CKD

SM－350779－A

INSTRUCTION MANUAL

SUPER COMPACT CYLINDER
Back to Back type
SSD-B

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

CKD Corporation

The 3rd edition

For Safety Use

To use this product safety, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your applications, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, **read this operation manual carefully for proper operation.**

Observe the cautions on handling described in this manual, as well as the following instructions:

⚠ CAUTION :

- Before performing an overhaul inspection on the actuator, deactivate residual pressure completely.
- While the actuator is operating, do not step into or place hands in the driving mechanism.
- To prevent an electric shock, do not touch the electric wiring connections (exposed live parts) of the actuator equipped with a solenoid valve or switch.
  Perform an overhaul inspection with the power off. Also, do not touch these live parts with wet hands.

INDEX

SSD-B

Super compact cylinder
Back to back type

Manual No. SM-350779-A

1. UNPACKING

1) Make sure that the type No. on the nameplate of the delivered Super Compact Cylinder matches the type No. you ordered.

2) Check the appearance for any damage.

3) Stop up the piping port with a sealing plug to prevent the entry of foreign substances into the cylinder. Remove the sealing plug before piping.

2. INSTALLATION

2.1 Installation

1) The ambient temperature for this cylinder is -10 to 60℃. Always operate the cylinder within this temperature range.

2) Install cylinder body with a hexagon socket head cap screw directly.

3) As for the rod nose screw, there are internal thread type and external thread type. Use it to application.

4) Attach a guide so that no lateral load is exerted onto the piston rod.

2.2 Piping

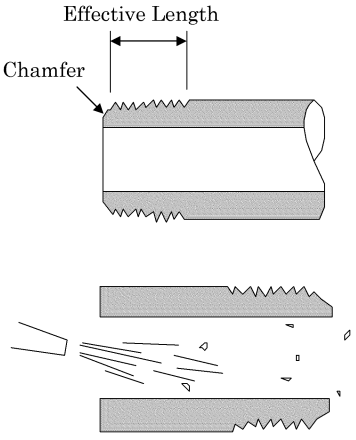
1) For piping beyond the filter, use pipes that are tough against corrosion such as galvanized pipes, nylon tubes, rubber tubes, etc.

2) See to it that the pipe connecting cylinder and solenoid valve has effective sectional area which is needed for the cylinder to drive at the specified speed.

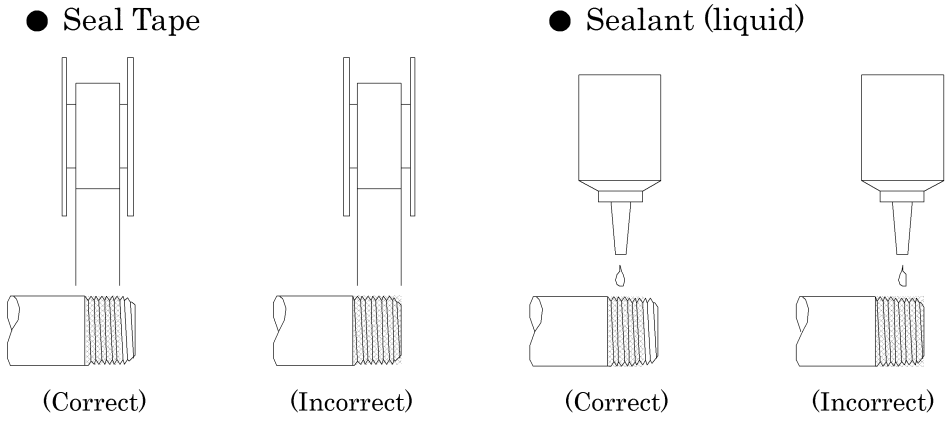
3) Install filter preferably adjacent to the upper-stream to the solenoid valve for eliminating rust, foreign substance in the drain of the pipe.

4) Be sure observe the effective thread length of gas pipe and give a chamfer of approx. 1/2 pitch from the threaded end.

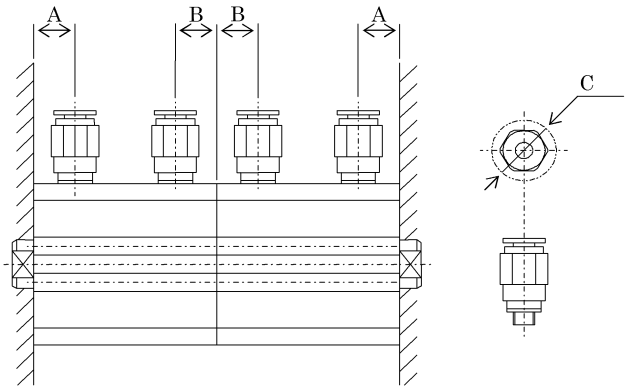
5) Flush air into the pipe to blow out foreign substances and chips before piping.



6) Refrain from applying sealant or sealing tape approx. two pitches of thread off the tip of pipe to avoid residual substances from falling into piping system.

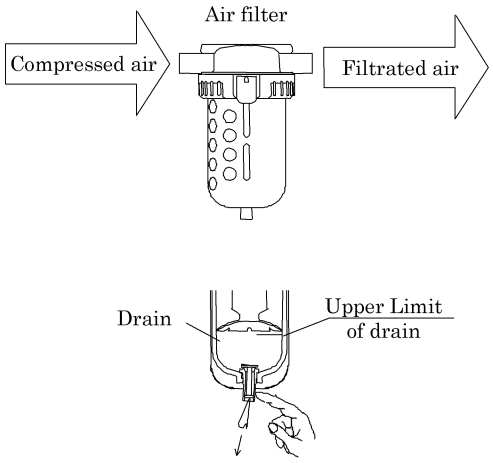


7) Because the usable piping joint has limitations, for using it, see the note below.



