

3 Port Solenoid Valve with Spool Position Detection SNP Series

New Product

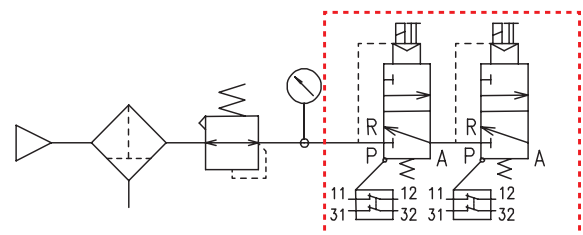


Reliable detection of open and close status by spool position detecting.
Two safety cut off by modular connection!

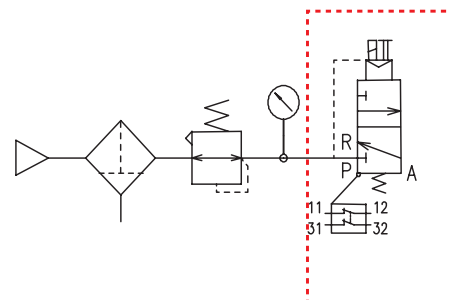
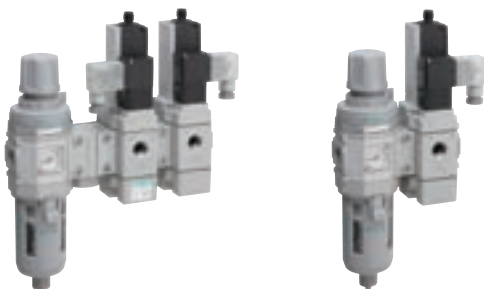
Main features

- ◆ This product can be used as solenoid type shut off valve for pneumatic system.
- ◆ Signal output of open and shut status of valve by detecting main valve spool with using safety limit switch.
- ◆ Two safety cut off circuit is available by modular connection with 2 stations.
- ◆ Unitization with FRL unit is possible by modular connection. Reduction of piping space !

Examples of system circuits



Examples of unit configuration



 Refer to "Safety Precautions" on the rear side before use.

Specifications

Model	SNP		
Port size	Rc3/8	Rc1/2	Rc3/4
Actuation	NC (normally closed) type		
Fluid pressure supply port	P port		
Working fluid	Compressed air		
Withstanding pressure MPa	1.05		
Working pressure range MPa	0.2 to 0.7		
Fluid temperature °C	5 to 60		
Ambient temperature °C	-5 to 60		
Weight kg	0.8 (1.7) *1	1.8 (3.7) *1	
Orifice mm	14.8 equivalent	25.4 equivalent	
Valve seat leakage	1 or less (pneumatic 0.2 to 0.7MPa)		
Valve structure	Internal pilot operated poppet valve structure		
Mounting attitude	Free		

*1: Values in parentheses refer to mass when modular connection is used.

Electric specifications	
Rated voltage (*2)	100VAC (50/60Hz)/ 110VAC (60Hz), 200VAC (50/60Hz)/220VAC (60Hz), 24VDC
Apparent power (VA)	Holding 3.6 (50Hz), 2.8 (60Hz)
	Starting 11 (50Hz), 9 (60Hz)
Power consumption (W)	AC 1.9 (50Hz), 1.5 (60Hz)
	DC 2.0
Heat resistance class	B
Protective structure (IEC standards 529)	DIN terminal box (Pg9)
	DIN terminal box (M12-4P connector)
	IPX5

*2: Allowable voltage range should be within $\pm 10\%$ of rated voltage.

*3: Contact CKD regarding reliability data (B10).

Limit switch specification

Limit switch specification	D4N-1B31	D4N-9B31
Manufacturer's model no.	D4N-1B31	D4N-9B31
Terminal	Pg13.5	M12-4Pconnector
Contact resistance	25mΩ or more	
Min. applicable load	5VDC 1mA resistance load	
Rated insulation voltage V	300	
Insulation resistance MΩ	100	
Appliance classes	Class II	
Degree of pollution(working environment)	3 (EN60947-5-1)	
Limited short circuit current A	100	

※Refer to the manufacturer's catalog for details.

