Stopper Cylinder

Adjustable Mounting Height Type

Series RSG

ø40, ø50,

How to Order

Standard Type RSG 40 □ — 30 D □

With Auto Switch RSDG 40 □ — 30 D □ — C73 □

With auto switch (internal magnet)

Bore size

40	40 mm
50	50 mm

Type of piping

Nil	Screw-in piping
F	Integrated One-touch fitting

Cylinder stroke (mm)

40, 50	20, 25, 30

Rod end configuration

Symbol	Configuration	Application
Nil	Round bar type	–
K	Non-rotating type	–
R	Roller type	–
L	Lever (non-adjustable)	Basic type
B	Lever type (Energy absorbing Adjustable deformation)	–
C		With cancel cap
D		With lock mechanism
E		With lock & cancel

Action

D	Double acting
B	Double acting/spring loaded
T	Single acting/spring retracted

Auto switch type

Nil	Without auto switch

∗ Select applicable auto switches from the table below.

Number of auto switches

Nil	2pcs.
S	1pc.

Auto switch mounting bracket part nos.

Auto switch model	Bore size (mm)	
	40	50
D-C7, C8	BMA2-040	BMA2-050
D-H7		

[Stainless steel mounting screw kit]

The following stainless steel mounting screw kit is available and may be used depending on the operating environment.
(Contact P/A regarding the switch mounting band, which is not included.)
BBA4 : For types D-C7/C8/H7
The above stainless steel screws are used when a type D-H7BA switch is mounted on a cylinder at the time of shipment.
In addition, the BBA4 kit is attached when an auto switch unit is shipped alone.

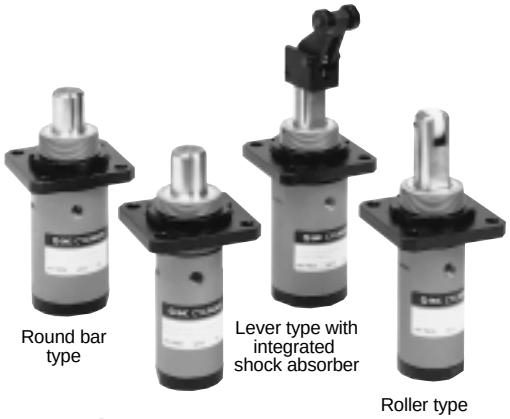
Applicable Auto Switches

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage DC	Load voltage AC	Auto switch part no.	Lead wire length (m) ∗ 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Applicable load	
Reed switches	–	Grommet	Yes	3 wire (NPN equiv.)	5V	–	C76	●	●	–	–	IC circuit	–
				2 wire	12V	100V	C73	●	●	●	–	–	Relay, PLC
			No		5V, 12V	100 V or less	C80	●	●	–	–	IC circuit	
		Connector	Yes		12V	–	C73C	●	●	●	●	–	
			No		5V, 12V	24V or less	C80C	●	●	●	●	IC circuit	
Solid state switches	–	Grommet	Yes	3 wire (NPN)	5V, 12V	–	H7A1	●	●	○	–	IC circuit	Relay, PLC
				3 wire (PNP)			H7A2	●	●	○	–		
				2 wire	12V		H7B	●	●	○	–	–	
		Connector					H7C	●	●	●	●		
	Diagnostic indication (2 color indicator)	Grommet		3 wire (NPN)	5V, 12V		H7NW	●	●	○	–	IC circuit	
				3 wire (PNP)			H7PW	●	●	○	–		
				2 wire	12V		H7BW	●	●	○	–	–	
	Water resistant (2 color indicator)						H7BAL	–	●	○	–		
	With diagnostic output (2 color indicator)			4 wire (NPN)	5V, 12V		H7NF	●	●	○	–	IC circuit	
	Latch type with diagnostic output (2 color indicator)				–		H7LF	●	●	○	–	–	

∗ Lead wire length symbol 0.5m..... Nil (Ex.) C80C
3m..... L (Ex.) C80CL
5m..... Z (Ex.) C80CZ
None ..... N (Ex.) C80CN

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

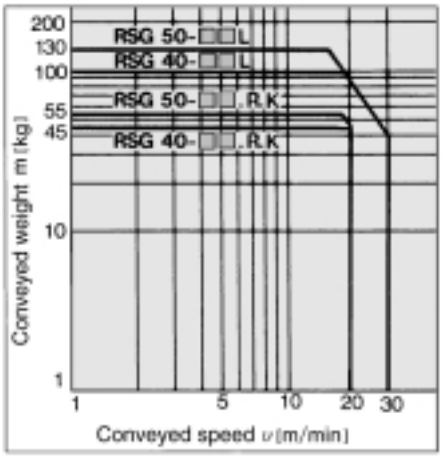
Adjustable Mounting Height Type *Series* RSG



Models

Bore size (mm)		40	50
Mounting	Flange	●	●
Internal magnet		●	●
Type of piping	Screw-in	Rc (PT) 1/8	
	Integrated One-touch fitting	ø6/4	ø8/6
Action		Double acting, Single acting, Double acting/spring loaded	
Rod end configuration	Round bar type	●	●
	Non-rotating type	●	●
	Roller type	●	●
	Lever type	●	●

Operating Range



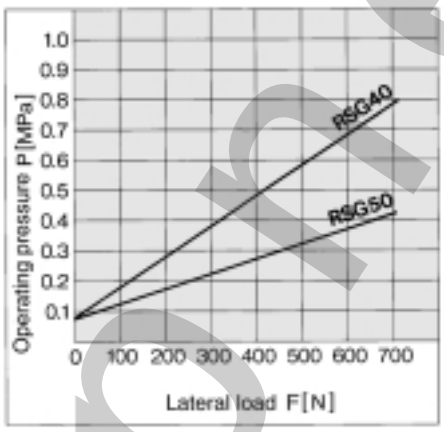
Specifications

Action	Double acting, Double acting/spring loaded, Single acting/spring retracted
Fluid	Air
Proof pressure	1.5MPa {15.3kgf/cm²}
Maximum operating pressure	1.0MPa {10.2kgf/cm²}
Ambient and fluid temperature	Without auto switch: – 10°C to 70°C/With auto switch: – 10°C to 60°C *
Lubrication	Not required (non-lube)
Cushion	Rubber bumper
Stroke length tolerance	$^{+1.4}_{0}$
Mounting configuration	Flange type
Auto switches	Mountable

* Without freezing (for both with and without auto switches)

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 non-rotating type rod end configurations.)