Item / Bore size (mm)	Port diam.	Port dimension A	Port dimension B	Available joints	Joint OD C	Joint unsuitable
12	M5	5.5	5.5	SC3W-M5-4, SC3W-M5-6 GWS4-M5-S, GWS4-M5 GWL4-M5, GWL6-M5	11 or less	GWS6-M5
16						
20		8				
25		11	6			
32	Rc1/8	8	8	SC3W-6-4・6・8 GWS4-6, GWS6-6, GWS8-6 GWL4-6, GWL6-6	15 or less	GWS10-6 GWL8-6 GWL10-6
40		12	8.5			
50	Rc1/4	10.5	10.5	SC3W-8-6・8・10 GWS4-8, GWS6-8, GWS10-8 GWL4 to 12-8	21 or less	GWS-12-8
63		13	11			
80	Rc3/8	16	13	SC3W-10-8・10・12 GWS6-10, GWS8-10, GWS10-10 GWL6 to 12-10		–
100		23	15			

2.3 Fluid



1) It is necessary to use dehumidified air that has been filtered from compressed air. Carefully select an adequate filter that has an adequate filtration rate (preferably 5 μ m or less), flow rate and its mounting location (as nearest to the directional control valve as possible).

2) Be sure to drain out the accumulation in the filter periodically.

3) Note that the intrusion of carbide for the compressor oil (such as carbon or tarry substance) into the circuit causes malfunction of the solenoid valve and the cylinder. Be sure to carry out thorough inspection and maintenance of the compressor.

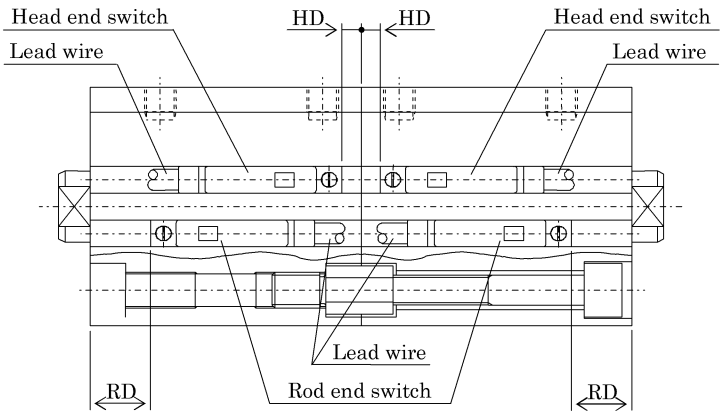
4) This cylinder does not require lubrication. It is recommended, however, to use Turbine oil Grade 1, ISO VG32 as a lubricant, if and when lubrication is needed.

2.4 Location of mounting Switches on a Cylinder

1) Location of mounting switches on a cylinder.

(1) At the stroke end

Refer the illustration above. Mount switches within the rod end dimension RD as well as the head end dimension HD for the purpose of having switches function at the points of the maximum sensitive position.



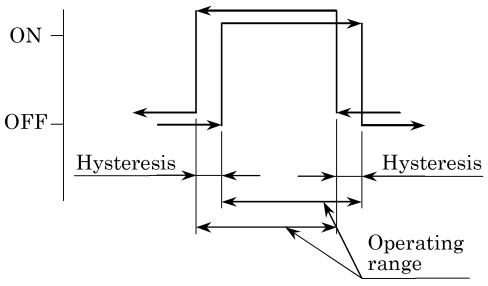
(2) Intermediate of stroke
Move the piston where it is anticipated to stop and fix it tentatively Slide a switch carefully along the side of cylinder over the piston to find out the spot where switch turns on. This type spot should be located on both side of piston. The intermediate spot between those posits is of the maximum sensitive position and where the switch is supposed to be installed.

(3) Relocation of switch
Slide switch body along cylinder tube after loosening mounting screws and tighten screws when located the maximum sensitive position.

(4) Replacing switch
Take out switch out of groove after loosening mounting screws. Slide new replacing switch into groove and tighten screws upon placing the switch at the maximum sensitive position. (Apply tightening torque of 0.1 to 0.2N・m)

2) Operating range
The switch turns on first and turns off as the piston moves along its stroke. Precise operating range deviate slightly depending upon the direction of piston movement as shown right.
The center of the range is the mostly sensitive position. Setting switch at this point eliminates majority of external disturbance and provides the most stabile actuation of switch.

3) Hysteresis
(1) Precise operating range deviate slightly depending upon the direction of piston movement as shown right.
(2) Switch is apt to be disturbed its accuracy by external effect when piston stops within this range. Carefully avoid designing stopping location of piston.



Maximum sensitive position (HD･RD), Operating range and Hysteresis　Solid state switch　(mm)

Item / Bore size (mm)	T2, T3, T2J, T2Y, T3Y, T2YD, T0, T5							
	Maximum sensitive position				Operating range		Hysteresis	
	HD		RD					
	1 color indicator	2 color indicator	1 color indicator	2 color indicator	1 color indicator	2 color indicator	1 color indicator	2 color indicator
ϕ12	0	4.5	2.5	2.5	2 to 6	3 to 6	1.5 or less	1.0 or less
ϕ16	0	4.5	2	2.5	2 to 5	3 to 7		
ϕ20	3	1.5	6.5	5	3 to 8	4.5 to 8		
ϕ25	3	1.5	9.5	8	3 to 9	4.5 to 8		
ϕ32	3.5	2	9	7.5	3 to 8	4.5 to 8		
ϕ40	7	5.5	12	10.5	3 to 9	5 to 8.5		
ϕ50	7.5	6	12.5	11	3 to 9	5.5 to 9.5		
ϕ63	12.5	11	13	11.5	3 to 9	5.5 to 9.5		
ϕ80	17.5	16	15.5	14	4 to 10	6 to 10		
ϕ100	23	21.5	19.5	18	4 to 10	6 to 10		

