

INSTRUCTIONS

Solenoid Valve for Refrigerant

Type SEV



PREFACE

Failure to read and follow all instructions carefully before installing or operating this solenoid valve could cause personal injury and/or property damage. Save these instructions for future use.

NOTE FOR SAFETY

Warning

- When removing the solenoid coil from the valve body, be sure to cut out the power supply as the coil may burn.
- Do not apply the different voltage from the voltage marked on the coil label. It may cause burning or failure.
- While power is on, do not touch the housing cover as personal injury may be caused. (Coil heats up to 90°C)
- Do not apply excessive force and/or any impact to the coil as it may cause valve, burn-out and leakage trouble due to deformation.
- Do not heat up the solenoid coil as the coil might be burn-out.
- Do not put any inflammable thing around the coil as it could catch fire due to the coil heat.

SPECIFICATIONS

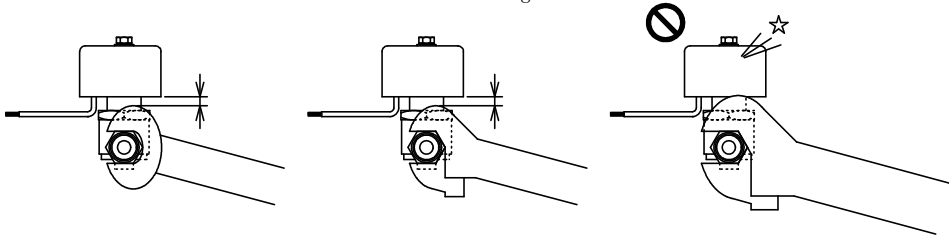
(As for the following specification, there is a case different from indication of a product.)

TYPE	***DXF, ***BXF	***DXP, ***BXP	***DYF, ***BYF
WATER TEST PRESSURE	4.41 MPa	4.95 MPa	6.3 MPa
AIRTIGHT TEST PRESSURE	2.94 MPa	3.3 MPa	4.2 MPa
MAXIMUM WORKING PRESSURE	2.94 MPa	3.3 MPa	4.2 MPa
MAX. OPERATING PRESS. DIFF.	2.45 MPa (AC) 1.96 MPa (DC)		
MIN. OPERATING PRESS. DIFF.	0.007 MPa (PORT SIZE:10,12,15mm) 0 MPa (PORT SIZE:3, 5, 6mm)		
AMBIENT HUMIDITY	95 %RH or less		
MAX. USE TO VISCOSITY	50 mm ² /s		
CLASS OF INSULATION	class B		
FLUID	Fluorinated Refrigerant, Air, Nitrogen (When using in water or oil or anything else, it is recommended to contact us. It is not available in oxygen or hydrogen line.)		
ALLOWABLE FLUID TEMPERATURE	-40 ~ +125 °C		
AMBIENT TEMPERATURE	-30 ~ +50 °C		

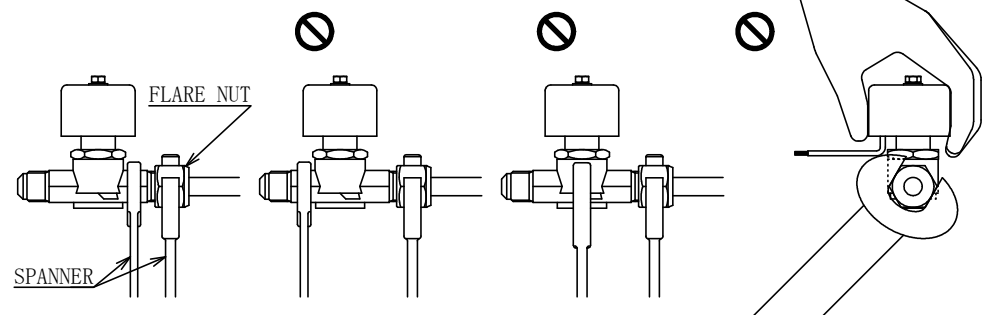
- Make sure to fix the valve body and piping firmly. It may cause to be damaged the connection part by piping vibration.
- Conduct airtight inspection after piping work.
- When brazing connections, maintain the temperature below 120°C at the valve body by using wet clothe or so. Also prevent the valve body from direct flame during brazing work.
- When brazing, valve inside should be filled with inactive gas (N₂ and CO₂, etc.) to prevent generation of scale.
- Be sure to firmly tighten a flare nut. The proper tightening torque is as follows.

