Read before Use

Instruction Manual

Solenoid Valve for Refrigerant

Model: Type SEV

SAGINOMIYA

1. Preface

Thank you for purchasing Type SEV Solenoid Valves.
Read this instruction manual thoroughly before use, and ensure that the product is used within its rated specifications according to the manual.
This product is supplied with a document containing a QR code for downloading the instruction manual. **Be sure to keep it in an easily accessible place for future reference. Always check the latest version of the instruction manual available on our website via the QR code before each use, paying particular attention to the safety precautions.**

2. Safety Precautions

■ **Warning and caution indications**

Warnings and cautions in this instruction manual provide **important safety information**.
To protect you and other people against danger or damage caused by improper use of the product, **be sure to comply with these indications, as well as international standards (ISO/IEC), Japanese Industrial Standards (JIS)[*1], and other safety regulations[*2].**

***1) ISO 4414: Pneumatic fluid power –General rules and safety requirements for system and their components.**
ISO 4413: Hydraulic fluid power -General rules and safety requirements for system and their components.
IEC 60204-1: Safety of machinery -Electrical equipment of machines
IEC 60335-1: Household and similar electrical appliances -Safety-Part1 -General requirements
IEC 60335-2-24: Household and similar electrical appliances -Safety-Part2-24
IEC 60335-2-40: Household and similar electrical appliances -Safety-Part2-40
IEC 60335-2-89: Household and similar electrical appliances -Safety-Part2-89
ISO 5149: Refrigerating systems and heat pumps -Safety and environmental requirements Part 1 to 4, etc.

***2) Industrial Safety and Health Act, High Pressure Gas Safety Act, EU Directives, Occupational Safety and Health Act, etc.**

⚠ **WARNING**	Indicates a hazardous situation that could result in serious injury(1) or death if the product is handled improperly.
⚠ **CAUTION**	Indicates a hazardous situation that could result in injury(2) or property damage(3) if the product is handled improperly.

(1) **Serious injury** refers to blindness, injury, burn (high-temperature, low-temperature), electric shock, bone fracture, or poisoning that leaves aftereffects and requires hospitalization and/or extended medical treatment.
(2) **Injury** refers to injury, burn, or electric shock that does not require hospitalization or extended medical treatment.
(3) **Property damage** refers to any damage affecting a house, household property, livestock, and/or pets.

Explanations of symbols

Symbol		Description	Example	
Prohibition		Indicates prohibited actions for handling the product.	 General prohibition	 Prohibited: Disassembly
Warning		Indicates the hazards and precautions for handling the product.	 General caution	 Caution: Electric shock
Instruction		Indicates the instructions for handling the product.	 General instruction	

 **WARNING**	
	Do not use the product if it has been dropped or subjected to impact. If any part related to sealing integrity is damaged, refrigerant leakage may cause fire or suffocation.
	Properly ground the product before use. Failure to do so may cause electric shock or fire, resulting in serious injury or death. Make sure that the grounding wire is connected correctly as specified in the instruction manual to ensure a safe operating environment.
	Use the product only under the conditions described in the instruction manual. Perform periodic maintenance. Exposure to harsh conditions beyond the specified operating conditions or prolonged use may degrade the sealing integrity of the product. In addition, leaked refrigerant may cause fire or suffocation.
	Wiring of the product must be performed by personnel with expertise in electrical work. Otherwise, it may cause electric shock or fire due to miswiring or improper installation, resulting in death.
	Be sure to turn off the power before maintenance or inspection. Performing the work with power on may cause accidental contact with the live part, resulting in serious injury or death due to electric shock.
	Always observe the electrical ratings when operating the product. If power exceeding the rated value is applied to the coil, the coil may overheat and cause fire. In addition, excessive heat may expose live parts, resulting in serious injury or death from electric shock.

CAUTION	
	Apply power to the coil only when it is assembled onto the valve main unit. Turning on the power to the coil while it is detached may cause abnormal heating, resulting in burns or fire.
	The surface of the product may become very hot during or immediately after use. Avoid touching it directly with bare skin. Also, wear appropriate protective gear, such as gloves, when handling the product. Direct contact with the product may cause burns.
	Do not disassemble the product. Doing so may cause electric shock, reduced pressure capacity, or failure.

Description of terms

Terms	Description
Port size	The inner diameter of the valve.
Nominal capacity	Nominal capacity under standard operating conditions. (kW)
Flow coefficient	Indicated by the Cv value.
Joint shape	Flare joints are mainly based on refrigeration flare tube joints (JIS B 8607). All dimensions are based on the mating pipe.
Joint (Copper brazed connection)	ODF (Outside Diameter Female): "Size" refers to the outside diameter of the connecting pipe. Insert the pipe into the valve joint for connection. ODM (Outside Diameter Male): "Size" refers to the outside diameter of the valve joint. Fit the expanded pipe or other piping over the valve joint for connection.
Operating pressure differential	Reliable opening and closing operation is ensured as long as the pressure differential between the inlet and outlet sides of the valve remains within this range.
Max. working pressure	This is the maximum allowable operating pressure at which the valve operates properly under normal operating conditions.
Pressure resistance	This pressure is 1.5 times the maximum working pressure. Although performance cannot be guaranteed, this is the maximum pressure at which external leakage can be prevented.
Fluid temperature	This is the temperature range of the fluid that can flow through the valve.
Pressure indication	Gauge pressure.

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3. Product Overview

- A wide range of main unit and joint options supports a broad range of applications and industries.
- Compatible with various low-GWP refrigerants.
- Flare joint models have a built-in strainer. Copper tube brazed joint models are also available in Type Q50.
- Coils can be selected from a wide range of options. They can be used in common regardless of the size of the main unit or joint.
- Applications
  - Condensing units
  - Cooling units
  - Chillers
  - Dehumidifiers
  - Air conditioning systems, etc.