Flow characteristics

Model no.		P→A		A→R	
		C [dm ³ /(s·bar)]	S (mm ²)	C [dm ³ /(s·bar)]	S (mm ²)
Discrete valve	SNP-10A	13	64	14	70
	SNP-15A	15	76	16	80
	SNP-20A	34	170	36	180
2 stations	SNP-10A	10	50	14	70
	SNP-15A	12	59	16	80
	SNP-20A	26	130	36	180

How to order

SNP - 1R - 15A - 0 2HS L B3 S1 - 1

a Station no.

b Port size

c Sealant

d Coil option

e Limit switch

f Bracket
Note1, Note2

g Silencer

h Voltage



Note on model no. selection

- Note 1: Bracket can be selected if station **a** is "2".
 Note 2: Bracket option "B8" is only available for 20A.
 Note 3: Silencer is attached to the product.
 Note 4: G thread and NPT thread are custom order.

<Example of model number>

SNP-1R-15A-02HSLB3S1-1

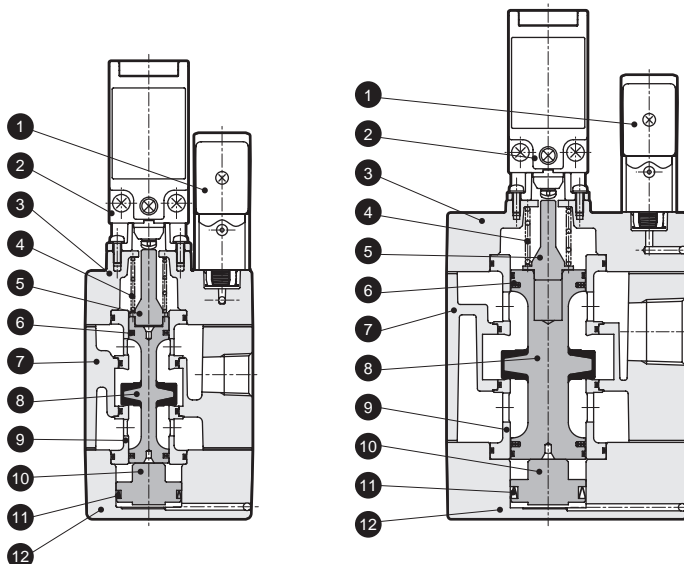
- a Station no. : Single unit (terminal box facing right)
- b Port size : Rc1/2
- c Sealant : NBR
- d Coil option : DIN terminal box with light, surge suppressor
- e Limit switch : Pg13.5
- f Bracket : With bracket
- g Silencer : Sintering metal
- h Voltage : 100VAC 50Hz/60Hz

Symbol	Description					
a Station no.						
1R	Single unit (terminal box facing right)					
1L	Single unit (terminal box facing left)					
2	2 stations (2 station module)					
b Port size Note 4						
10A	Rc 3/8	10G	G 3/8	10N	NPT 3/8	
15A	Rc 1/2	15G	G 1/2	15N	NPT 1/2	
20A	Rc 3/4	20G	G 3/4	20N	NPT 3/4	
c Sealant						
0	NBR					
d Coil option						
2G	DIN terminal box					
2HS	DIN terminal box with light and surge suppressor					
2J	DIN terminal box (M12-4P connector)					
2KS	DIN terminal box with light and surge suppressor (M12-4P connector)					
e Limit switch						
L	Pg13.5 (D4N-1B31 : OMRON)					
M	M12-4P Connector (D4N-9B31 : OMRON)					
f Bracket Note 1						
Blank	No options					
B3	With bracket (2000Series, 3000Series)					
B4	With bracket (4000Series)					
B8	With bracket (8000Series)					
g Silencer						
Blank	No options					
S1	Sintering metal					
S2	Resin					
h Voltage						
1	100VAC 50Hz/60Hz/110VAC 60Hz					
2	200VAC 50Hz/60Hz/220VAC 60Hz					
3	24VDC					