Bore Size/Standard Stroke Table

(mm)

Bore size (mm)	Rod end configuration
	Round bar, Non-rotating, Roller types, Lever type with integrated shock absorber
40	20, 25, 30
50	20, 25, 30

Weight Table

(kg)

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

Spring Force (Single Acting Type)

N {kgf}

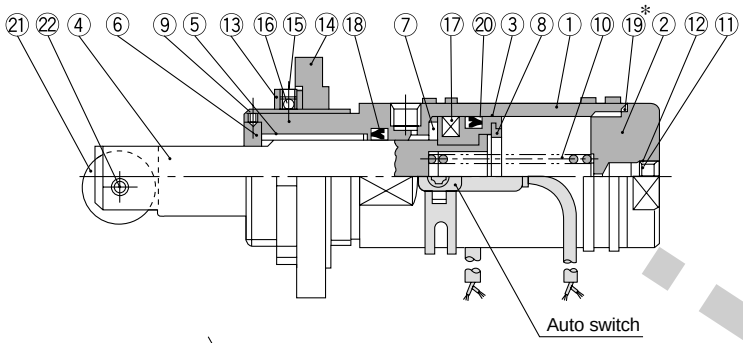
Bore size (mm)	Extended	Compressed
40, 50	13.7 {1.4}	27.5 {2.8}

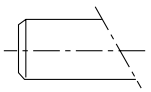
* Applicable only to round bar, non-rotating and roller type end configurations.

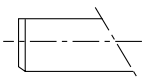
Series RSG

Construction

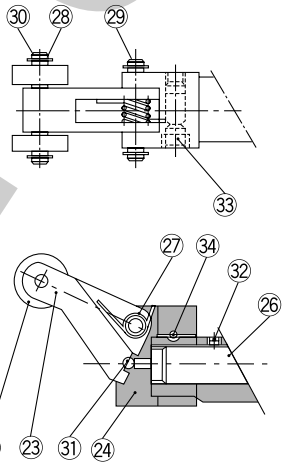
Single acting/rod end roller type




Round bar rod end type (D)


Non-rotating rod end type (K)

Integrated shock absorber Rod end lever type



Parts list (for single acting type)

No.	Description	Material	Note
1	**Tube cover**	Aluminum alloy	Hard anodized
2	**Head cover**	Aluminum alloy	Anodized
3	**Piston**	Aluminum alloy	Chromated
4	**Piston rod**	Carbon steel	Hard chrome plated
5	**Bushing**	Lead bronze casting	
6	**Detent guide**	Rolled steel	Collar used with round shaft 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
11	**Snap ring**	Carbon tool steel	
12	**Element**	Sintered metal BC	
13	**Lock nut**	Carbon steel	
14	**Flange**	Cast iron	
15	**Hexagon socket head set screw**	Chromium molybdenum steel	
16	**Ball**	Resin	
17	**Magnet**	Synthetic rubber	
18	**Rod seal**	NBR	
*19	**Gasket**	NBR	Double acting, double acting/ spring loaded only
20	**Piston seal**	NBR	

Parts list (for single acting type)

No.	Description	Material	Note
For roller type			
21	**Roller A**	Resin	
22	**Spring pin**	Carbon tool steel	
For 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	**C type snap ring for shaft**	Carbon tool steel	
29	**Lever pin**	Carbon steel	
30	**Roller pin**	Carbon steel	
31	**Steel ball**	High carbon chrome bearing steel	
32	**Hexagon socket head set screw**	Chromium molybdenum steel	
33	**Hexagon socket head set screw**	Chromium molybdenum steel	
34	**Single taper pin**	Carbon steel	

Replacement parts/Seal kits

Bore size (mm)	Order No.			Content
	Double acting	Double acting/ spring loaded	Single acting	
40	RSG40D-PS	RSG40B-PS	RSG40T-PS	A set of the above Nos. 18, 19 & 20
50	RSG50D-PS	RSG50B-PS	RSG50T-PS	

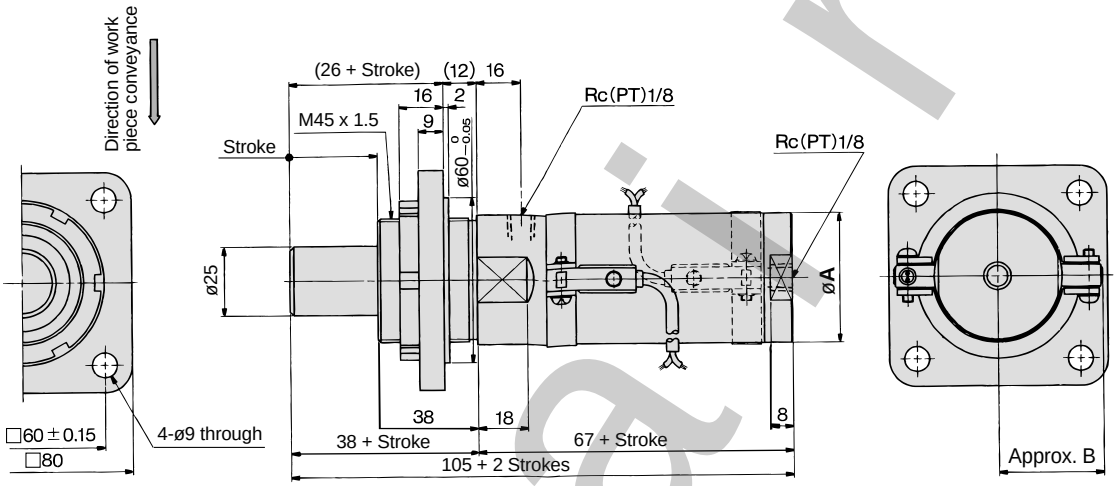
* Seal kits are sets consisting of items 18, 19 and 20, which can be ordered using the order number for each cylinder bore size.