Item / Bore size (mm)	T1, T8							
	Maximum sensitive position				Operating range		Hysteresis	
	HD		RD					
	1 color indicator	2 color indicator	1 color indicator	2 color indicator	1 color indicator	2 color indicator	1 color indicator	2 color indicator
ϕ12	4.5	—	2.5	—	2 to 6	—	1.5 or less	—
ϕ16	4.5	—	2.5	—	2 to 5	—		
ϕ20	1.5	—	5	—	3 to 8	—		
ϕ25	1.5	—	8	—	3 to 9	—		
ϕ32	2	—	7.5	—	3 to 8	—		
ϕ40	5.5	—	10.5	—	3 to 9	—		
ϕ50	6	—	11	—	3 to 9	—		
ϕ63	11	—	11.5	—	3 to 9	—		
ϕ80	16	—	14	—	4 to 10	—		
ϕ100	21.5	—	18	—	4 to 10	—		

Maximum sensitive position (HD･RD), Operating range and Hysteresis　Reed switch　(mm)

Item / Bore size (mm)	T2, T3, T2J, T2Y, T3Y, T2YD, T0, T5			
	Maximum sensitive position		Operating range	Hysteresis
	HD	RD		
ϕ12	0	2.5	5 to 8	3 or less
ϕ16	0	2	4 to 9	
ϕ20	3	6.5	6 to 14	
ϕ25	3	9.5	5 to 14	
ϕ32	3.5	9	5 to 12	
ϕ40	7	12	6 to 14	
ϕ50	7.5	12.5	6 to 14	
ϕ63	12.5	13	7 to 15	
ϕ80	17.5	15.5	7 to 15	
ϕ100	23	19.5	9 to 15	

Item / Bore size (mm)	T1, T8			
	Maximum sensitive position		Operating range	Hysteresis
	HD	RD		
ϕ12	—	—	—	—
ϕ16	—	—	—	—
ϕ20	—	—	—	—
ϕ25	—	—	—	—
ϕ32	—	—	—	—
ϕ40	1	6	6 to 14	3 or less
ϕ50	1.5	6.5	6 to 14	
ϕ63	6.5	7	7 to 15	
ϕ80	11.5	9.5	7 to 15	
ϕ100	17	13.5	9 to 15	

※ Switches at ex-factory shipment are positioned at the maximum sensitive position (HD and RD).
Note: HD and RD for five strokes may vary from those stated in the above table since they are set every time the cylinder is installed.

3. OPERATION

3.1 Operating the Cylinder

1) The working pressure for this type of cylinder is specified in "Product Specifications". Operate the system within this range.

2) Install an external stopper when the dynamic energy is large, as it does not absorb the kinetic energy since it has no cushion.

3) Install an appropriate speed controller to adjust the piston speed.

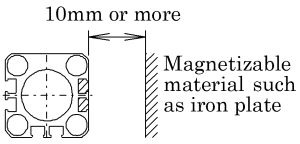
3.2 How to use the Switches

3.2.1 Common items

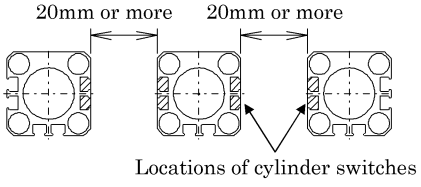
1) Magnetic environment
Do not operate this product in a place where a strong magnetic field or large current (large magnet or spot welder, etc.) exists. If a cylinder with the switch is installed in parallel to this product or the magnetic substance moves near the cylinder, the mutual interference may occur and affect the detection accuracy.

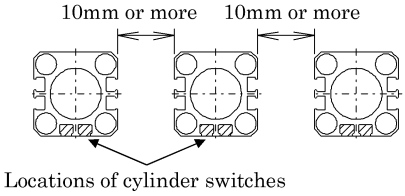
2) Protection of lead cord
Pay consideration to eliminate repeating bending stress or stretching of lead cord while laying the cord.
To the moving portion, use such cord of flexibility as for building a robot.

3) Operating temperature
Do not operate the product at a high temperature (60℃)
Always avoid operation of the product in a hot place due to temperature characteristics of magnetic and electronics parts.



4) Intermediate position detection
When activating the switch halfway of the stroke, the relay may not respond if the piston speed is too fast. the speed of less than 500mm/s in
(Example) Operate cylinder with case the relay actuation time is 20ms.





5) Impact
Do not apply a large vibration or impact to the product when transporting the cylinder, or mounting or adjusting the switch.

6) Magnetizable material such as iron plate near by cylinder switch is apt to cause malfunction of cylinder switches. Keep it from cylinder surface at least10mm away (This is applicable for all bore sizes of tube).

7) It usually causes malfunction cylinder switches when plural cylinders are laid adjoining. Keep a space between each other as illustrated to right (This is applicable for all bore sizes of tube).

8) Changing switch lead wire colors
The colors of the switch lead wires have been changed, as shown in the following table, in response to the revision of the JIS standard and the subsequent revision of the NECA (Nippon Electric Controllers Association) standard.

		Before change	After change
M, S, R, A, T, K, V, H Series	2-wire type	White (+)	Brown (+)
		Black (-)	Blue (-)
	3-wire type	Red (+)	Brown (+)
		White (output)	Black (output)
		Black (-)	Blue (-)
T, K Series (Equipped with preventive maintenance output)	3-wire type	White (+)	Brown (+)
		Yellow (preventive maintenance output)	Orange (preventive maintenance output)
		Black (-)	Blue (-)
	4-wire type	Red (+)	Brown (+)
		White (regular output)	Black (regular output)
		Yellow (preventive maintenance output)	Orange (preventive maintenance output)
		Black (-)	Blue (-)

3.2.2 Operational Cautions, Solid state switch (T1, T2, T3)

1) Connection of lead cord

Comply with the color coding specified on the illustrations. Be sure to turn the power off before starting connecting work.