Internal structure and parts list

● SNP-1*-10A/15A

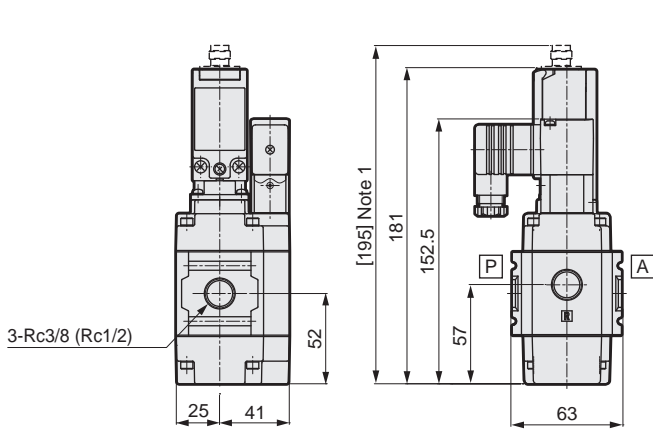
● SNP-1*-20A



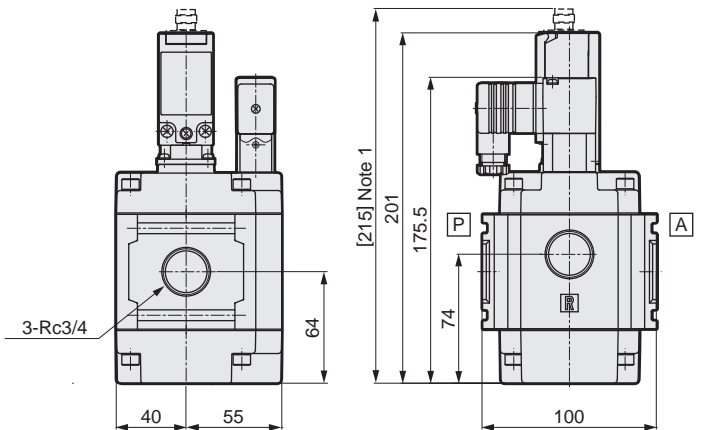
No.	Part name	Material	
1	Pilot solenoid valve	-	
2	Limit switch	-	
3	Stuffing	ADC12	Aluminum die-casting
4	Spring	SWP	Piano wire
5	Indicator	A2017	Aluminum
6	PSD Packing	NBR	Nitrile rubber
7	Body	ADC12	Aluminum die-casting
8	Valve stem	NBR, A2017	Nitrile rubber, Aluminum
9	Valve seat	A5056	Aluminum
10	Piston	A2017	Aluminum
11	MY Packing	NBR	Nitrile rubber
12	Cap	ADC12	Aluminum die-casting

Dimensions

● SNP-1L-10A/15A (Discrete component)



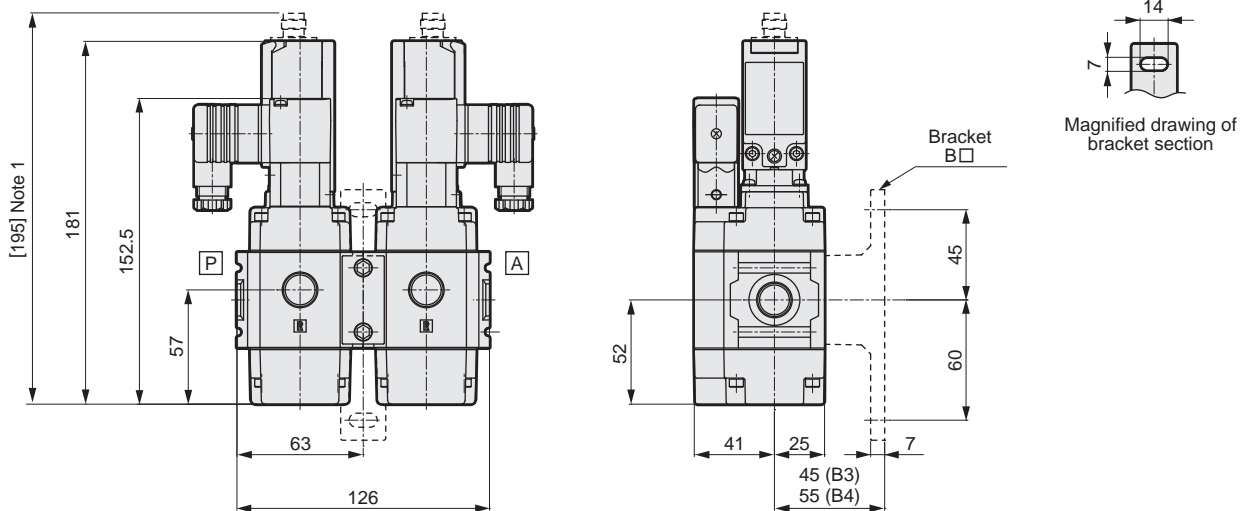
● SNP-1L-20A (Discrete component)



Note 1: Dimensions in parentheses refer to dimensions when M12-4P connector (M) is selected.