Rod End Configuration Round Bar Type

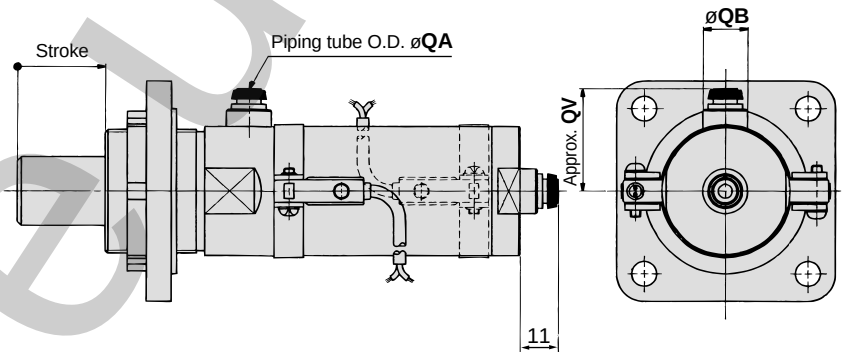
Basic type/Flange mounting

These drawings (2 items) show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□**



Integrated One-touch fitting type



mm

Bore size (mm)	A	B	QA	QB	QV
40	47	35	6	13	33
50	58	40.5	8	16	38.5

Note 1) Body dimensions when not equipped with auto switches are the same as in the drawings above.
Note 2) In the case of single action, a One-touch fitting is on the rod side only.
Note 3) These drawings show dimensions when equipped with D-C7, C8 type auto switches.
Note 4) These drawings show the piston rod extended.
Note 5) Refer to page 26 for auto switch mounting positions and mounting height.

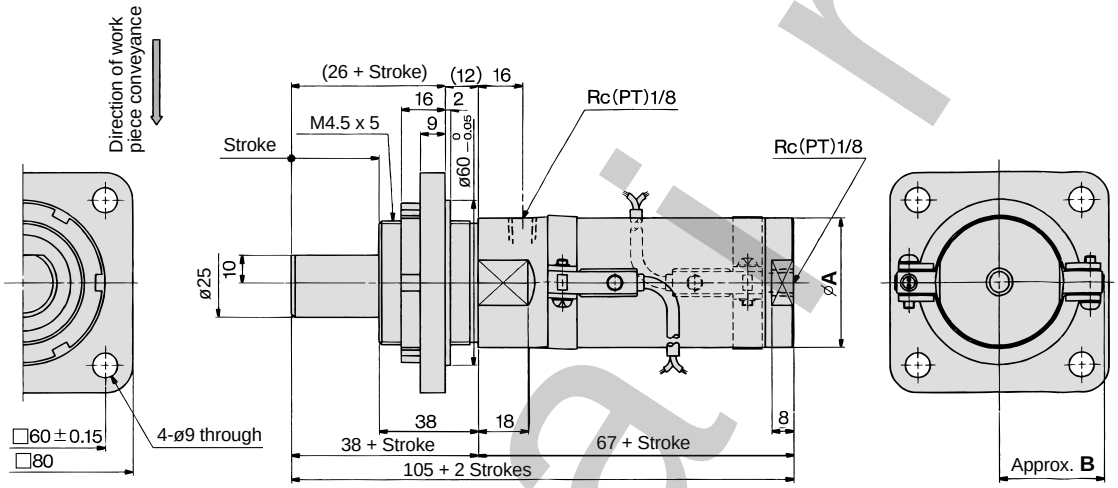
Series RSG

Rod End Configuration Non-rotating Type

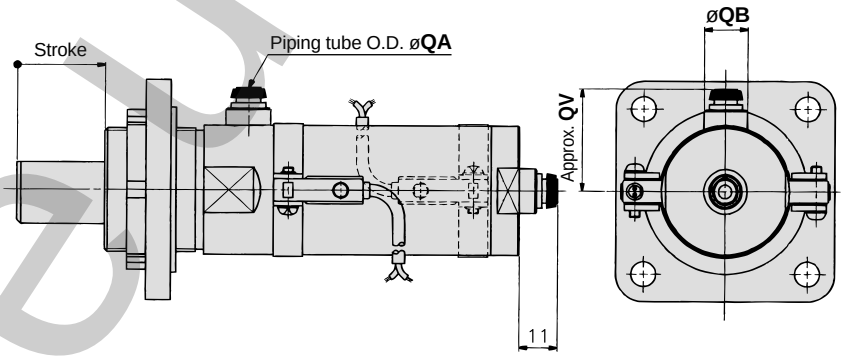
Basic type/Flange mounting

These drawings (2 items) show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□K**



Integrated One-touch fitting type



mm

Bore size (mm)	A	B	QA	QB	QV
40	47	35	6	13	33
50	58	40.5	8	16	38.5

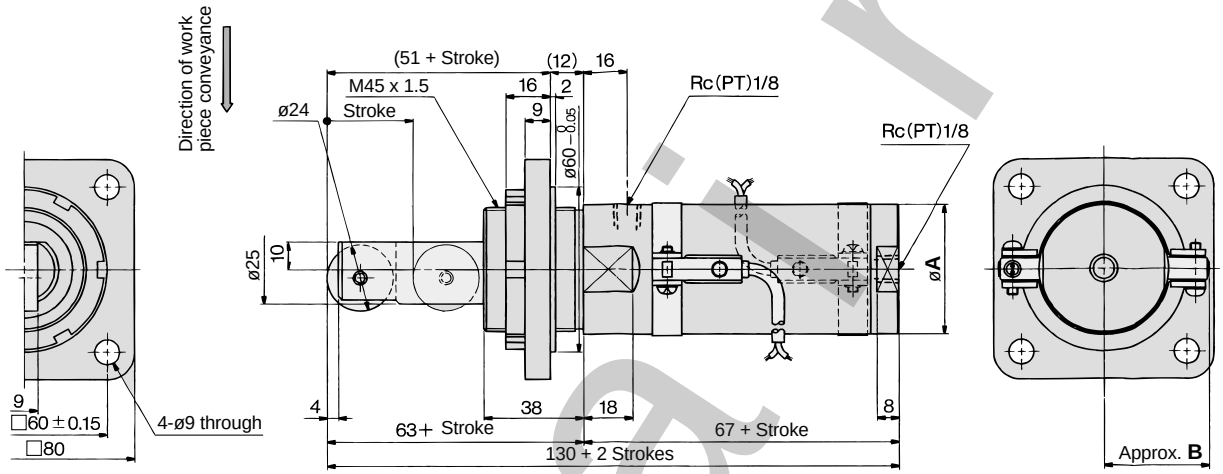
Note 1) Body dimensions when not equipped with auto switches are the same as in the drawings above.
Note 2) In the case of single action, a One-touch fitting is on the rod side only.
Note 3) These drawings show dimensions when equipped with D-C7, C8 type auto switches.
Note 4) These drawings show the piston rod extended.
Note 5) Refer to page 26 for auto switch mounting positions and mounting height.

