0	13.0	31.5	32.5	28.5	35.0	38.0	34.0	
40	23.0	12.5	20.0	8.5	27.0	16.5	23.5	13.0	35.0	36.0	42.0	38.5	41.5	37.5	
50	31.0	6.0	28.0	3.0	35.0	11.0	31.5	6.5	41.0	42.0	48.0	44.5	47.5	43.5	