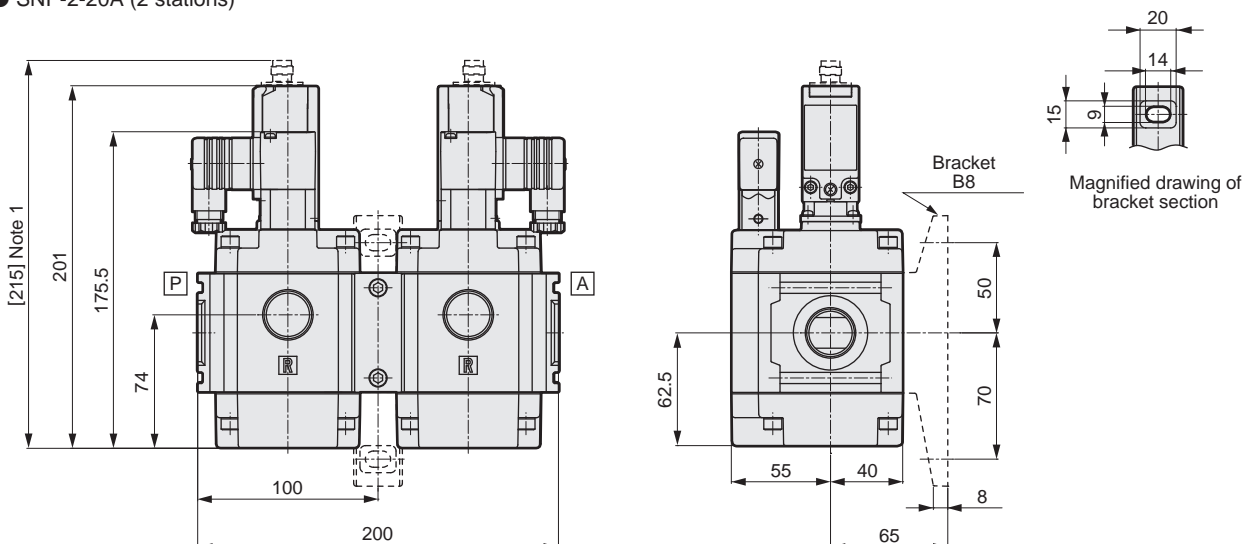
Note 2: For 1R, the terminal box and limit switch wiring section will face right.

● SNP-2-10A/15A (2 stations)



Note 1: Dimension in parentheses refers to dimension when M12-4P connector (M) is selected.

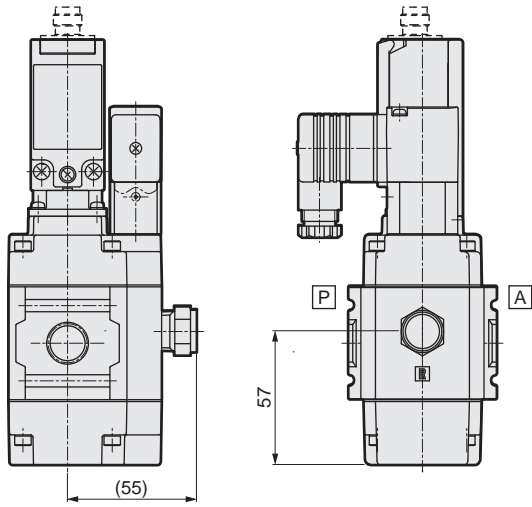
● SNP-2-20A (2 stations)



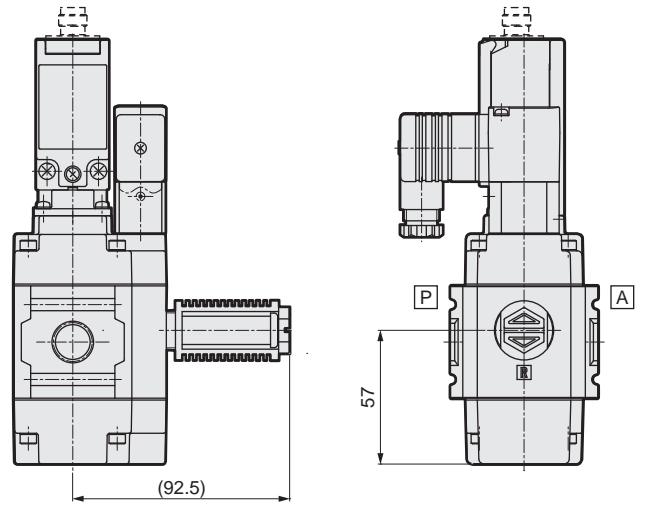
Optional Dimensions with silencer

* Silencer is attached to the product.