Rod End Configuration **Roller Type**

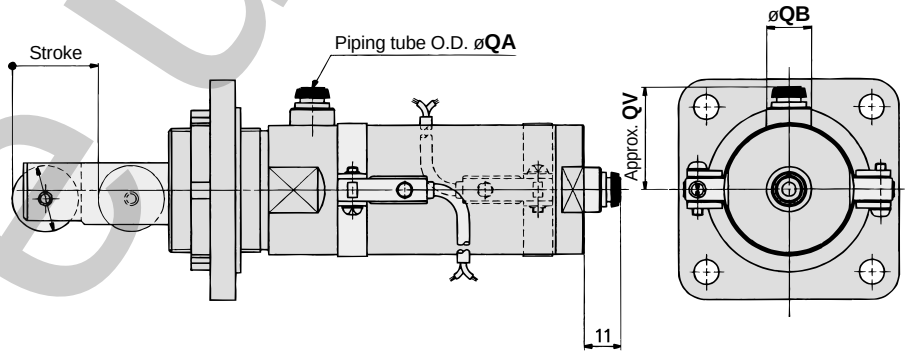
Basic type/Flange mounting

These drawings (2 items) show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□R**



Integrated One-touch fitting type



mm

Bore size (mm)	A	B	QA	QB	QV
40	47	35	6	13	33
50	58	40.5	8	16	38.5

Note 1) Body dimensions when not equipped with auto switches are the same as in the drawings above.
Note 2) In the case of single action, a One-touch fitting is on the rod side only.
Note 3) These drawings show dimensions when equipped with D-C7, C8 type auto switches.
Note 4) These drawings show the piston rod extended.
Note 5) Refer to page 26 for auto switch mounting positions and mounting height.

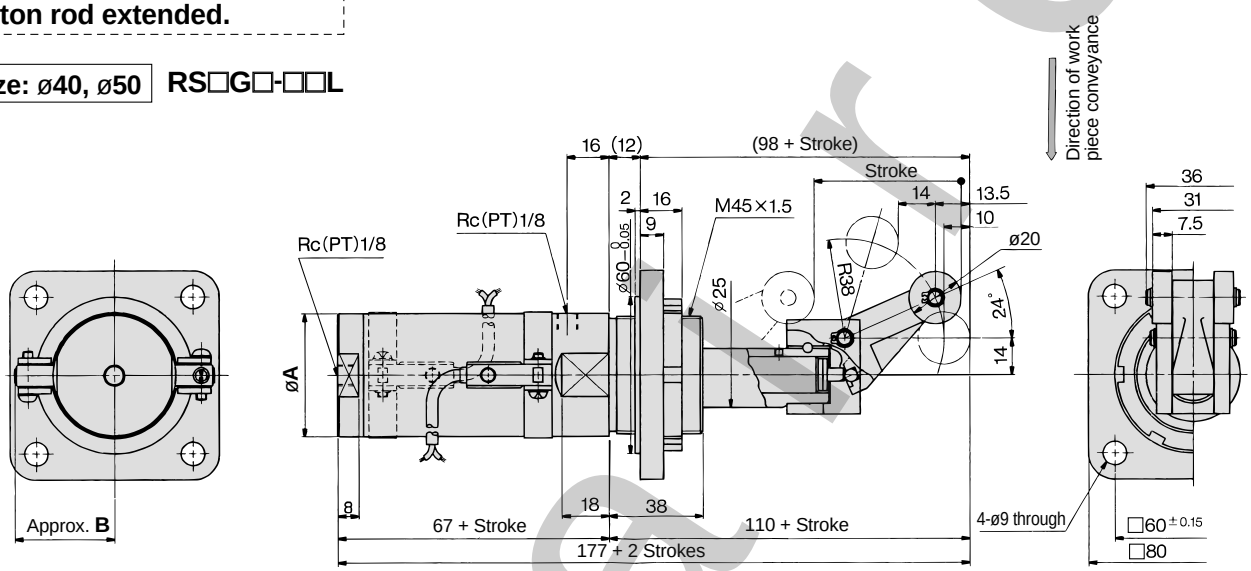
Series RSG

Rod End Configuration Lever Type with Integrated Shock Absorber

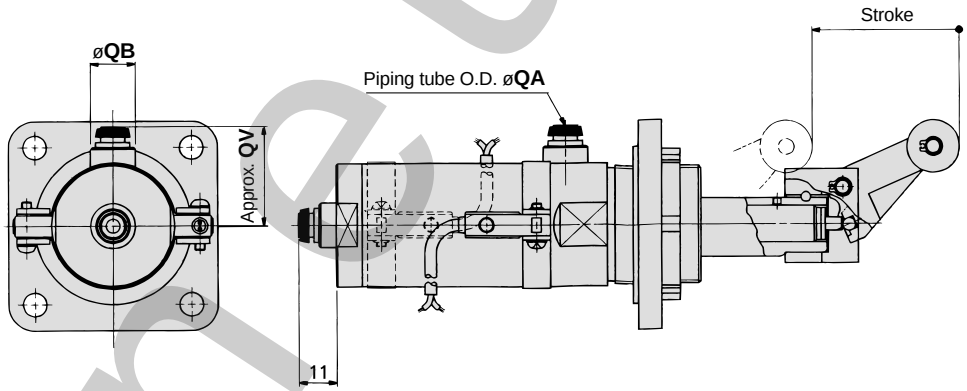
Basic type/Flange mounting

These drawings (2 items) show the piston rod extended.