SEV-603BYF
(Lead wire type)



SEV-603DYF
(DIN plug)

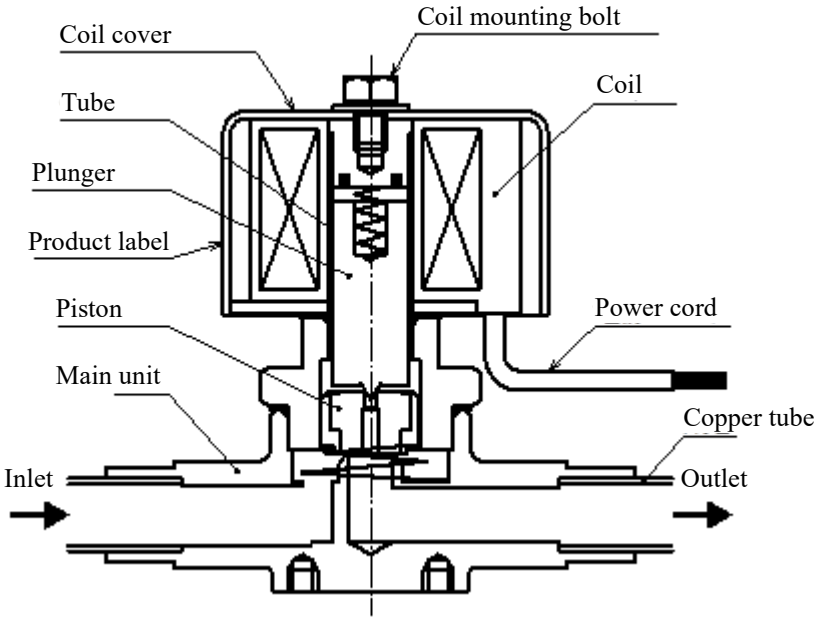


SEV-1004DYF
(Lead wire type)

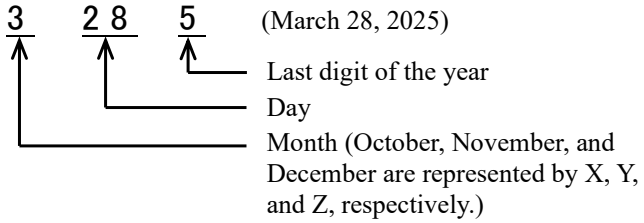


SEV-603DYF
(DIN plug (with socket), with strainer)

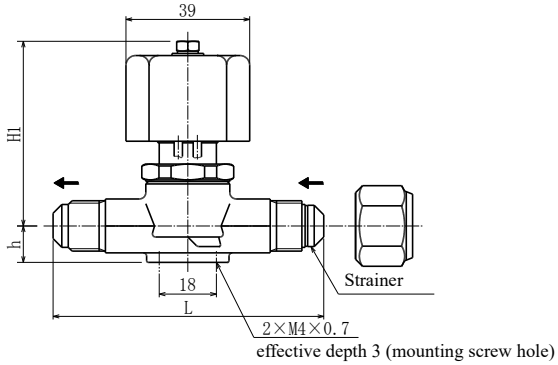
● Names and functions of parts
○ Part names



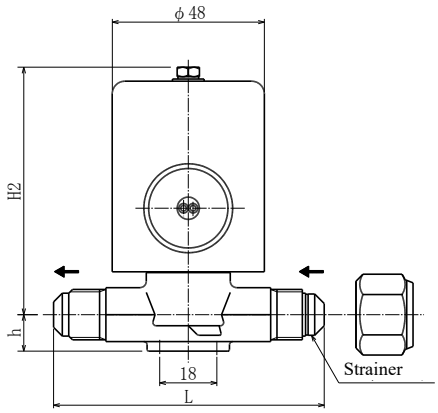
・Catalog No. : The model name is shown on the product label or printed on the product.
・Manufacturing lot number : The lot number (date of manufacture) is shown on the product label or printed on the product.



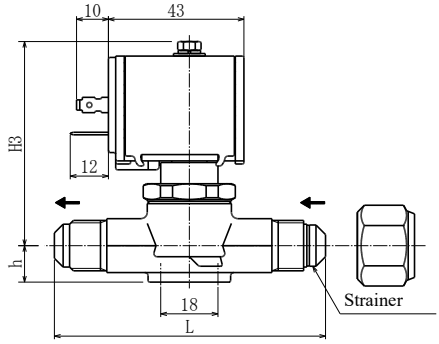
● External dimensions



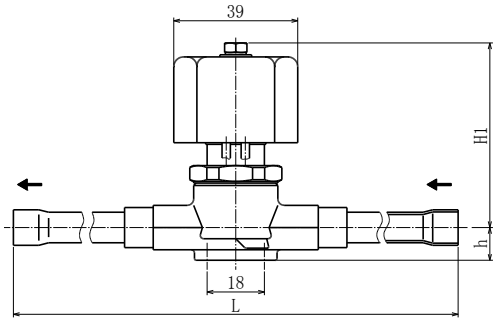
Type SEV-B
(AC coil)



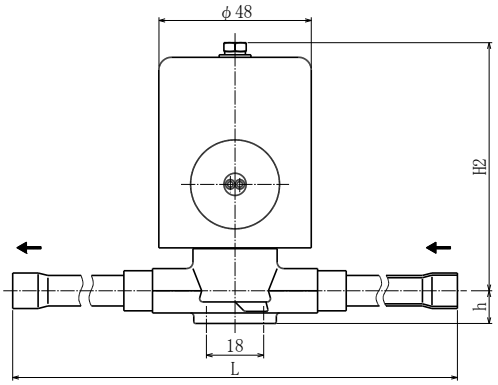
Type SEV-B
(DC coil)



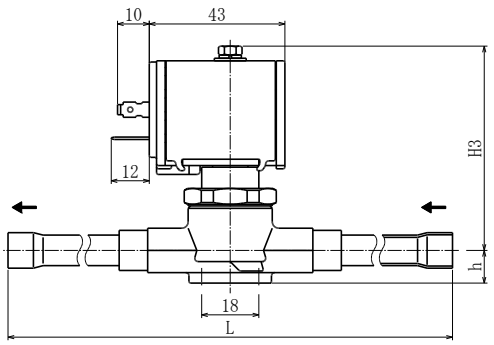
Type SEV-B
(DIN coil)



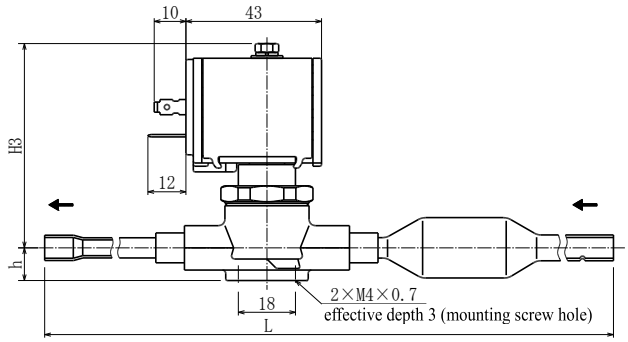
Type SEV-303D to 604D, 603DYFQ300, 604DYFQ300
(AC coil)