TYPE	SEV-	303B**	502B**	603B**	1004B**	1205B**	1506B**
TORQUE (Nm)		38	29	38	55	75	110

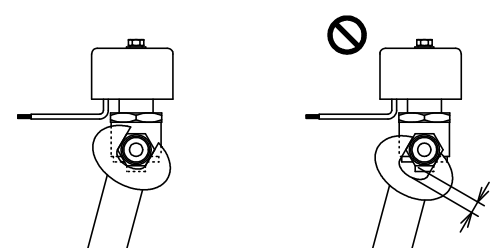
- It will be recommended to use the proper size spanner for tightening flare nuts.
- When using a monkey wrench, select a proper size wrench. Do not contact the wrench to the coil housing.



- When tightening flare connection, hold the hexagon part of connection on the piping work side, with another wrench.
- When tightening flare connection, do not hold coil with hand, or contact the wrench to the coil part.
- Do not apply excessive force to any other part than connection part, or it may cause to be occurred operation failure by the coil housing, plunger tube, valve body etc. are damaged.



- Hold hexagon part and flare nut firmly with wrench.



- As explained in NOTE For SAFETY, coil may burn out at an abnormal condition. Encapsulated fuse coil is available upon request. Use a suitable fuse as shown in below table.
- CE marking models are built as a class 0 device, and must be installed inside of a unit / enclosure in order to avoid contact from outside. Only connector coil protection are built as a class I device.

VOLTAGE, FREQUENCY	RUNNING CURRENT	WATTAGE	COILS	PROPER CURRENT FUSE	
AC	100V 50/60Hz	135/100 mA	7/6 W	100 V AC	0.5 A
	110V 60Hz	120 mA	7 W		
	200V 50/60Hz	68/ 50 mA	7/6 W	200 V AC	0.2 A
	220V 60Hz	60 mA	7 W		
DC	12V	840 mA	10 W	12 V DC	2.0 A
	24V	420 mA		24 V DC	1.0 A

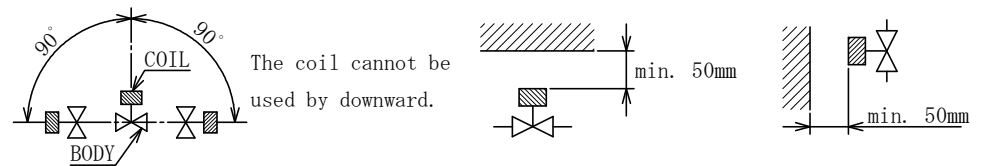
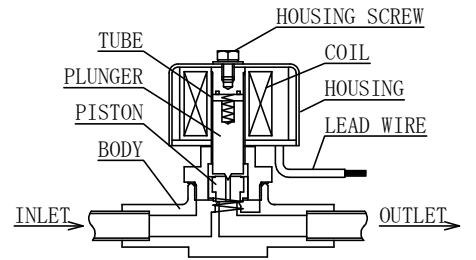
MOUNTING BRACKET

- Attached for SEV-303, -502, -603, -1004.
- Option for SEV-1205, -1506.

INSTALLATION

<Before Installation>

- Ensure the supply voltage to conform with the electrical ratings specified on coil or coil housing.
- Be careful to select a refrigerant oil if viscosity of the oil exceeds 50 mm²/s as it might cause failure of solenoid valve.
- Do not carry the valve with the lead wire. It causes the disconnection.
- Be careful to scratch flared part and/or brazing point as it might cause leakage trouble.
- Remove any foreign material or dust in the pipe as it may cause failure of the solenoid valve.
- Use a mesh strainer(80 to 100mesh) at the valve inlet.
- Mounting position should be in the following range.
- Install the space for the maintenance work above the coil.
- Grounding is required at a suitable position on the unit.



- Mounting position below shows operatable range. It does not intend to indicate dust and drip proof performances.

<Installation>

- When installing the solenoid valve, confirm the arrow shown in the valve body in the direction of the flow. (Be sure to correctly locate outlet and inlet side.)
- Special attention is required not to apply back pressure. Inner parts of valve may be deformed and may cause leakage trouble.
- Do not install a check valve at the inlet side as it may cause liquid sealing condition on the pipe inside and may cause damage due to excessive pressure.

- Do not add abnormal power of compression, the pull, and the twist to the main body. It causes the failure.
- Prevent moisture inside piping. It may cause to be operation failure by icing and rust.
- After putting the solenoid coil to the valve body and/or changing the coil direction, be sure to tighten the screw firmly. Proper tightening torque : 2 N·m
- The length of the housing screw is different for the connector coil protection, DC coil and the other coil protections. Please be careful about attaching.
- The protection grade of the connector type coil has been confirmed by our company based on the IEC standard 60529 testing method after mounting an optional socket normally. Confirm the protective performance according to the actual working environments and conditions of use in advance.
- When you use the optional socket, please make a connection to the socket with a 3-conductor sheathed cable. (outer diameter of 6~8φ)
- Fasten the mounting screws (M3) of the socket with the torque of 0.4 ~ 0.5N·m.