An erroneous wiring or short circuiting of load causes damage to not only switches, but also load side circuit. Wiring work without shutting electricity off may cause damage to the load side circuit

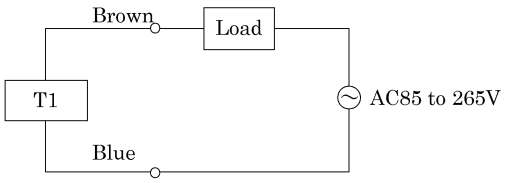


Fig.1 Fundamental circuit Example of T1

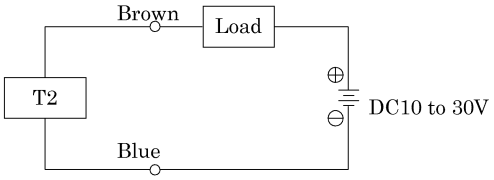


Fig.2 Fundamental circuit Example of T2

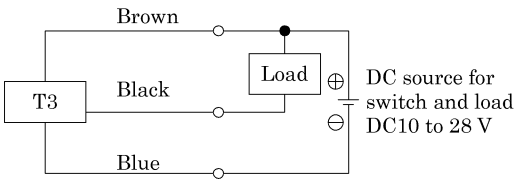


Fig.3 Fundamental circuit Example (1)
(In case the same source of power is used.)

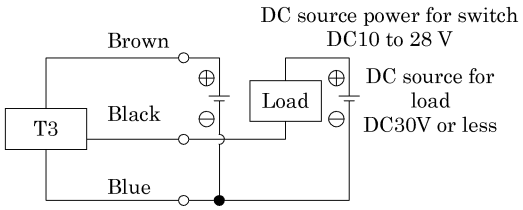


Fig.4 Fundamental circuit Example (2)
(In case individual sources of power are

2) Protection of output circuit

Install some protective circuit as illustrated in Fig. 5 or 6 when inducing type load (Relay or solenoid valve) are to be used because those types apt to generate surge current switch off.

Install some protective circuit as illustrated in Fig. 7 when capacitor type load (Capacitor type) are to be used, because these types apt to generate a dash current when turning the switch ON.

Install some protective circuit as illustrated in Fig. 8 or 9 (in case of model T2) and Fig 10 (in case of model T3).

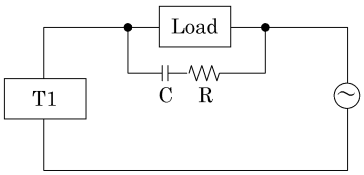


Fig. 5 An example of protective circuit at CR circuit
Capacitor volume: 0.03 to 0.1Mf
Resister: 1 to 3kΩ

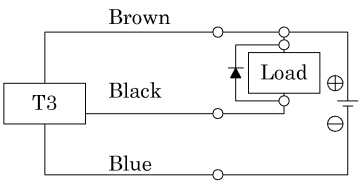
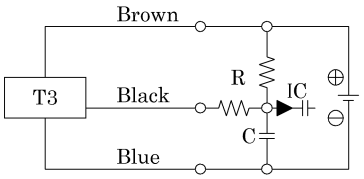


Fig.6 An example of using inducing load together with surge absorptive element (diode). (Hitachi Mfg. made diode V06C or equivalent is recommended.)



Flg.7 An example of using capacitor type load together with current regulating resister R.
Comply with the following formula to figure out required R.

$$\frac{V}{0.05} = R(\Omega)$$

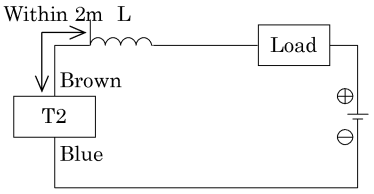


Fig.8 ・Choke coil
L= a couple hundred μH to a couple mH surpassing high frequency characteristic
・Install it near by a switch (within 2m).

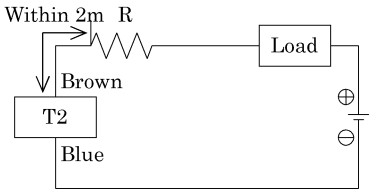


Fig.9 ・Dash current restriction resister.
R= As much large resister as the load circuit can afford.
・Install it near by a switch (within 2m).

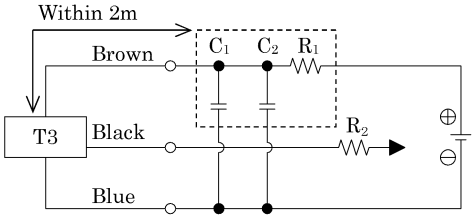


Fig10 ・Electric power noise absorptive circuit.
C_1=20 to 50 μF electrolytic capacitor
(Withstand voltage 50V or more)
C_2=0.01 to 0.1 μF ceramic capacitor
R_1=20 to 30 Ω
・Dash current restriction resister.
R_2=As much large resister as the load circuit can afford.
・Install it nearby the switch (Within 2m)

3) Connection to a programmable controller (Sequencer).
Type of connection varies depending upon the model of the programmable controller. Refer to the following Fig. 11 to 15 respectively.

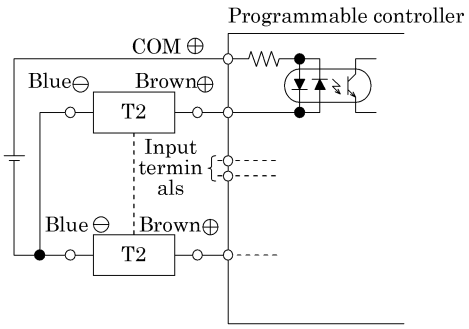


Fig.11 An example of T2 connection to source input type (an external power source)

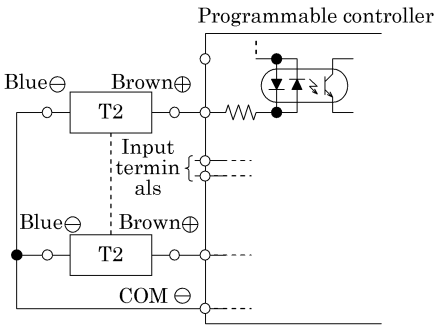


Fig.12 An example of T2 connection to source input type (an internal power source)