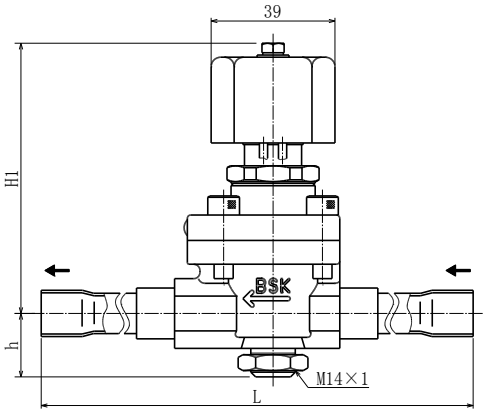
Type SEV-303D to 604D, 603DYFQ300, 604DYFQ300
(DC coil)



Type SEV-303D to 604D, 603DYFQ300, 604DYFQ300
(DIN plug)



Type SEV-502DYFQ50, 603DYFQ50
(DIN plug)

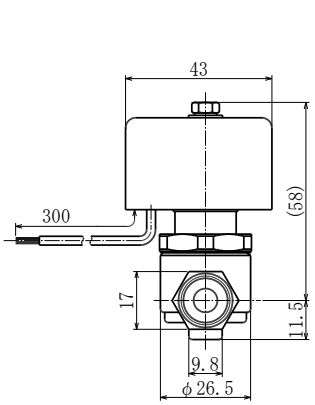


Type SEV-1004D to 1507D
(AC coil)

Catalog No.		Unit: mm				
Type	Model	L	H1	H2	H3	h
SEV	303BY	85	58	79	64	11.5
	502BY					
	603BY					
	1004BY	105	85	106	91	20.5
	1205BY	115	88	109	94	22
	1506BY	135	95	116	101	25
	303DY	150	58	79	64	10.3
	502DY	270				
	603DY					
	604DY					
	1004DY	160	85	106	91	20.5
	1005DY	168				
	1205DY	180	88	109	94	22
	1506DY	190	95	116	101	25
	1507DY	196				
	502DYFQ50	270	58	79	64	10.3
	603DYFQ50					
	603DYFQ300	138				
	604DYFQ300					

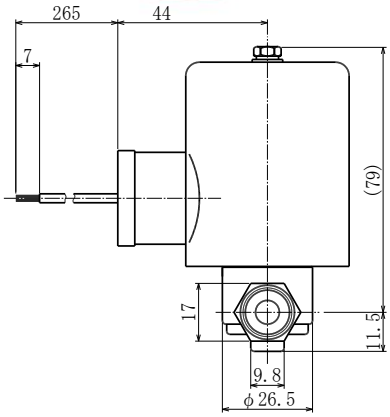
● Coil specifications and selection





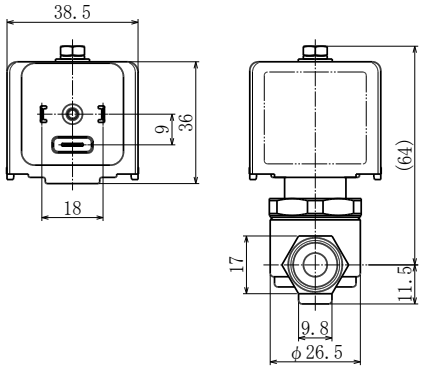
(Type SEV-502BY)
Lead wire type
(AC coil IP67)





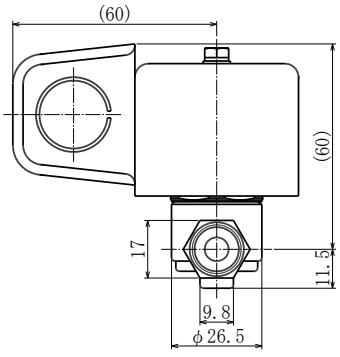
(Type SEV-502BY)
Lead wire type
(DC coil IP67)





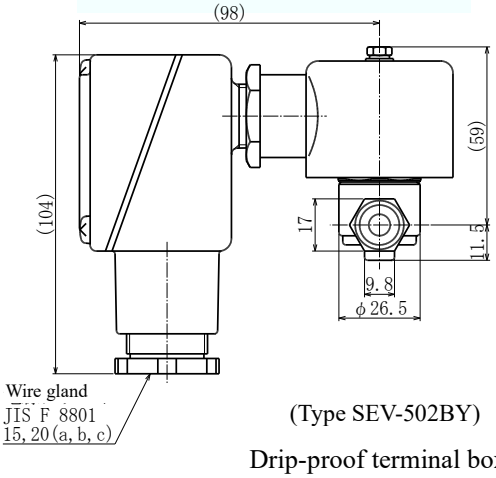
(Type SEV-502BY)
DIN plug
(without socket)





(Type SEV-502BY)
Junction box type





(Type SEV-502BY)
Drip-proof terminal box type
(IP34)

● Model designation and numbering system

・Main unit

SEV	—	15	06	B	Y	F
I		II	III	IV	V	VI

I	Type
II	Port size
III	Connection tube O.D.
IV	Joint shape
V	Pressure class
VI	Fluid

・ Coil

SEV	—	A1	W	20C
I		II	III	IV

I	Type
II	Power supply/Voltage
III	Coil style
IV*	Gland size

* IV applies only when the coil style is "W".

Power supply/Voltage
A1: 100 V.AC
A2: 200 V.AC
A3: 110 V.AC
A4: 220 V.AC
A7: 24 V.AC
AA: 230 V.AC
AB: 240 V.AC
AC: 120 V.AC
D6: 12 V.DC
D7: 24 V. DC

Coil style*
R: Lead wire type (AC coil)
C: Lead wire type (DC coil)
D: DIN plug (with socket)
E: DIN plug (without socket)
U: Junction box type
W: Drip-proof terminal box type

* A2L refrigerants are compatible only with lead wire type coils.

4. Specifications

Specifications table		
Product name		Type SEV Solenoid Valve
Type		See the information on the product label (See p. 7 for the location).
Purpose of the product		Operation control device
Pressure specifications		See p.13.
Temperature specifications	Fluid temperature	-40°C to 125°C
	Operating ambient temperature	-30 °C to 50°C
	Storage ambient temperature	-30°C to 50°C
Applicable fluids		Various refrigerants, air, and inert gases
Supported refrigerants *	Refrigerant type: A1	R134a, R404A, R407A, R407C, R407F, R407H, R410A, R448A, R449A, R449B, R449C, R452A, R463A-J, R507A, R513A, R515B
	Refrigerant type: A2L	R32, R1234yf, 1234ze(E), R454A, R454B, R454C, R474B
Dimensions		See p.8 to p.10.
Product weight		See p.13 and p.14.
Product installation method		See p.18 to p.23.
Type 1/Type 2		Type 1
Product contamination level		2

Notes:
* If a refrigerant other than an A1 refrigerant is used with this product, review the applicable laws and regulations at the design stage, carefully confirm suitability, and select an appropriate model.