<Operation>

- For DC type of the solenoid coil, a spacer is provided at coil axis. When removing the solenoid coil, be careful not to loose the spacer.
- Before removing the solenoid coil from the valve body, be sure to cut the power supply. If energizing the coil itself while it is not assembled into the valve body, the coil may cause burn-out.

MAINTENANCE/INSPECTION

- In case of disassembling or inspection, please contact Saginomiya.
- Before making a maintenance or inspection for the valve, be sure to cut the power supply.

OPERATION CHECK

- Install the product correctly and then check its operation to confirm correct function of the whole system.

INQUIRY

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Installation Guide

Coil for Refrigerant Solenoid Valve

Type SEV/RPV



<SEV/RPV coil installation>

Model	SEV series			RPV series	
	AC type	DIN connector coil	DC type	AC type	DIN connector coil
Assembly	<p>Coil Green</p> <p>Accessories</p>	<p>Coil Green</p> <p>Accessory</p>	<p>Coil Green</p> <p>Accessories</p>	<p>Coil Black</p> <p>Accessory</p>	<p>Coil Black</p> <p>Accessory</p>
	Assembly process	<p>2 [N·m]</p>	<p>2 [N·m]</p>	<p>2 [N·m]</p>	<p>2 [N·m]</p>

WARNING

Check the print on the main body and do not attach it to the main body other series and type.

Check the rated voltage of the coil before use.

Do not energize the coil only.

Do not grab and swing lead wire of coil.

Do not drop and impact coil.

There should be no foreign matter when installing.

<Important notes>

- When installing the coil, use only the included accessories and be careful not to lose accessories.
- Install the coils in the above process and when tightening the housing screw, tighten it to the specified torque.
- When connecting the coils, allow a margin so that no tensile force is applied to the lead wire.
- CE marking models are built as a class 0 device, and must be installed inside of a unit enclosure in order to avoid contact from outside. Only DIN connector coil protection are built as a class I device.

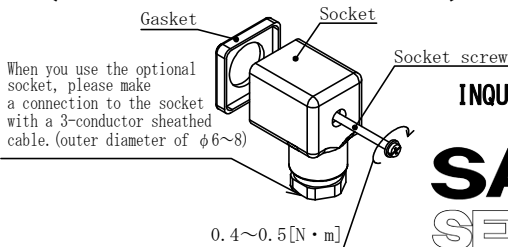
<SEV Electrical characteristics>

Rated voltage/Frequency	Voltage variation (%)	Apparent power (VA)		Wattage (W)	Class of insulation	Proper current fuse (A)
		Holding	Standing			
AC 50/60Hz	±10	15/11	45/33	7/6	Class B	100V
						200V
						110V
						220V
						24V
						240V
DC	-	-	-	10	-	12V
						24V

<RPV Electrical characteristics>

Rated voltage/Frequency	Voltage variation (%)	Apparent power (VA)		Wattage (W)	Class of insulation	Proper current fuse (A)
		Holding	Standing			
AC 50/60Hz	±10	12.5/9.5	45/44	6/4.5	Class B	100V
						200V
						110V
						220V
						24V
						240V
DC	-	-	-	-	-	120V
						230V

<DIN connector coil socket>



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CONSENT RELATED TO DISCLAIMERS

We, SAGINOMIYA SEISAKUSHO, INC., (hereinafter referred to as "Saginomiya"), truly appreciate your choosing Saginomiya's product (hereinafter referred to as this "Product").

When this Product is used, this document as provided below shall be applicable except to the extent that there is anything to the contrary in any applicable estimate, agreement, catalogue, specification, etc.

● CONFIRMATION OF OPERATION

All customers using this Product (hereinafter referred to as "Customers") are requested to, after properly installing this Product, test the operation of this Product to confirm that all the systems in connection with this Product fully function.

In order to prevent the occurrence of bodily injury, fire accidents, serious damage, etc., in connection with the Customers' machinery or equipment due to improper installation of this Product, Saginomiya kindly requests the Customers to take the necessary safety measures by preparing safe designs such as a fail-safe design (*1) and a fire spread prevention design, as well as to make the proper adjustments for product reliability necessary for fault-tolerance (*2).

(*1) Fail-safe design: Design to ensure safety in the event of any mechanical failure

(*2) Fault-tolerance: Utilization of redundancy technology

Periodic Inspection of this Product

Be sure to confirm the proper operation of this Product and keep records of such operation at least once a year.

Saginomiya shall be held harmless and be indemnified by the Customers from any damages incurred due to the Customers failing to conduct the above operational procedures, provided, however, that, this shall not apply if the damages which the Customers incurred due to the defect of this Product caused by Saginomiya.

● RESTRICTIONS OF USE

This Product is designed and manufactured for the purpose of using them for cooling and heating and refrigerating appliances and air conditioning equipment or various industrial equipment, but is not designed and manufactured for the purpose of using this Product for any instrument or system related to human life or health purposes.