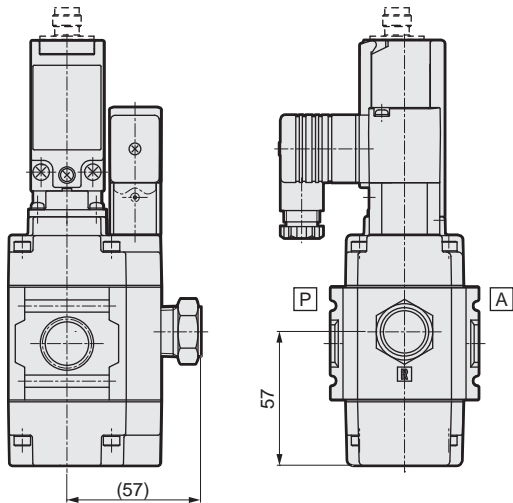
● SNP-1L-10A-*S1



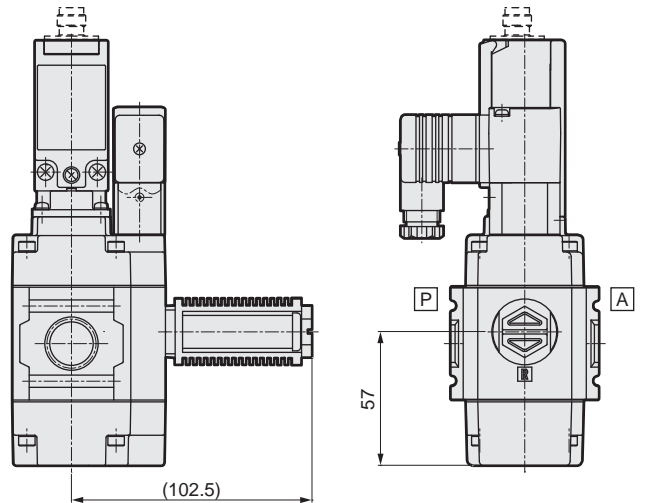
● SNP-1L-10A-*S2



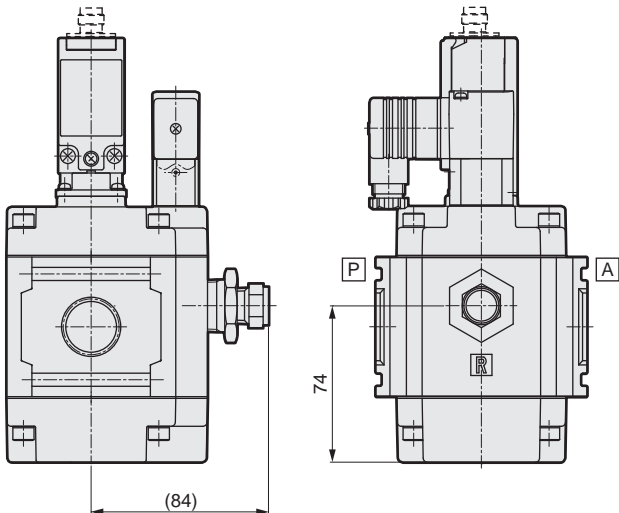
● SNP-1L-15A-*S1



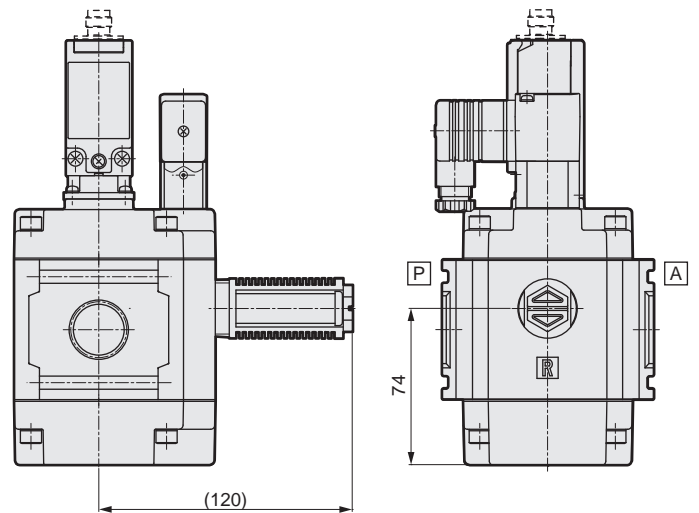
● SNP-1L-15A-*S2



● SNP-1L-20A-*S1



● SNP-1L-20A-*S2





Safety precautions

Always read this section before starting use.


When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.


It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely. Observe warnings and precautions to ensure device safety.


Check that device safety is ensured, and manufacture a safe device.

WARNING

- 1** This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience in handling.
- 2** Use this product in accordance of specifications.
This product must be used within its stated specifications. It must not be modified or machined. This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.
(Note that this product can be used when CKD is consulted prior to use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks in the event of problems.)
 - ① Use for special applications including nuclear energy, railway, aircraft, marine vessel, vehicle, medicinal devices, devices or applications coming into contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
 - ② Use for applications where life or assets could be adversely affected, and special safety measures are required.
- 3** Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.
ISO4414, JIS B 8370 (pneumatic system rules)
JFPS2008 (principles for pneumatic cylinder selection and use)
Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.
- 4** Do not handle, pipe, or remove devices before confirming safety.
 - ① Inspect and service the machine and devices after confirming safety of the entire system related to this product.
 - ② Note that there may be hot or charged sections even after operation is stopped.
 - ③ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
 - ④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.
- 5** Observe warnings and cautions on the pages below to prevent accidents.
■ The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

 **DANGER:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.

 **WARNING:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

 **CAUTION:** When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation. In any case, important information that must be observed is explained.

Limited Warranty and Disclaimer