● Wetted part materials

Application	Wetted parts
Standard type	Brass
	Copper
	Stainless steel
	Solder (Pb-free)
	Brazing filler metal
	Fluororesin

No oil-free treatment has been performed on the wetted parts. However, note that no oil was intentionally applied during manufacturing.

4. Specifications

<table>
<tr><th colspan="4" rowspan="2">Catalog No.</th><th rowspan="2">Port size (mm)</th><th rowspan="2">Flow coefficient (Cv value)</th><th colspan="2">Joint</th><th colspan="2">Operating pressure differential*2 (MPa)</th><th rowspan="2">Max. working pressure (MPa)</th><th rowspan="2">With/ Without strainer</th><th rowspan="2">Weight*3 (kg)</th></tr>
<tr><th>Type</th><th>Model</th><th>Fluid</th><th>Special applications</th><th>Shape</th><th>Size</th><th>Min.</th><th>Max.</th></tr>
<tr><td rowspan="23">SEV</td><td>303BY</td><td rowspan="23">F
(Various refrigerants*1)

A
(Air)

C
(Inert gases)</td><td rowspan="16">—</td><td>3</td><td>0.25</td><td rowspan="6">Flare</td><td>3/8"</td><td rowspan="3">0</td><td rowspan="23">2.45
(AC coil)

1.96
(DC coil)</td><td rowspan="23">4.2</td><td rowspan="6">With strainer</td><td>0.3</td></tr>
<tr><td>502BY</td><td>5</td><td>0.51</td><td>1/4"</td></tr>
<tr><td>603BY</td><td>6</td><td>0.80</td><td>3/8"</td></tr>
<tr><td>1004BY</td><td>10</td><td>1.75</td><td>1/2"</td><td rowspan="3">0.007</td><td>0.7</td></tr>
<tr><td>1205BY</td><td>12</td><td>2.9</td><td>5/8"</td><td>0.9</td></tr>
<tr><td>1506BY</td><td>15</td><td>4.5</td><td>3/4"</td><td>1.4</td></tr>
<tr><td>303DY</td><td>3</td><td>0.25</td><td rowspan="10">Copper tube brazing (ODF)</td><td>3/8"</td><td rowspan="4">0</td><td rowspan="10">Without strainer</td><td>0.15</td></tr>
<tr><td>502DY</td><td>5</td><td>0.53</td><td>1/4"</td><td>0.2</td></tr>
<tr><td>603DY</td><td rowspan="2">6</td><td rowspan="2">0.83</td><td>3/8"</td><td>0.25</td></tr>
<tr><td>604DY</td><td>1/2"</td></tr>
<tr><td>1004DY</td><td rowspan="2">10</td><td rowspan="2">2.0</td><td>1/2"</td><td rowspan="5">0.007</td><td>0.6</td></tr>
<tr><td>1005DY</td><td>5/8"</td></tr>
<tr><td>1205DY</td><td>12</td><td>3.5</td><td>5/8"</td><td>0.7</td></tr>
<tr><td>1506DY</td><td rowspan="2">15</td><td rowspan="2">5.3</td><td>3/4"</td><td rowspan="2">1.0</td></tr>
<tr><td>1507DY</td><td>7/8"</td></tr>
<tr><td>502DY</td><td rowspan="2">Q50</td><td>5</td><td>0.53</td><td rowspan="3">Copper tube brazing (ODF)</td><td>1/4"</td><td rowspan="3">0</td><td rowspan="2">With strainer</td><td>0.25</td></tr>
<tr><td>603DY</td><td rowspan="2">6</td><td rowspan="2">0.83</td><td>3/8"</td><td>0.3</td></tr>
<tr><td>604DY</td><td rowspan="2">Q300</td><td>1/2"</td><td rowspan="2">Without strainer</td><td rowspan="2">0.2</td></tr>
</table>

*1 For supported refrigerants, see p.12 for the specifications table. Contact us regarding other refrigerants.
*2 When using high-pressure refrigerants such as R32, pay attention to the operating pressure differential.
*3 Weight refers to the main unit only (coil not included).

4. Specifications

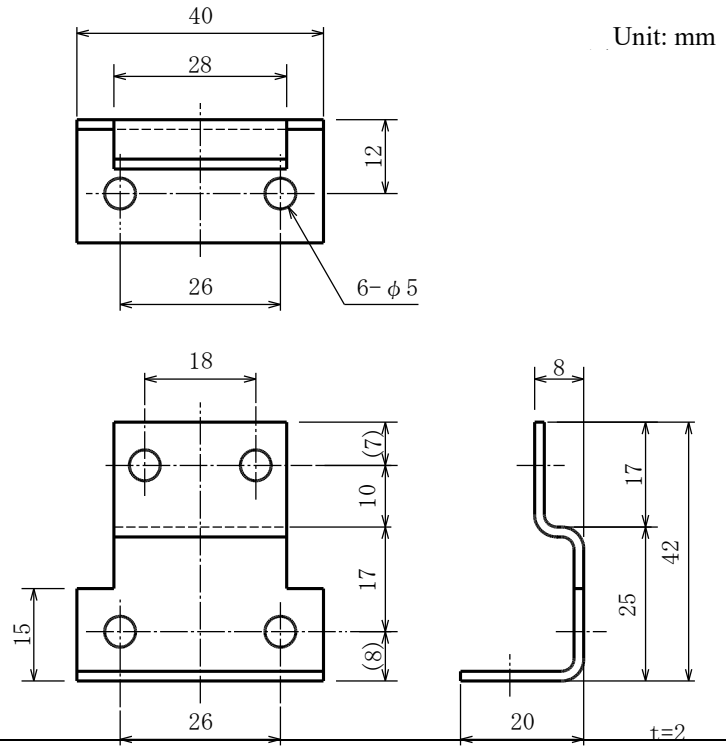
Catalog No.		Coil style	Coil weight (kg)	Rated voltage	Recommended fuse	Frequency	Voltage tolerance (%)	Voltampere (VA)		Power consumption (W)	Insulation class
Type	Model							Running	Inrush		
SEV	A1R	Lead wire type	0.1	100 V.AC	0.5 A	50/60 Hz	±10	15/11	45/33	7/6	Class B
	A1D	DIN plug (with socket)	0.2								
	A1E	DIN plug (without socket)	0.15								
	A1U	Junction box type	0.2								
	A1W20C	Drip-proof terminal box type	0.4								
	A2R	Lead wire type	0.1	200 V.AC	0.2 A						
	A2D	DIN plug (with socket)	0.2								
	A2E	DIN plug (without socket)	0.15								
	A2U	Junction box type	0.2								
	A2W20C	Drip-proof terminal box type	0.4								
	A3R	Lead wire type	0.1	110 V.AC	0.5 A						
	A3D	DIN plug (with socket)	0.2								
	A3E	DIN plug (without socket)	0.15								
	A3U	Junction box type	0.2								
	A3W20C	Drip-proof terminal box type	0.4								
	A4R	Lead wire type	0.1	220 V.AC	0.2 A						
	A4D	DIN plug (with socket)	0.2								
	A4E	DIN plug (without socket)	0.15								
	A4U	Junction box type	0.2								
	A4W20C	Drip-proof terminal box type	0.4								
	A7R	Lead wire type	0.1	24 V.AC	2.0 A						
	A7D	DIN plug (with socket)	0.2								
	A7E	DIN plug (without socket)	0.15								
	A7U	Junction box type	0.2								
	A7W20C	Drip-proof terminal box type	0.4								
	AAR	Lead wire type	0.1	230 V.AC	0.2 A						
	AAD	DIN plug (with socket)	0.2								
	AAE	DIN plug (without socket)	0.15								
	AAU	Junction box type	0.2								
	AAW20C	Drip-proof terminal box type	0.4								
	ABR	Lead wire type	0.1	240 V.AC	0.2 A						
	ABD	DIN plug (with socket)	0.2								
	ABE	DIN plug (without socket)	0.15								
	ABU	Junction box type	0.2								
	ABW20C	Drip-proof terminal box type	0.4								
	ACR	Lead wire type	0.1	120 V.AC	0.5 A						
	ACU	Junction box type	0.2								
	ACW20C	Drip-proof terminal box type	0.4								
	D6C	Lead wire type	0.3	12 V.DC	2.0 A	-		-	-	10	
	D6W20C	Drip-proof terminal box type	0.5								
	D7C	Lead wire type	0.3	24 V.DC	1.0 A						
	D7W20C	Drip-proof terminal box type	0.5								