Bore size: ø40, ø50 **RS□G□-□□L**



Integrated One-touch fitting type



mm

Bore size (mm)	A	B	QA	QB	QV
40	47	35	6	13	33
50	58	40.5	8	16	38.5

Note 1) Body dimensions when not equipped with auto switches are the same as in the drawings above.
Note 2) In the case of single action, a One-touch fitting is on the rod side only.
Note 3) These drawings show dimensions when equipped with D-C7, C8 type auto switches.
Note 4) These drawings show the piston rod extended.
Note 5) Refer to page 26 for auto switch mounting positions and mounting height.

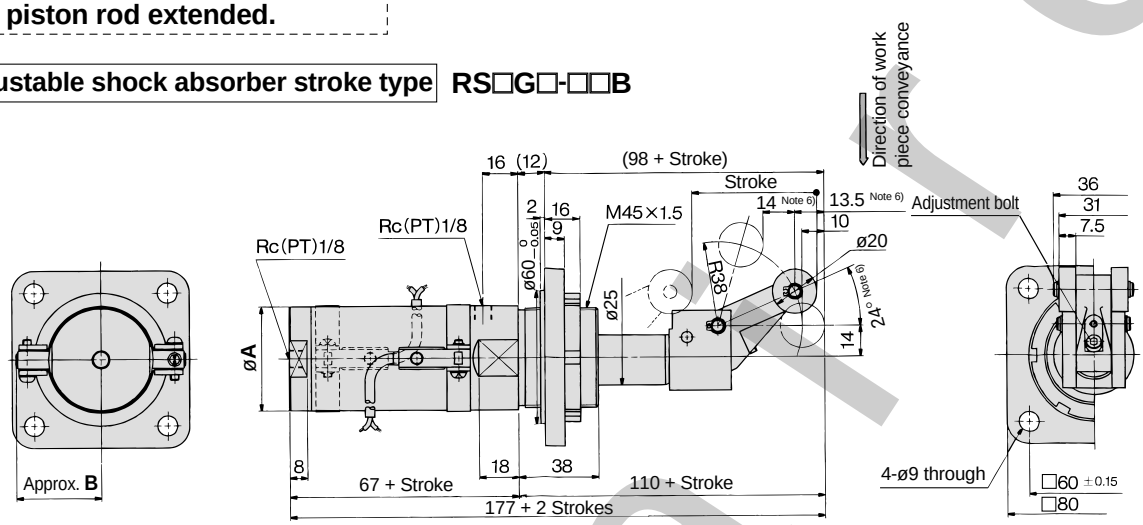
Adjustable Mounting Height Type *Series* RSG

Rod End Configuration Lever Type with Integrated Shock Absorber

Variable energy absorbing type/Flange mounting

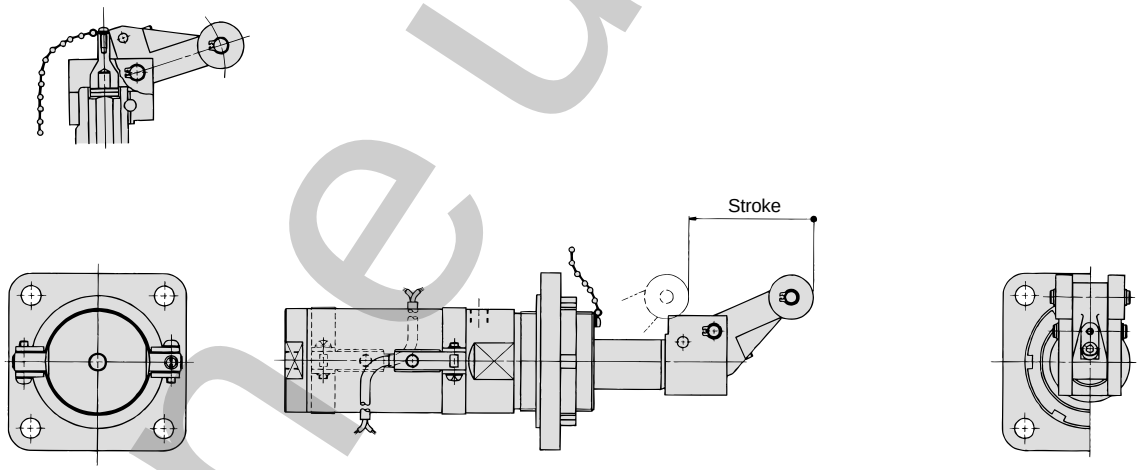
These drawings (2 items) show the piston rod extended.

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



With cancel cap **RS□G□-□□C**

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



mm

Bore size (mm)	A	B
40	47	35
50	58	40.5

Note 1) Body dimensions when not equipped with auto switches are the same as in the drawings above.
Note 2) In the case of single action, a One-touch fitting is on the rod side only.
Note 3) These drawings show dimensions when equipped with D-C7, C8 type auto switches.
Note 4) These drawings show the piston rod extended.
Note 5) Refer to page 26 for auto switch mounting positions and mounting height.
Note 6) The drawing shows these three 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).
24° → 16°, 13.5mm → 11.5mm, 14mm → 16mm