Therefore, the use of this Product in fields related to items (1) through (3) below is not intended whatsoever.

Saginomiya shall be held harmless and be indemnified from any and all damages incurred by use of this Product under item (3).

(1) In any field related to nuclear power and radiation;

(2) In any field related to space or seafloor equipment;

(3) In any equipment or device requiring a high degree of reliance on such equipment or device with respect to which it is reasonably foreseeable that failure or malfunction of the equipment or device would either directly or indirectly cause serious damage to human life, health or property;

Also, when using this Product under the fields related to items (1) through (10), (except for item (3), in relation to which this Product must never be used), please be sure to notify Saginomiya's contact desk in charge of sales and obtain Saginomiya's prior written approval for such use.

Saginomiya shall be held harmless and be indemnified from any and all damages incurred by use of this Product in relation to these fields if the Customers do not notify Saginomiya's contact desk and obtain Saginomiya's prior written approval.

(4) Heating, cooling and air conditioning equipment that uses flammable and/or toxic refrigerants, or various industrial equipment that uses flammable and/or toxic fluids;

(5) Transportation device (railroad, aviation, ship or vessel, vehicle equipment, etc.);

(6) Disaster-prevention or crime-prevention device;

(7) Facility or application directly related to medical equipment, burning appliances, electro thermal equipment, amusement rides and devices, facilities/applications associated directly with billing;

(8) Equipment requiring high reliance on supply systems such as electricity, gas, water, etc., in large-scale communication system, or in transportation or air traffic control system;

(9) Facilities that are to comply with regulations of governmental / public agencies or specific industries or

(10) Other machineries or equipment equivalent to those set forth in the above items (4) to (9) which require for high reliability and safety.

It is recommended to replace this Product within 5 to 10 years of delivery if no other duration of use is provided in the applicable specifications or instruction manual because the conditions and environment of use also have an impact on this Product.

● SCOPE OF WARRANTY

SAGINOMIYA WILL PROVIDE THE CUSTOMERS WITH REPLACEMENT OR REPAIRED THIS PRODUCT DELIVERED, FREE OF COST, ONLY WITHIN ONE YEAR OF DELIVERY TO THE CUSTOMER, IF FAILURE OCCURS IN THE CUSTOMERS' EQUIPMENT USING THIS PRODUCT DUE TO A DEFECT OF THIS PRODUCT; PROVIDED, HOWEVER, THAT IN ANY EVENT THE RATIO OF THE AMOUNT THAT SAGINOMIYA BEARS FOR THE DAMAGES INCURRED BY THE FAILURE OF THIS PRODUCT OR CUSTOMERS' EQUIPMENT SHALL NOT EXCEED THE PRICE OF THIS PRODUCT WE DELIVERED. IN ADDITION, SAGINOMIYA SHALL BE HELD HARMLESS AND BE INDEMNIFIED FROM ANY AND ALL DAMAGES INCURRED WHEN THE FAILURE OF THE CUSTOMERS' EQUIPMENT OCCURRED DUE TO ANY CAUSE SET FORTH BELOW.

(1) WHEN CAUSED BY INAPPROPRIATE HANDLING OR USE OF THIS PRODUCT BY THE CUSTOMERS (SUCH AS NOT COMPLYING WITH THE CONDITIONS, ENVIRONMENTAL SPECIFICATIONS OR CAUTIONS INDICATED IN ANY APPLICABLE CATALOGUE, SPECIFICATIONS, INSTRUCTION MANUAL, ETC.);

(2) WHEN FAILURE OCCURRED DUE TO ANY REASON OTHER THAN THIS PRODUCT;

(3) WHEN CAUSED BY MODIFICATION OR REPAIR OF THIS PRODUCT MADE BY ANYONE OTHER THAN SAGINOMIYA OR DESIGNEE OF SAGINOMIYA;

(4) WHEN CAUSED BY THE USE OF THIS PRODUCT IN VIOLATION OF THE ABOVE "RESTRICTIONS OF USE" OR "CONFIRMATION OF OPERATION";

(5) WHEN SUCH FAILURE WAS NOT REASONABLY FORESEEABLE AT THE TIME OF SAGINOMIYA'S SHIPMENT; OR

(6) BY ANY OTHER CAUSE NOT ATTRIBUTABLE TO SAGINOMIYA, SUCH AS AN ACT OF GOD, DISASTER, OR ACT OF ANY THIRD PARTY.

PLEASE NOTE THAT THE CUSTOMERS WILL NOT BE ENTITLED TO ANY OF THE ABOVE WARRANTY IF THE CUSTOMERS PURCHASED THIS PRODUCT FROM INTERNET AUCTION, ETC.