- The Catalog Nos. for the drip-proof terminal box type are for the standard model (gland size 20c). For gland sizes other than 20c, 15a, 15b, 15c, 20a, and 20b are also available.
- DIN plug socket: EN 175301-803/ISO 4400 (DIN 43650-A)
- Protection level, Lead wire type: IP67, DIN plug (with socket):IP65, Drip-proof terminal box type: IP34
- A2L refrigerants are compatible only with lead wire type coils.• Current (A) is calculated as follows: Current (A) = Voltampere/Rated voltage.
- The drip-proof terminal box type can be used indoors in locations where water droplets may fall.

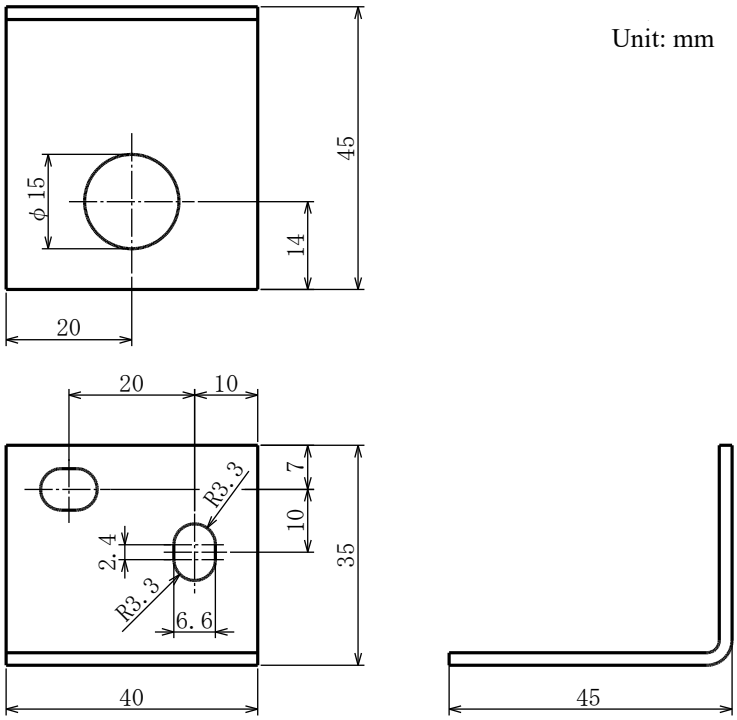
● Standard accessory
- Flare nut (standard accessory for flare joint models)
- Mounting bracket (optional for some models)

Catalog No.	
Type	Model
SEV	303BY 502BY 603BY 303DY 502DY 603DY 604DY 502DYFQ50 603DYFQ50 603DYFQ300 604DYFQ300
SEV	1004BY 1004DY 1005DY 1205BY* 1506BY* 1205DY* 1506DY* 1507DY*

Unit: mm



Unit: mm

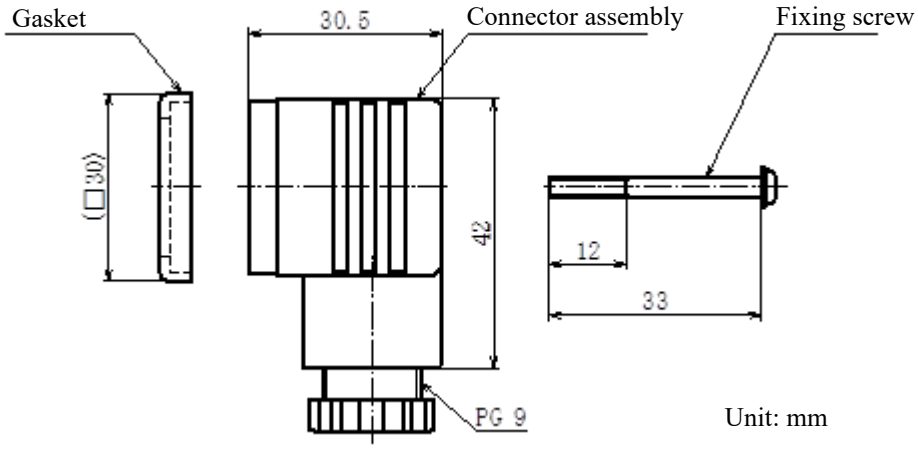


* Optional

t=2

● Optional parts

・ DIN socket for DIN plug coil



Unit: mm

5. Handling and Storage

WARNING	
	When transporting a heavy product, wear protective gear, such as safety shoes, to ensure safety. There is a risk of injury, such as a bone fracture, if the product falls or tips over.
	When unpacking or installing the product, wear appropriate protective gear (work gloves, etc.) to ensure safety. There is a risk of injury from sharp edges on the packaging box, product, or tools.