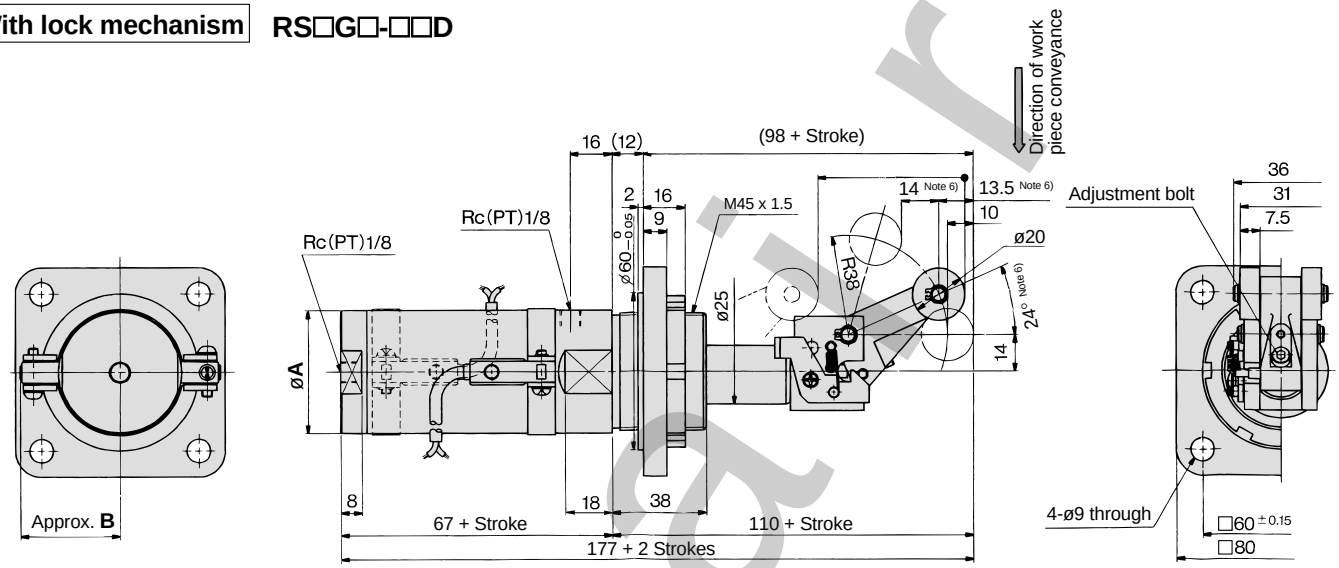
Series RSG

Rod End Configuration Lever Type with Integrated Shock Absorber

Variable energy absorbing type/Flange mounting

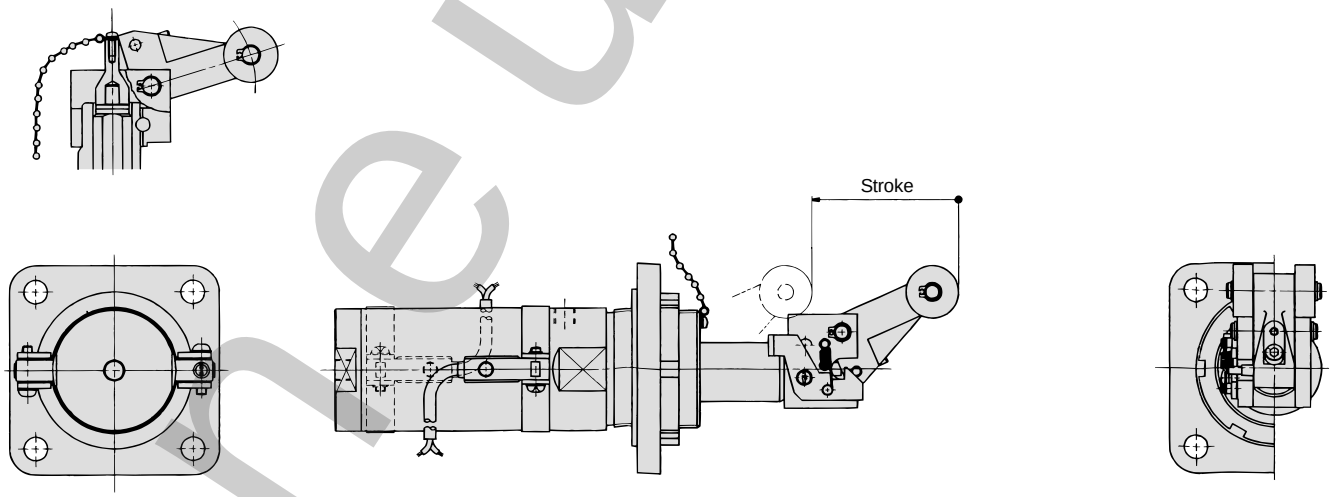
These drawings (2 items) show the piston rod extended.

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 in the above drawing.



mm

Bore size (mm)	A	B
40	47	35
50	58	40.5

Note 1) Body dimensions when not equipped with auto switches are the same as in the drawings above.
Note 2) In the case of single action, a One-touch fitting is on the rod side only.
Note 3) These drawings show dimensions when equipped with D-C7, C8 type auto switches.
Note 4) These drawings show the piston rod extended.
Note 5) Refer to page 26 for auto switch mounting positions and mounting height.
Note 6) The drawing shows these three 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).
24° → 16°, 13.5mm → 11.5mm, 14mm → 16mm

Series RSDG
Auto Switch Specifications

Applicable auto switches

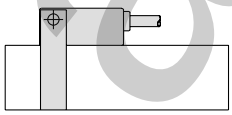
Auto switch models		Electrical entry
Reed switches	**D-C7, C8**	Grommet
	D-C73C, C80C	Connector
Solid state switches	**D-H7**	Grommet
	D-H7□W	Grommet (2 color indicator type)
	D-H7□F	Grommet (2 color indicator type, with diagnostic output)
	D-H7BA	Grommet (2 color indicator type, water resistant)
	D-H7C	Connector

Auto Switch Mounting

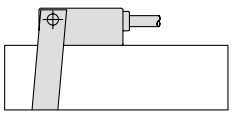
Mount auto switches following the procedure shown below.