- 1** "Warranty Period" is one (1) year from the first delivery to the customer.
- 2** In case any defect attributable to CKD is found during Warranty Period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, according to its own judgment. In no event CKD shall never be liable for the costs in relation to and the damages resulting from the (de) installation of the product.
This Limited Warranty will not apply to:
 - (1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications.
 - (2) Failure due to other causes.
 - (3) Use other than original design purposes.
 - (4) Third-party repair/modification.
 - (5) Failure due to causes not foreseeable with technology at the time of delivery.
 - (6) Failure attributable to force majeure.
- 3** IN NO EVENT SHALL CKD BE LIABLE FOR BUSINESS INTERRUPTIONS, LOSS OF PROFITS, PERSONAL INJURY, COSTS OF DELAY OR FOR ANY OTHER SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL LOSSES, COSTS OR DAMAGES.
- 4** IN NO EVENT SHALL CKD BE LIABLE FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, notwithstanding any disclosure to CKD of the use to which the product is to be put.

Safety precautions

Always read this section before starting use.
Refer also to the precautions of "General Purpose Valves" (No. CB-03-1SA).

WARNING

Design and selection

Working environment

- (1) SNP Series cannot be used in an explosive gas atmosphere.
- (2) If there are high levels of dust in the area, provide protection by installing a silencer or an elbow connector facing downward onto the exhaust port so that dust does not enter.

CAUTION

Design & selection

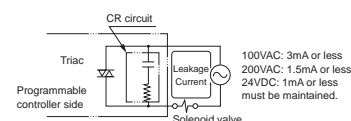
Ultra dry air

Valve's internal area is initially lubricated with grease.

This valve may not be appropriate if extra dry air quality is required at the end of the circuit.

Leakage current from other control machinery

When using a programmable logic controller (PLC) to operate the solenoid valve, please ensure that the leakage current from the output of the PLC is within the range specified below. It may cause faulty operation.



Minimum working pressure

A pressure of 0.2 MPa or more is required to operate SNP series. If the piping section at the fluid supply port is decreased, operation may become unstable due to a drop in pressure when the valve is in operation. If the cross section of the fluid inlet pipe is too narrow, then operation may become unstable due to a lack of flow.