- Do not drop the product.
  Doing so may cause deformation, resulting in sealing failure, insulation failure, malfunction, or coil burnout.
- Do not store the product in locations subject to vibration or impact.
  Doing so may cause deformation, resulting in sealing failure, insulation failure, malfunction, or coil burnout.
- Do not store the product with a load applied to the main unit or joint.
  Doing so may cause deformation, resulting in sealing failure or insulation failure.
- When storing the product, avoid direct sunlight and store it in a well-ventilated place.
  Failure to do so may oxidize conductive parts, resulting in pressure switch failure, malfunction, or premature failure.
- For the product stored for more than one year, verify operation before use.
  After the product is put into service, periodic operational checks are recommended.

6. Assembly

WARNING	
	Do not use the product if it has been dropped or subjected to impact. If any part related to sealing integrity is damaged, refrigerant leakage may cause fire or suffocation.
	Do not under any circumstances apply abnormal external force, such as using the products or pipe joints as scaffolding to climb. If the product or joints are damaged by such actions, refrigerant may leak, potentially causing frostbite, suffocation, or a fire.
	When performing leak tests or charging refrigerant, do not apply pressure exceeding the limits specified in the instruction manual. Applying abnormal pressure beyond the specified limits may cause the equipment or piping to rupture, resulting in injury from scattered parts or suffocation due to leaked refrigerant. Before beginning work, be sure to check the specifications and pressure range of the equipment to be used, take all necessary safety precautions, and wear appropriate protective gear.
	When transporting a heavy product, wear protective gear, such as safety shoes, to ensure safety. There is a risk of injury, such as a bone fracture, if the product falls or tips over.
	When performing work, work in a well-ventilated location or use an exhaust system with adequate ventilation. Also, be sure to wear appropriate protective gear, such as a mask. Failure to do so may result in respiratory disorders due to accumulated gas or suffocation due to leaked gas or similar substances.
	When securing the product with flare nuts, use two wrenches: one to hold the hexagonal section of the main unit and the other (an open-end wrench) to tighten the flare nut. Applying torque to the product without following this instruction may damage the main unit, resulting in blindness or injury from scattered metal pieces or inner gas.
	When wiring the product, wear appropriate protective gear (work gloves, protective goggles, etc.) to ensure safety. There is a risk of injury from sharp edges on the product or tools, flying debris, or the product falling or striking against something. Also, if debris or similar matter enters the eyes, it may cause blindness.
	When performing brazing, always ensure that there are no flammable materials in the vicinity and take all necessary safety precautions. Failure to do so may result in unexpected fire spread or burns.
	When performing brazing, wear appropriate protective gear (safety goggles, heat-resistant gloves, etc.). Working without protective gear may result in blindness or severe burns.

WARNING	
	Perform blazing in a well-ventilated location or with an exhaust system with adequate ventilation. Also, wear appropriate protective gear, such as a mask. Failure to do so may cause inhalation of hazardous substances, such as fumes, resulting in respiratory disorders, or suffocation from leaked gas.
	When performing brazing with nitrogen purging, wear appropriate protective gear (protective goggles, heat-resistant gloves, etc.), provide a pressure relief opening to prevent an unintended rise in internal pressure, and work safely. Failure to do so may cause blindness, injury, or burns due to splashing of high-temperature materials such as flux.

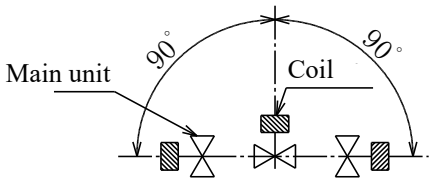
CAUTION	
	When unpacking or installing the product, wear appropriate protective gear (work gloves, etc.) to ensure safety. There is a risk of injury from sharp edges on the packaging box, product, or tools.

- Before unpacking, ensure that the packaging box is not deformed or damaged.
- During unpacking, ensure that the product is not deformed or damaged.
- After unpacking, ensure that the product meets your requested specifications.
- Do not subject the product to impact during unpacking.
  Doing so may cause failure or malfunction.

<Before installation>

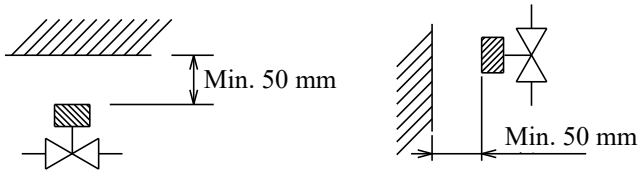
- Verify that the voltage shown on the label affixed to the coil cover matches the supply voltage. A voltage mismatch may cause coil burnout (smoke or fire) or malfunction.
- Refrigeration oil with a viscosity exceeding 50 mm^2/s may cause malfunction, so select the oil carefully.
- Do not suspend the product by the coil power cord. Doing so may cause failure (wire breakage).
- Do not scratch the joints (flare connections or brazed section). Doing so may cause external leakage.
- Remove any dust or foreign matter from the piping. Failure to do so may cause failure.
- Install a strainer (80 to 100 mesh) on the inlet side (except for models equipped with a strainer).
- Install the product in a location where it cannot be touched, and protect it from external impact. In addition, never incorporate the product into a unit if it has been subjected to even a single impact.
- Connect the ground wire to an appropriate location on the equipment.
- If the product does not operate within 10 minutes after an electrical signal is applied to the coil, provide a control function or permanently install a circuit that can immediately shut off the current flowing through the coil.
- Do not disassemble the product. Doing so may cause external leakage.
- After installing the product, ensure that refrigerant does not accumulate in the surrounding area.
- As noted in the "Safety Precautions", the coil may burn out under abnormal conditions. In addition, always install a current fuse. (See p.14 for the specifications table.)
- Ensure that the total power-on time of the coil does not exceed 20,000 hours. Exceeding this may cause coil burnout (smoke or fire) or malfunction.

● Install the product within the following installation orientation range.



(The coil cannot be used in the downward position.)

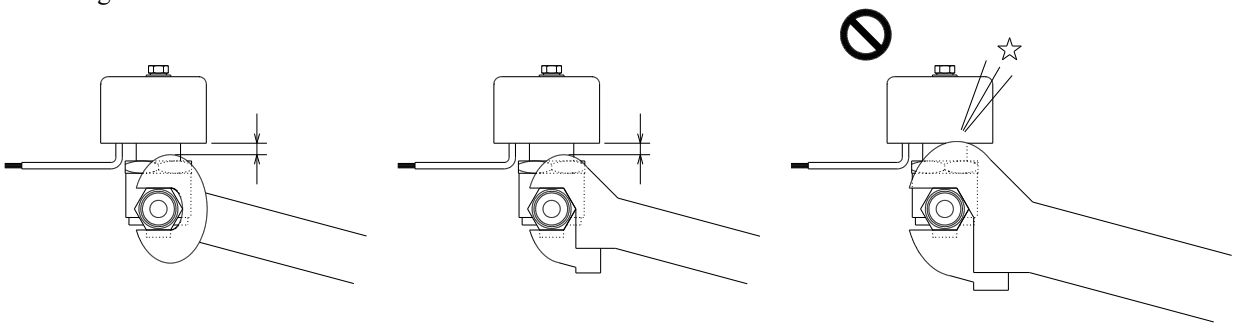
● The installation orientations shown above indicate the allowable operating range. They do not indicate dust-proof or drip-proof performance.
● Ensure that sufficient space is provided above the coil for maintenance and inspection.