⚠Caution

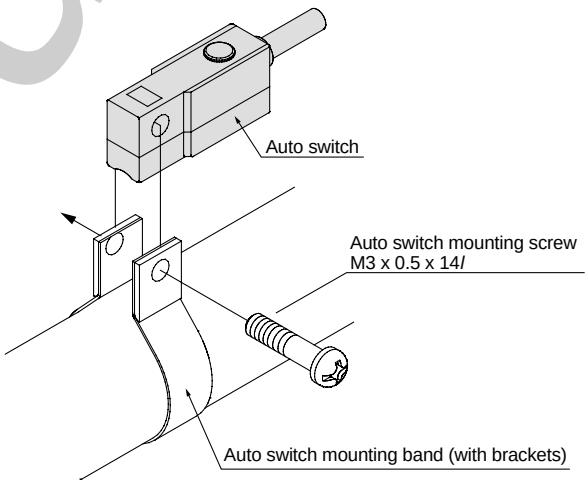
1. Do not tighten beyond the prescribed tightening torque.
2. Mount so that the band does not run at a diagonal when mounting is completed.



Correct mounting



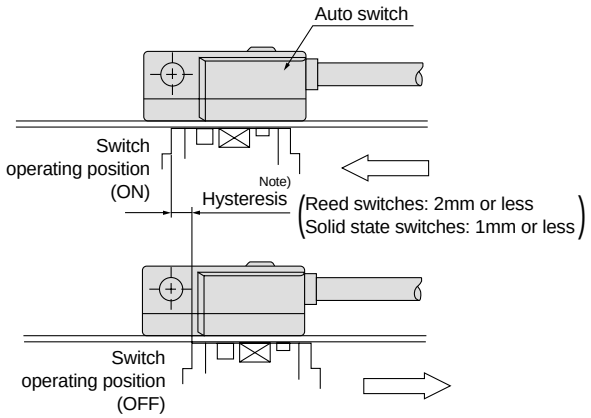
Incorrect mounting



1. Wrap the mounting band around the cylinder tube, and place it in the approximate auto switch mounting position.
2. Insert the mounting area of the auto switch between the band's holding brackets, and align its mounting hole with the holes in the holding brackets.
3. Pass the mounting screw through the mounting hole and gently screw it into the threaded section of the band's bracket.
4. After sliding the entire assembly to the detection position, secure the auto switch by tightening the mounting screw.
   (The tightening torque for the M3 screw should be 0.8 to 1N·m {8.2 to 10.2kgf·cm}.)
5. Perform changes of the detection position under the same conditions as step 3.

Auto Switch Hysteresis

Hysteresis is the distance from the position at which piston movement operates an auto switch, to the position at which reverse movement turns the switch OFF. This hysteresis is included in part of the operating range (on one side).



Note) This varies depending on the operating environment, and is not guaranteed. Contact P/A regarding applications in which hysteresis becomes a problem.

Contact Protection Boxes/CD-P11, CD-P12

<Applicable switch models>

D-C7/C8, D-C73C/C80C
The above auto switches do not have internal contact protection circuits.
1. The operating load is an induction load.
2. The length of wiring to the load is 5m or more.
3. The load voltage is 100VAC.
   A contact protection box should be used in any of the above situations, as the life of the contacts may be reduced. (They may stay on continuously.)

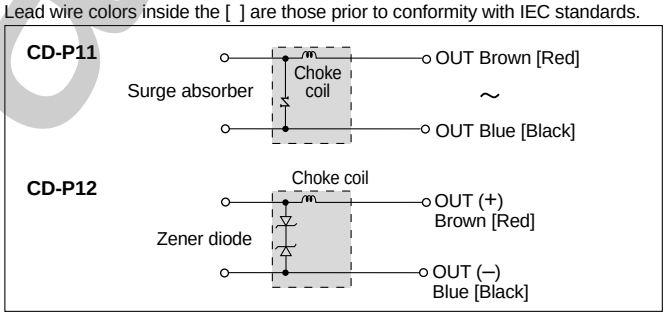
Contact protection box specifications

Part No.	CD-P11		CD-P12
Load voltage	100VAC or less	200VAC	24VDC
Maximum load current	25mA	12.5mA	50mA

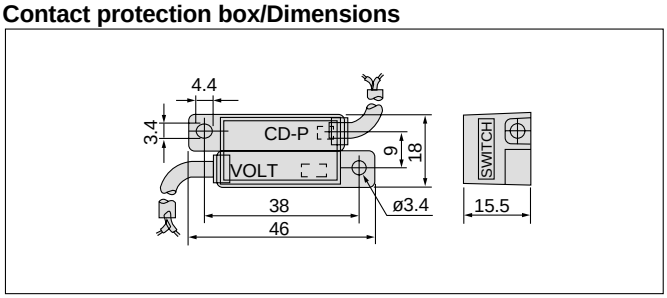
∗ Lead wire length——Switch connection side 0.5m
Load connection side 0.5m

Contact protection box internal circuits

Lead wire colors inside the [ ] are those prior to conformity with IEC standards.



Contact protection box/Dimensions

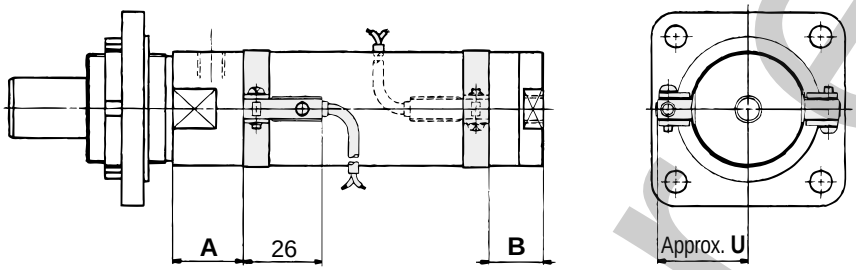


Contact protection box/Connection

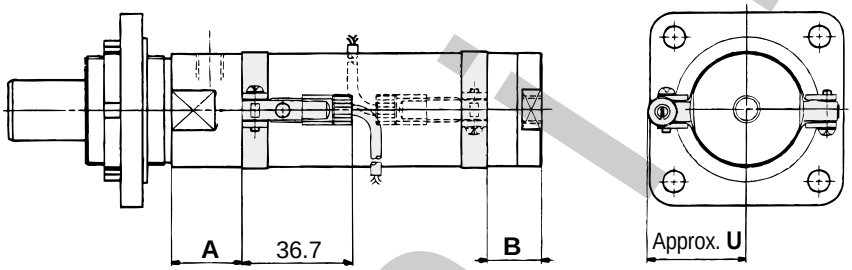
To connect a switch unit to a contact protection box, connect the lead wire from the side of the contact protection box marked SWITCH to the lead wire coming out of the switch unit. Moreover, the switch unit should be kept as close as possible to the contact protection box, with a lead wire length of no more than 1m.