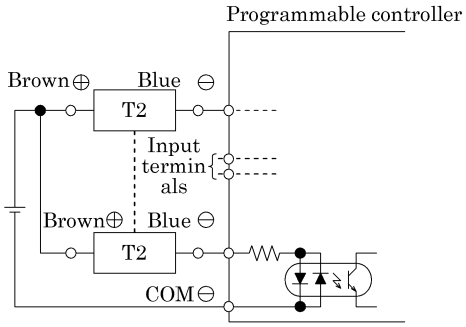


Fig.13 An example of T2 connection to source input type

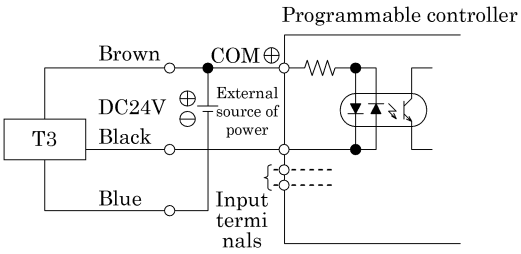


Fig.14 An example of T3 connection to source input type (an internal power source)

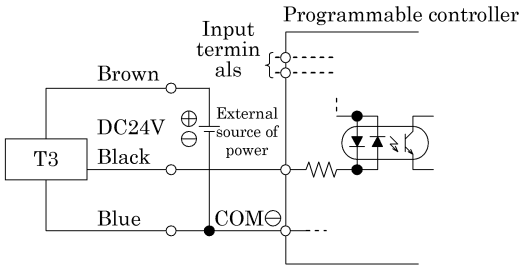


Fig.15 An example of T3 connection to source input type (an internal power source)

4) Series connection

The total voltage will decrease when the T2 switches connections have a leak. Therefore, confirm the input specifications for the programmable controllers, which are the connecting load. However, dimming or total failure of the indicator light may exist. T3 switches hardly ever leak. When less than 10 μ A, then leakage may occur. Usually dimming and failure of the indicator light do not occur.

3.2.3 Reed switch (T0, T5, T8)

1) Lead wire connections
Do not connect the lead wires of the switch to the power supply directly. Always connect the loads in series. For T0 switch, carefully check following items (1), (2).

(1) When using the switch for DC power supply, connect the brown and blue lines to the positive and negative sides, respectively. If these lines are connected reversely, the switch is activated, but the indicator light is not lit.

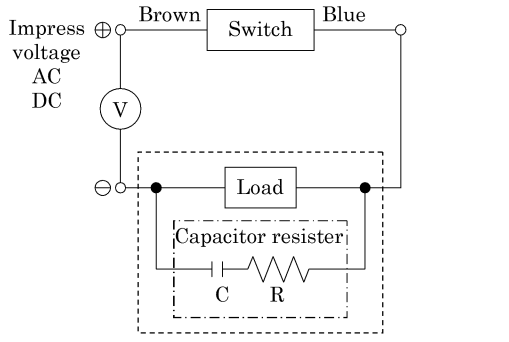
(2) When the switch is connected to an AC relay or a programmable controller input, the indicator light on the switch is not lit if the half-wave rectification is performed in the connected circuit. If this occurs, reverse the polarities of the switch lead wire connection. The indicator light may then be lit.
Note that the R4 and R5 switches have no polarities.

2) Contact protective measures
When an inductive load, such as relay is used or the wire length exceeds that stated in Table 1, always install a contact protective circuit.

Table 1

Electric power	Length of wire
DC	100m
AC	10m

(1) Protective circuit when connecting an inductive type load.

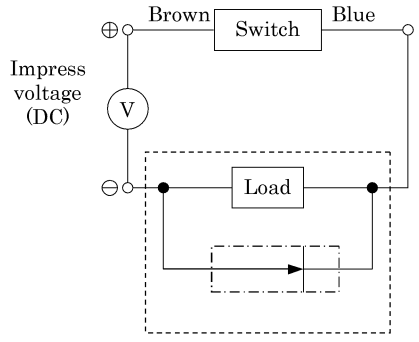


User circuit

Protect circuit (Spark absorbing circuit)

Recommended value
C (Capacitor) 0.033 to 0.1 μ F
R (Resister)1 to 3kΩ
XEB1K1 Okaya Denki Mfg or equivalent

Fig.1 When capacitor resister is used.



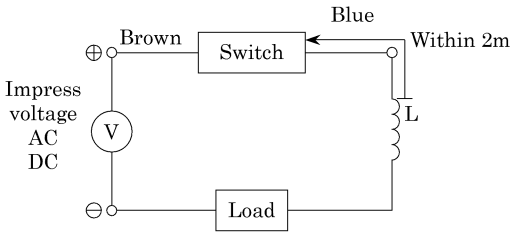
User circuit

Protect circuit

Rectifying diode, general use
Hitachi Mfg. product V06C or equivalent

Fig.2 When diode is used.

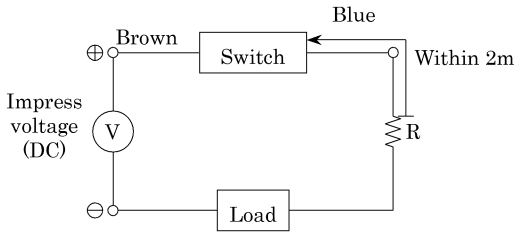
(2) Protective circuit when the wire length exceeds that stated Table 1



・ Choke coil
L=a couple hundred μH to a couple mH
surpassing high frequency characteristic

・ Install it near by a switch (within 2m).

Fig.3



・ Dash current restriction resister
R=As much large resister as the load
circuit can afford.

・ Install it near by a switch (within 2m).

Fig.4

3) Contact capacity
Do not use a load exceeding the maximum contact capacity of the switch. Additionally, if the current is lower than the rated current value, the indicator light may not be lit.

4) Relay
Always use the relays listed below.
Omron Corporation ····· MY type
Fuji Electric Co., Ltd. ····· HH5 type
Panasonic, Ltd. ····· HC type

5) Serial connection
Total voltage loss, when connected T0 or T8 switches in series, equals to the sum of respective voltage loss of each switch.
The total voltage loss becomes equivalent to one T0 (approx. 2.4V) when connecting the combination of one T0 for actuation confirming and rest of T5 switches. Indicator light is lit only when all switches turn on.

6) Parallel connection
There is no restriction in parallel connection number of switches of these types. Multi number connection of model T0 and T8, sometimes, cause a dimmed indicator light or complete indicator light failure.