<Installation method>
● Install the product in the direction indicated by the arrow on the main unit. If reverse pressure is applied, internal parts may deform, causing valve leakage. In addition, do not reuse a product that has been used in the reverse direction even once. Replace it with a new one.
● If reverse pressure may be applied, install our check valve on the outlet side.
● Do not install a check valve or similar device on the inlet side. This may create a liquid-sealed condition in the piping, resulting in abnormal pressure that may damage the valve and cause failure.
● If there is a restriction immediately upstream of the solenoid valve inlet, operation may become unstable. Before use, verify the suitability of the system.
● Securely fasten the main unit and the piping. Piping vibration may cause cracks in the joint of the main unit.
● After piping work, perform a leak test.
● When brazing, wrap the main unit with a wet cloth or similar material to keep the temperature below 120°C. Also, do not direct the burner flame toward the valve main unit during brazing. Doing so may cause external leakage.
● When brazing, fill the interior with an inert gas (such as nitrogen or carbon dioxide) to prevent the formation of oxide scale.
● Tighten the flare joint nuts securely.

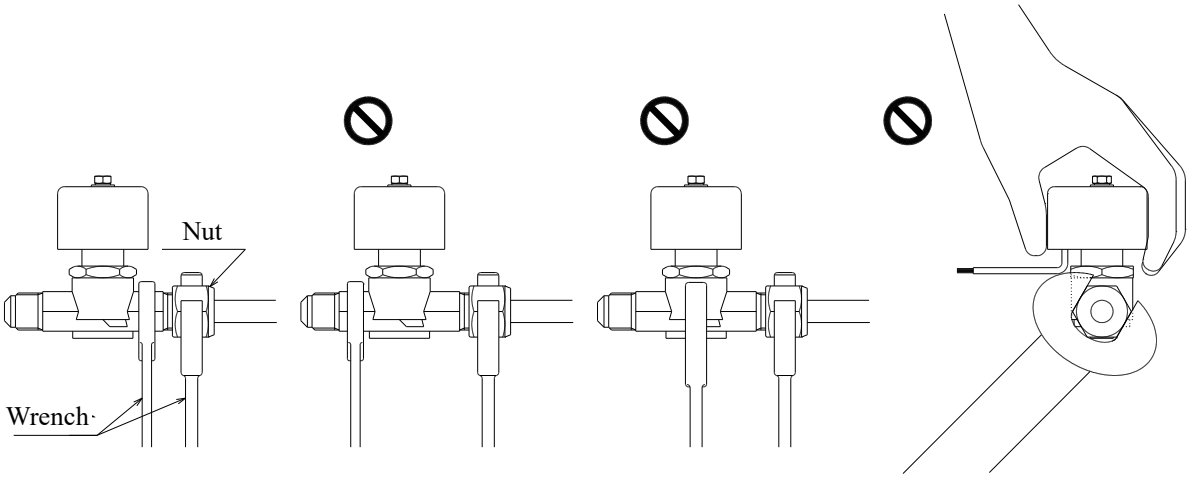
Type		303B**	502B**	603B**	1004B**	1205B**	1506B**
Tightening torque	N•m	38	29	38	55	75	110

● Use a wrench of the appropriate size when tightening the flare nut.
● When using an adjustable wrench, use the correct size and ensure that the wrench does not come into contact with the housing.

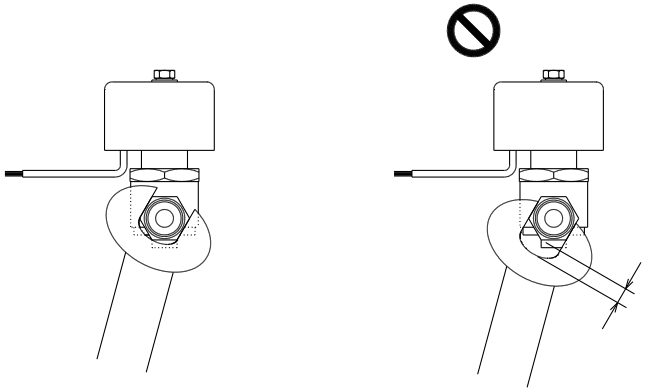


● When tightening the flare nut, be sure to place the wrench securely on the hexagonal section of the main unit.

● When tightening the flare nut, do not hold the coil or place a wrench on the coil. Applying force to areas other than the joint may deform the housing, plunger tube, or main unit body, resulting in malfunction.

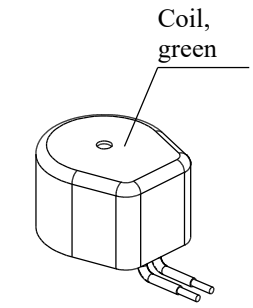
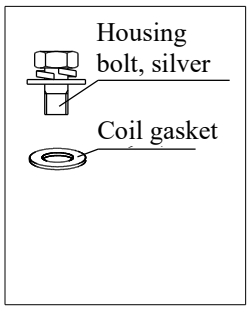
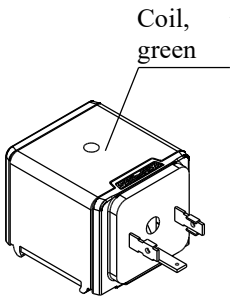
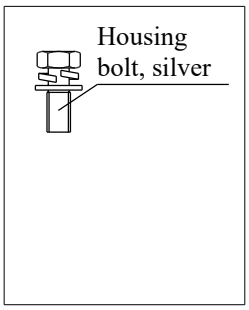
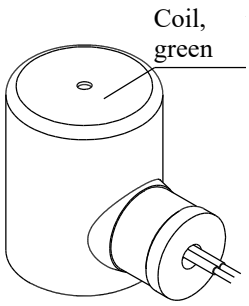
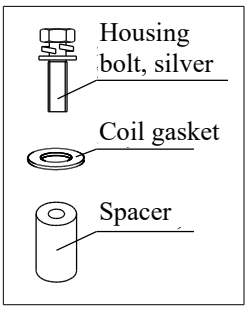
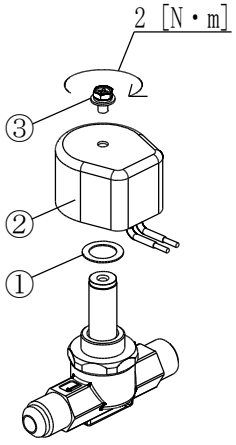
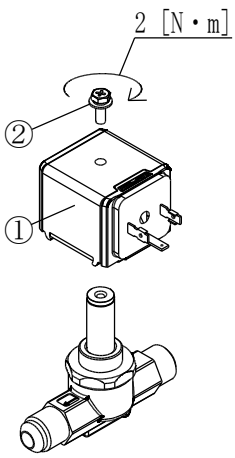
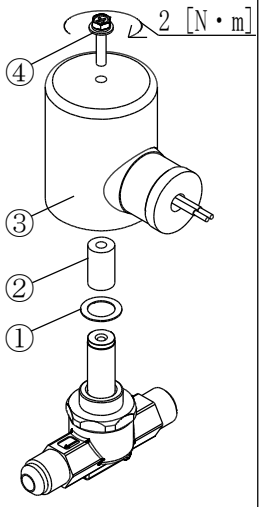