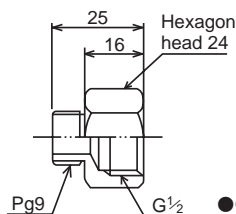
Installation & Adjustment

Piping

Do not conduct piping using the solenoid valve or limit switch section. It may result in damage.

Wiring

- (1) Refer to "General Purpose Valves (No. CB-03-1SA)" for DIN terminal box connection method.
- (2) The size of the screw for the DIN terminal box's junction box outlets can be changed from Pg9 to G1/2 using the optional connector shown in the diagram on the below.



● Order model no.: CVS2-CONNECTOR-F4-202936

- (3) Coil orientation is changed by 180°.

Turn the coil only when reversing the electric wire connection method. The valve will not operate if the pilot solenoid valve's body is moved.

- (4) When using a connector for the limit switch, use a connector with a screw section length of 9mm or less.

Recommended connector: ST-13.5 5301-5030 (LAPP)

Recommended packing seal: JPK-16, GP-13.5 or GPM20

During use and maintenance

Transport circuit

When using the vacuum absorption (suction) pad for the transfer circuit, install a filter between the suction pad and valve so that foreign matter does not enter the valve.

It may cause leakage.

Leaving under elevated pressure

If the valve is left under elevated pressure for more than three days, the starting response could be delayed.