4. MAINTENANCE

4.1 Periodical Inspection

1) In order to upkeep the cylinder in optimum condition, carry out periodic inspection once or twice a year.

2) Inspection items
   (1) Check the bolts and nuts fitting the piston rod end brackets and mounting brackets for slackening.
   (2) Check to see that the cylinder operates smoothly.
   (3) Check any change of the piston speed and cycle time.
   (4) Check for internal and/or external leakage.
   (5) Check the piston rod for flaw (scratch) and deformation.
   (6) Check the stroke for abnormality.

   See “Trouble shooting”, 5 should there be any trouble found, also carry out additional tightening if bolts, nuts, etc. are slackened.

4.2 Disassembly

1) This cylinder is able to be disassembled.
   Replace component parts listed in Expendable parts List by disassembling cylinder referring to internal structure diagram when air leakage is ever occurred.

2) Remove piston rod and rod metal after removing C shape snap ring for the purpose of disassembly.

4.3 Assembly

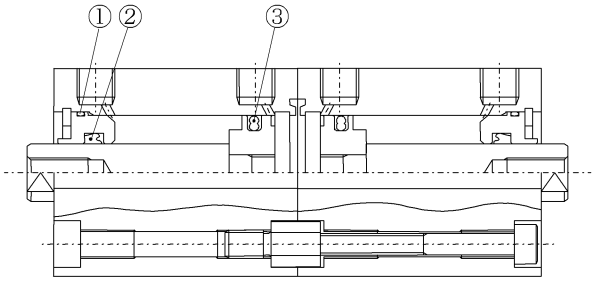
1) Clean each component parts.

2) Take reversed sequence of disassembly to assemble cylinder after cleaning parts. Carefully avoid giving damage to packings to prevent malfunction or air leakage.

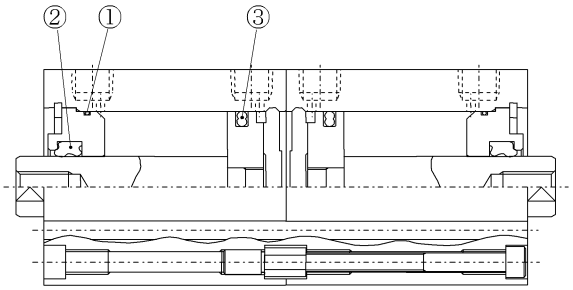
3) Apply a film of high grade grease (Lithium alkali base) over the inner surface of cylinder tube, outer surface of piston and packings.

4.4 Internal structure drawings and Expendable parts list

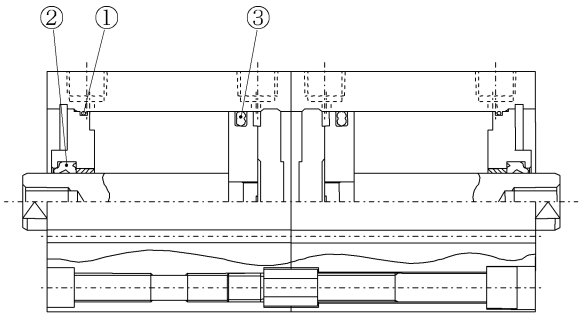
・SSD-B-12 to 25
(Double acting, back to back type)



・SSD-B-32 to 50
(Double acting, back to back type)



・SSD-B-63 to 100
(Double acting, back to back type)

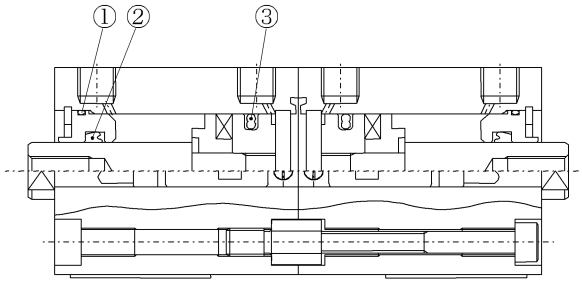


Expendable parts list (Specify the kit No. on your purchase order.)

Parts No / Parts name / Bore size (mm) / Kit No.	①	②	③
	Rod metal gasket	Rod packing	Piston packing
12	SSD-B-12K	F3-657972	MYR-6	PSD-12
16	SSD-B-16K	F3-657973	MYR-8	PSD-16
20	SSD-B-20K	F3-657968	MYR-10	PSD-20
25	SSD-B-25K	F3-657969	MYR-12	PSD-25
32	SSD-B-32K	F3-657975	MYR-16	PSD-32
40	SSD-B-40K	F3-657976	DRP-16	PSD-40
50	SSD-B-50K	F3-657977	DRP-20	PSD-50
63	SSD-B-63K	AS568-035	DRP-20	PSD-63
80	SSD-B-80K	AS568-041	DRP-25	PSD-80
100	SSD-B-100K	AS568-044	DRP-30	PSD-100

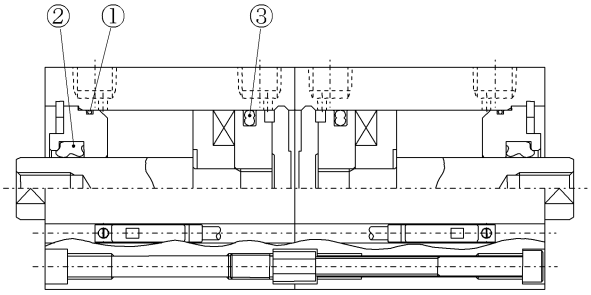
・SSD-BL-12 to 25

(Double acting, back to back type with switch)



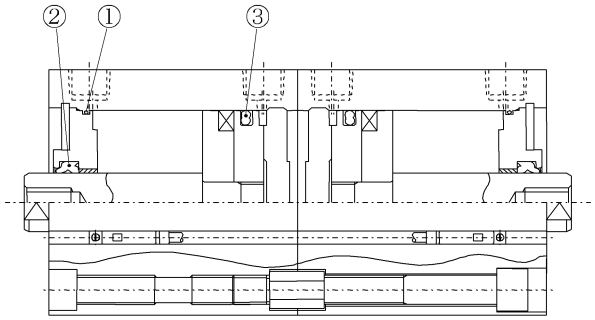
・SSD-BL-32to 50

(Double acting, back to back type with switch)



・SSD-BL-63 to 100

(Double acting back to back type with switch)



Expendable parts list (Specify the kit No. on your purchase order.)