Proper Auto Switch Mounting Position (Stroke End)/Mounting Height

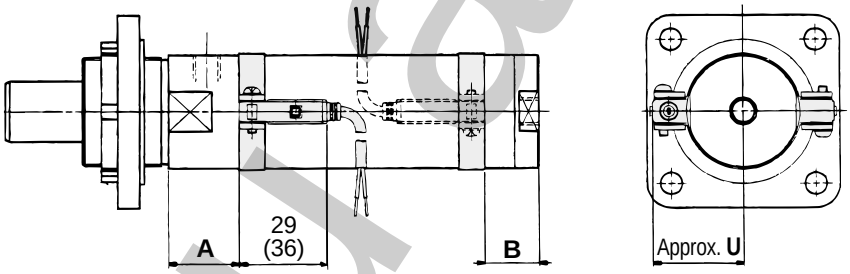
D-C7
D-C8



D-C73C
D-C80C

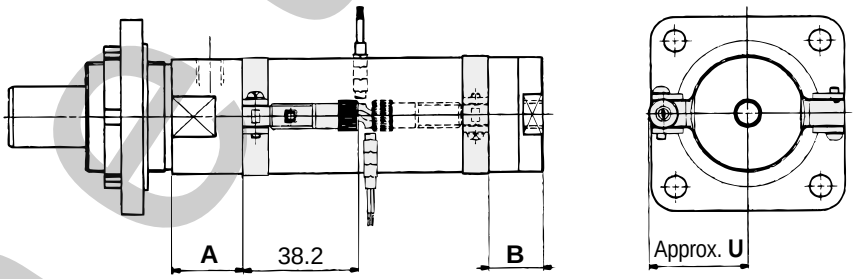


D-H7
D-H7□W
D-H7□F
D-H7BAL



∗ Values inside ( ) are for D-H7LF

D-H7C



Auto switch mounting positions

Auto switch model / Bore size (mm)	D-C7 D-C8 D-C73C D-C80		D-H7 D-H7C		D-H7□W D-H7□F D-H7BAL	
	A	B	A	B	A	B
40	22.0	26.0	21.0	25.0	19.5	23.5
50	30.0	18	29.0	17.0	27.5	15.5

Auto switch mounting height (mm)

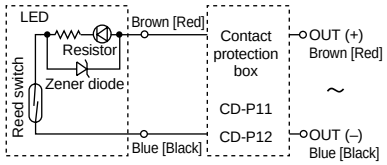
D-C7 D-C8 D-H7 D-H7□W D-H7□F D-H7BAL	D-H7C	D-C73C D-C80C
U	U	U
35.0	38.0	37.5
40.5	43.5	43.0

Auto Switch Internal Circuits

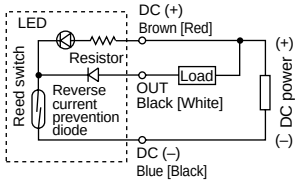
Lead wire colors inside the [ ] are those prior to conformity with IEC standards.

Reed switches

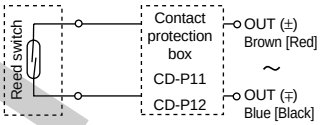
D-C73



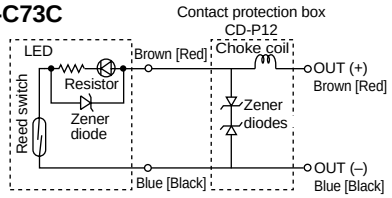
D-C76



D-C80, D-C80C

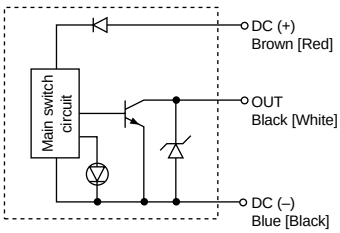


D-C73C

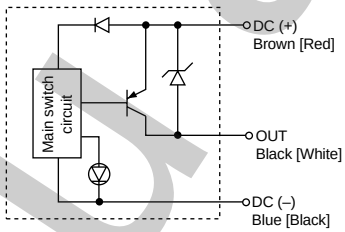


Solid state switches

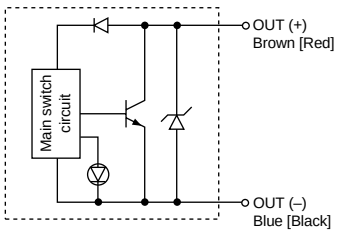
3 wire/D-H7A1



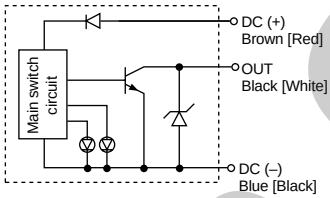
3 wire/D-H7A2



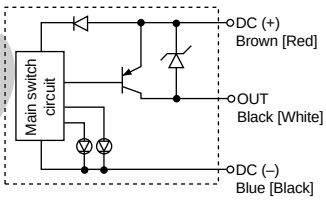
2 wire/D-H7B, D-H7C



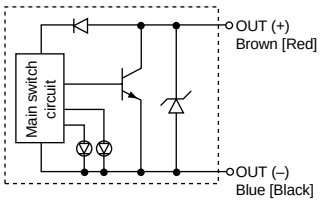
3 wire/D-H7NW



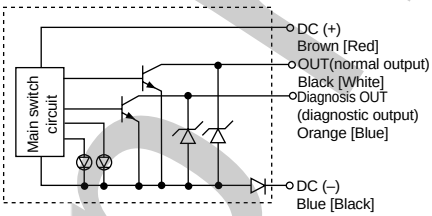
D-H7PW



D-H7BW



D-H7LF



D-H7NF