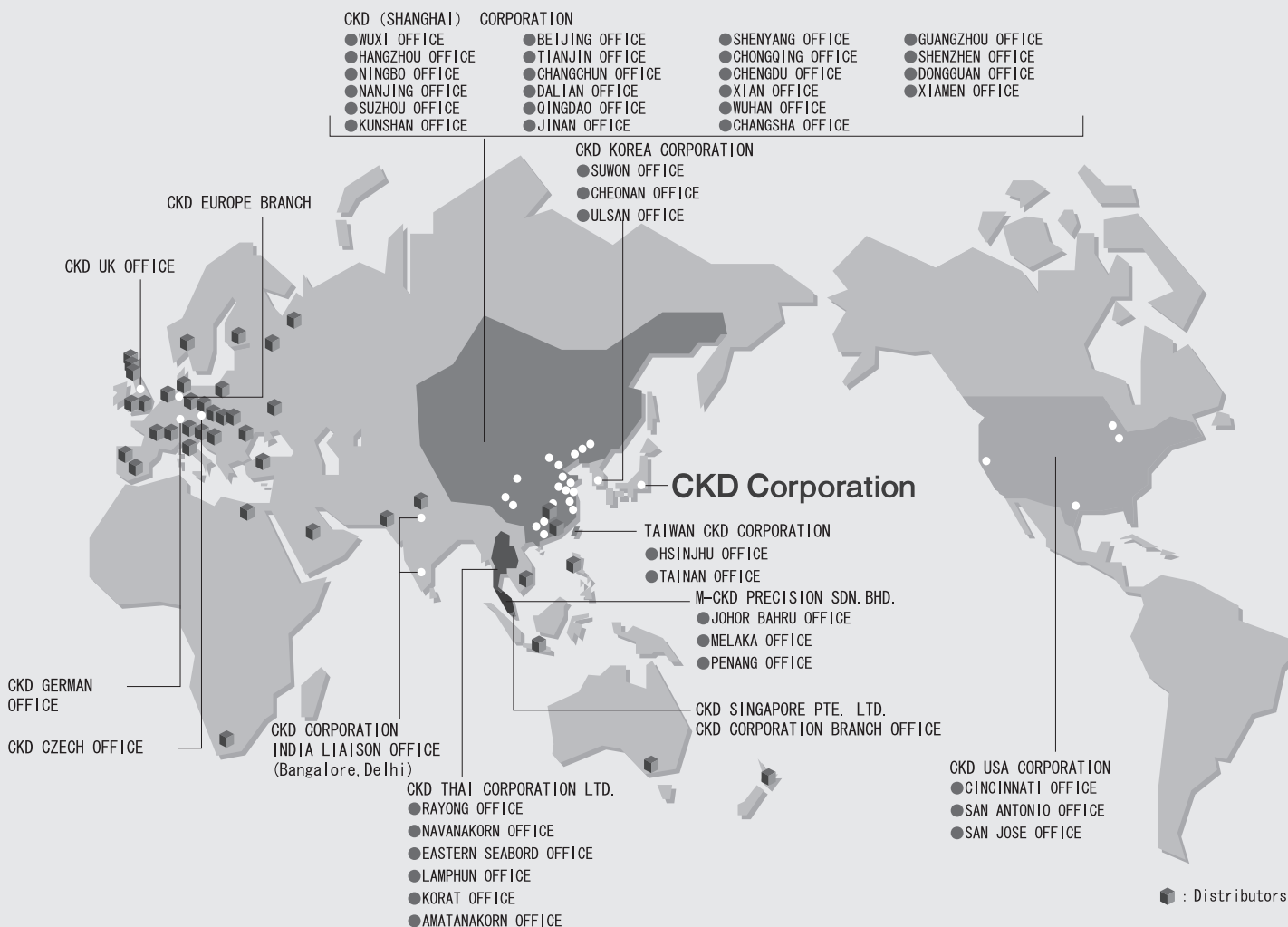
Pilot solenoid valve

Pilot solenoid valve for CVSE2 (actuator assembly kit): Loaded with CVSE2-ACTUATOR-0[*1]T- [rated voltage].

After disassembly, mount the manual override section (green) to the P port side of the body.

Note: Indicate coil housing symbol for [*1]

Indicate rated voltage symbol for [*2]



CKD Corporation

- OVERSEAS SALES ADMINISTRATION DPT. SALES AND MARKETING DIV. 2-250 Uji Komaki, Aichi 485-8551, Japan
- PHONE +81-(0)568-74-1338 FAX +81-(0)568-77-3461

U. S. A.

CKD USA CORPORATION

- HEADQUARTERS
- 4080 Winnetka Avenue, Rolling Meadows, IL 60008 USA
- PHONE +1-847-368-0539 FAX +1-847-788-0575

EUROPE

CKD EUROPE BRANCH

De Fruittuinen 28 Hoofddorp 2132NZ The Netherlands
PHONE +31-(0) 23-5541490 FAX +31-(0) 23-5541491

Malaysia

M-CKD PRECISION SDN. BHD.

- HEADQUARTERS
- Lot No. 6, Jalan Modal 23/2, Seksyen 23, Kawasan, MIEL, Fasa 8, 40300 Shah Alam, Selangor Darul Ehsan, Malaysia
- PHONE +60-(0) 3-5541-1468 FAX +60-(0) 3-5541-1533

Thailand

CKD THAI CORPORATION LTD.

- SALES HEADQUARTERS-BANGKOK OFFICE
- Suwan Tower, 14/1 Soi Saladaeng 1, North Sathorn Rd., Bangrak, Bangkok 10500 Thailand
- PHONE +66-(0) 2-267-6300 FAX +66-(0) 2-267-6305

Singapore

CKD SINGAPORE PTE. LTD.

- No. 33 Tannery Lane #04-01 Hoesteel Industrial Building Singapore 347789
- PHONE +65-67442623 FAX +65-67442486
- CKD CORPORATION BRANCH OFFICE
- No. 33 Tannery Lane #04-01 Hoesteel Industrial Building Singapore 347789
- PHONE +65-67447260 FAX +65-68421022

Taiwan

TAIWAN CKD CORPORATION

16F-3, No. 109, Sec. 1, Jhongshan Rd., Shinjhuang Dist., New Taipei City, 24250, Taiwan (R. O. C.)

PHONE +886-(0) 2-8522-8198 FAX +886-(0) 2-8522-8128

China

CKD (SHANGHAI) CORPORATION

- SALES HEADQUARTERS / SHANGHAI OFFICE
- Room 601, Yuan Zhong Scientific Research Building, 1905 Hongmei Road, Shanghai, 200233, China
- PHONE +86-(0) 21-61911888 FAX +86-(0) 21-60905356

Korea

CKD KOREA CORPORATION

- HEADQUARTERS
- 3rd FL, Sam Young B/D, 371-20 Sinsu-Dong, Mapo-Gu, Seoul, 121-110, Korea
- PHONE +82-(0) 2-783-5201~5203 FAX +82-(0) 2-783-5204

Website <http://www.ckd.co.jp/>

The goods and their replicas, or the technology and software in this catalog are subject to complementary export regulations by Foreign Exchange and Foreign Trade Law of Japan.

If the goods and their replicas, or the technology and software in this catalog are to be exported, laws require the exporter to make sure they will never be used for the development or the manufacture of weapons for mass destruction.