Parts No. / Parts name / Bore size (mm) / Kit No.		①	②	③
		Rod metal gasket	Rod packing	Piston packing
12	SSD-B-12K	F3-657972	MYR-6	PSD-12
16	SSD-B-16K	F3-657973	MYR-8	PSD-16
20	SSD-B-20K	F3-657968	MYR-10	PSD-20
25	SSD-B-25K	F3-657969	MYR-12	PSD-25
32	SSD-B-32K	F3-657975	MYR-16	PSD-32
40	SSD-B-40K	F3-657976	DRP-16	PSD-40
50	SSD-B-50K	F3-657977	DRP-20	PSD-50
63	SSD-B-63K	AS568-035	DRP-20	PSD-63
80	SSD-B-80K	AS568-041	DRP-25	PSD-80
100	SSD-B-100K	AS568-044	DRP-30	PSD-100

5. TROUBLE SHOOTING

1) Cylinder

Trouble	Causes	Remedies
Does not operate.	No pressure or inadequate pressure.	Provide an adequate pressure source.
	Signal is not transmitted to direction control valve.	Correct the control circuit.
	Improper or misalignment of installation.	Correct the installation state and/or change the mounting style.
	Broken piston packing	Replace the piston packing.
Does not function smoothly.	Speed is below the low speed limit	Limit the load variation.
	Improper or misalignment of installation.	Correct the installation state and/or change the mounting style.
	Exertion of transverse (lateral) load.	Install a guide. Revise the installation state and/or change the mounting style.
	Excessive load.	Increase the pressure itself and/or the inner diameter of the tube.
	Speed control valve is built in the way of “Meter in” circuit.	Change the meter-out circuit of the speed control valve.
Breakage and / or deformation	Impact force due to high speed operation	Turn the speed down. Reduce the load and/or install a mechanism with more secured cushion effect (e.g.external cushion mechanism).
	Exertion of transverse load.	Install a guide. Reverse the installation state and/or change the mounting style.

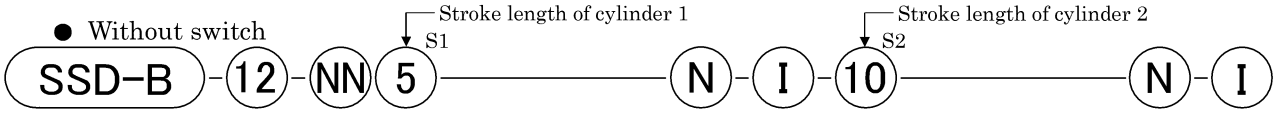
2) Switch

Troubles	Causes	Remedies
Indicator light is not lit.	Deposited contact point	Replace the switch.
	Excessive load than rated capacity	Replace the relay with a recommended one or replace the switch.
	Damaged indicator light	Replace the switch.
	Inadequate incoming signal	Review the external signal circuit and remove the causes.
Switch does not function right.	Broken circuit	Replace the switch.
	Inadequate incoming signal	Review the external signal circuit and remove the causes.
	Improper voltage	Correct voltage to specified.
	Incorrect location of switch	Correct its location.
	Aberrant position of switch	Set it back to original position and tighten the mounting device.
	Incorrect direction of switch mounting	Correct the direction of the switch mounting.
	Relay is unable to respond properly	Turn the speed down. Replace the relay with a recommended one.
	Excessive load than rated capacity	Replace the relay with a recommended one or replace the switch.
Switch does not return.	Piston is not moving	Make the piston move.
	Deposited contact point	Replace the switch
	Excessive load (relay) than rated capacity	Replace the relay with a recommended one or replace the switch.
	The ambient temperature is out of the specification range	Adjust the ambient temperature within the range of -10 to 60℃
	Existence of a foreign magnetic field	Shield the magnetic field.
	Inadequate incoming signal	Review the external signal circuit and remove the causes.

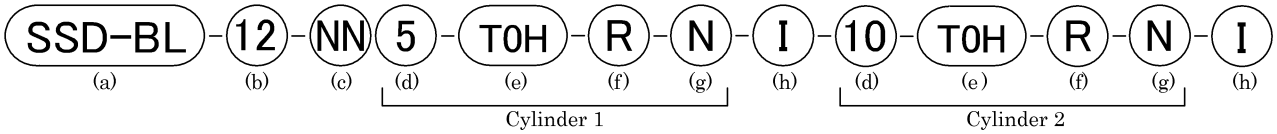
6. HOW TO ORDER

6.1 Product Number Coding

● Without switch



● With switch



(a) Model		(b) Bore size (mm)		(c) Pipe thread type	
SSD-B	Double acting / back to back type	12	12 dia.	Blank	Rc
SSD-BL	Double acting / back to back type / With switch	16	16 dia.	NN	NPT (over 32 dia.) (custom order)
		20	20 dia.	GN	G (over 32 dia.) (custom order)
SSD-BL1	12, 16 dia. 2 color indicator, T1, T8 preventive maintenance switch	25	25 dia.		
		32	32 dia.		
		40	40 dia.		
		50	50 dia.		
		63	63 dia.		
		80	80 dia.		
		100	100 dia.		

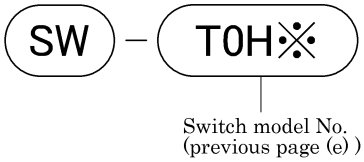
(d) Stroke length (mm)			(e) Switch model No.					(f) Switch quantity	
12 to 20	25 to 50	63 to 100	Axial lead wire	Radial lead wire	Switch type	Indicator light	Lead wire	R	One on rod end
5	5	5						H	One on head end
10	10	10	T0H※	T0V※	Reed	1 color indicator	2 wire	D	Two
15	15	20	T5H※	T5V※					
20	20	30	T8H※	T8V※					
25	25	40	T2H※	T2V※	Solid state	1 color indicator	3 wire		
30	30	50	T3H※	T3V※					
	40		T1H※	T1V※					
	50		T2YH※	T2YV※		2 color indicator	2 wire		
			T3YH※	T3YV※			3 wire		
			T2JH※	T2JV※		Off delay type	2 wire		
			T2YD※	—		Switch for strong magnetic field			
			T2YDT※	—					

※Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

(g) Option		(h) Accessory	
N	Rod end male thread	I	Rod eye
M	Piston rod material (stainless steel)	Y	Rod clevis

When rod end male (N) is selected, it is possible to select it.

6.2 Component parts Model coding



7. SPECIFICATION

7.1 Product Specifications

Model / Item		SSD-B SSD-BL (with switch)				
Bore size	mm	12	16	20	25	32
Actuation		Double acting / back to back type				
Working fluid		Compressed Air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.1				
Proof pressure	MPa	1.6				
Ambient temperature	℃	-10 to 60 (No freezing)				
Port size		M5				Rc1/8
Stroke tolerance	mm	$S_1=^{+1.0}_{0}$			$S_2=^{+1.0}_{0}$	
Working piston speed	mm/s	50 to 500				
Cushion		None				
Lubrication		Not required (When lubrication, use Turbine oil ISO VG32.)				
Option		Rod end male thread (N)				
Allowable energy absorption	J	0.004	0.01	0.016	0.021	0.025

Model / Item		SSD-B SSD-BL (with switch)				
Bore size	mm	40	50	63	80	100
Actuation		Double acting / back to back type				
Working fluid		Compressed Air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.1		0.05		
Proof pressure	MPa	1.6				
Ambient temperature	℃	-10 to 60 (No freezing)				
Port size		Rc1/8	Rc1/4		Rc3/8	
Stroke tolerance	mm	$S_1=^{+1.0}_{0}$			$S_2=^{+1.0}_{0}$	
Working piston speed	mm/s	50 to 500		50 to 300		
Cushion		None				
Lubrication		Not required (When lubrication, use Turbine oil ISO VG32.)				
Option		Rod end male thread (N)				
Allowable energy absorption	J	0.092	0.1	0.12	0.27	0.56

7
SPECIFICATION

7.2 Switches Specifications

Descriptions	Reed 2 wire						
	T0H, T0V		T5H, T5V		T8H, T8V		
Applications	Programmable controller, relay		Programmable controller, relay, IC circuit (without indicator light), serial connection		Programmable controller, relay		
Power supply voltage	—						
Load Voltage	DC12/24V	AC110V	DC5/12/24V	AC110V	DC12/24V	AC110V	AC220V
Load Current	5 to 50mA	7 to 20mA	50mA or less	20mA or less	5 to 50mA	7 to 20mA	7 to 10mA
Current consumption	—						
Internal voltage drop	3V or less		0V		3V or less		
Indicator light	LED (ON lighting)		Without indicator light		LED (ON lighting)		
Leakage current	0mA						
Lead wire length (Note1)	1m(oil resistant vinyl cabtire code 2 conductor 0.2mm^2)				1m(oil resistant vinyl cabtire code 2 conductor 0.3mm^2)		
Shock resistance	294m/s^2						
Insulation resistance	20MΩ over at DC500V megger				100MΩ over at DC500V megger		
Withstand voltage	No failure at AC1000V impressed for one minute				No failure at AC1500V impressed for one minute		
Ambient temperature	-10 to 60℃						
Degree of protection	IEC standards IP67, JIS C0920 (water tight type), oil resistance						

Descriptions	Solid state 2 wire			
	T2H, T2V	T2JH, T2JV	T2YH, T2YV	T1H, T1V
Applications	Programmable controller			Programmable controller, relay, compact solenoid valve
Power supply voltage	—			
Load Voltage	DC10 to 30V			AC85 to 265V
Load Current	5 to 20mA (Note 2)			5 to 100mA
Current consumption	—			
Internal voltage drop	4V or less			7V or less
Delay hour off	—	200±50ms	—	
Indicator light	LED (ON lighting)		Red / green LED (ON lighting)	LED (ON lighting)
Leakage current	1 mA or less			1mA or less at AC100V 2mA or less at AC200V
Lead wire length (Note1)	1m(oil resistant cabtire code 2 conductor 0.2mm^2)	1m (oil resistant cabtire code 2 conductor 0.3mm^2)	1m (oil resistant vinyl cabtire code 2 conductor 0.3mm^2)	
Shock resistance	980m/s^2			
Insulation resistance	20MΩ over at DC500V megger	100MΩ over at DC500V megger		
Withstand voltage	No failure at AC1000V impressed for one minute			No failure at AC1500V impressed for one minute
Ambient temperature	-10 to 60℃			
Degree of protection	IEC standards IP67, JIS C0920 (water tight type), oil resistance			

Descriptions	Solid state 3 wire	
	T3H, T3V	T3YH, T3YV
Applications	Programmable controller, relay	
Power supply voltage	DC10 to 28V	
Load Voltage	DC30V or less	
Load Current	100 mA or less	50mA or less
Current consumption	10mA or less at DC24V	
Internal voltage drop	0.5V or less	
Indicator light	LED (ON lighting)	Red / green LED (ON lighting)
Leakage current	10 μA or less	
Lead wire length (Note1)	1m (oil resistant vinyl cabtire code 3 conductor 0.2mm²)	
Shock resistance	980m/s²	
Insulation resistance	20MΩover at DC500V megger	100MΩ over at DC500V megger
Withstand voltage	No failure at AC1000V impressed for one minute	
Ambient temperature	-10 to 60℃	
Degree of protection	IEC standards IP67, JIS C0920 (water tight type), oil resistance	

Note 1： 3m or 5m long lead wire is optionally available.

Note 2： Maximum value, 20mA is at 25℃ of ambient temperature. Load current decreases less than 20mA when the ambient temperature exceeds 25℃. (5 to 10mA at 60℃)