● Be sure to place the wrench securely on the hexagonal section of the joint and the flare nut.



● Do not apply excessive force, such as compression, tension, or torsion, to the main unit. Doing so may cause malfunction.
● Prevent moisture from entering the piping. Freezing or rust may occur, causing malfunction.
● When removing the coil or changing its orientation, be sure to tighten the bolts securely.
Recommended tightening torque: 2 N·m
● For CE-marked products, install and use them inside an enclosure or unit so that they cannot be touched from the outside, as they are Class 0 equipment. DIN connector coils can be used as Class I equipment.
● The protection level is based on the test methods specified in standards (IEC/EN 60529) and JIS C 0920, and does not guarantee protection against constant exposure to rainwater, condensation, or outdoor use. Do not use the product under submerged conditions.
● The protection level of the connector coil has been verified by our company based on the IEC 60529 test method, provided that the optional socket is properly installed. Verify the protection performance in advance under the actual operating environment and operating conditions.
● When installing the coil, use only the accessories included in the package. Also, do not lose them.
● The lengths of the coil mounting bolts differ depending on whether the coil is a connector coil, a DC coil, or another type of coil.
Be sure not to use the wrong bolt.
● Install the coil in the sequence shown in the table below. Also, tighten the housing bolts to the specified torque.

6. Assembly

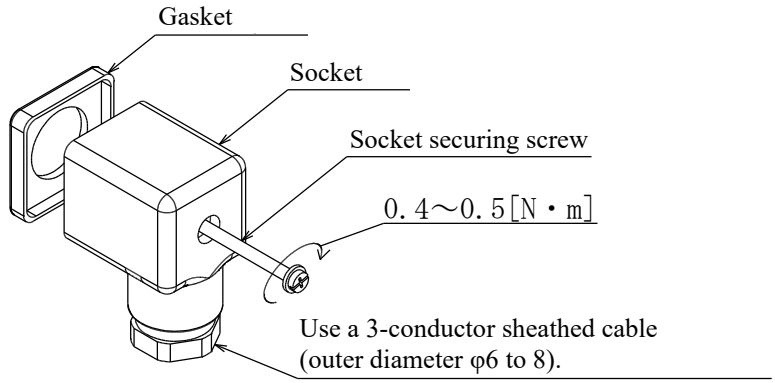
Type	AC type	DIN connector coil	DC type
Parts configuration	 Accessories 	 Accessories 	 Accessories 
Assembly sequence			

7. Wiring

WARNING	
⚠	Be sure to turn off the power before performing any work. Performing work with power on may cause accidental contact with live parts, resulting in injury or death due to electric shock.
⚠	Before wiring, ensure that no water is present on the product, and perform the work in an environment where the product is not exposed to water, such as rain or condensation. Performing the work with the product wet may cause electric shock, resulting in serious injury or death.
⚠	Before turning on the power to the product, carefully check that there are no short circuits or wiring errors, and confirm safety. In addition, apply voltage and pressure only within the limits specified in the product specifications. Failure to follow these instructions may cause sparks due to short circuits or overcurrent, resulting in fire. In addition, wiring errors or the application of improper voltage may cause electric shock, resulting in serious injury or death.
⚠	When wiring the product, wear appropriate protective gear (work gloves, protective goggles, etc.) to ensure safety. There is a risk of injury from sharp edges on the product or tools, flying debris, or the product falling or striking against something. Also, if debris or similar matter enters the eyes, it may cause blindness.

CAUTION	
⚠	Apply power to the coil only when it is assembled onto the valve main unit. Turning on the power to the coil while it is detached may cause abnormal heating, resulting in burns or fire.

- When wiring the coil, provide sufficient slack so that no tension is applied to the power cord. Vibration or impact may cause lead wire breakage or electrical leakage.
- When using the optional socket, connect it using a 3-conductor sheathed cable (outer diameter φ6 to 8).
- Tighten the socket mounting screws (M3) to a torque of 0.4 to 0.5 N･m.



8. Operation

WARNING	
	When performing leak tests or charging refrigerant, do not apply pressure exceeding the limits specified in the instruction manual. Applying abnormal pressure beyond the specified limits may cause the equipment or piping to rupture, resulting in injury from scattered parts or suffocation due to leaked refrigerant. Before beginning work, be sure to check the specifications and pressure range of the equipment to be used, take all necessary safety precautions, and wear appropriate protective gear.
	When assembling the product, do not allow liquid to become trapped inside the product. If the temperature changes while liquid is trapped inside, the pressure may rise rapidly, causing damage to the product or refrigerant leakage and leading to serious accidents such as fire or suffocation. Before beginning work, always check the condition inside the piping and ensure a safe inspection environment.
	Do not use the product in corrosive environments. Doing so may cause external leakage or damage. If refrigerant leaks from the product, it may lead to serious accidents such as fire due to ignition or suffocation due to a decrease in oxygen concentration.
	Use the product only under the conditions described in the instruction manual. Perform periodic maintenance. Exposure to harsh conditions beyond the specified operating conditions or prolonged use may degrade the sealing integrity of the product. In addition, leaked refrigerant may cause fire or suffocation.
	Always observe the electrical ratings when operating the product. If power exceeding the rated value is applied to the coil, the coil may overheat and cause fire. In addition, excessive heat may expose live parts, resulting in serious injury or death from electric shock.
	Before turning on the power to the product, carefully check that there are no short circuits or wiring errors, and confirm safety. In addition, apply voltage and pressure only within the limits specified in the product specifications. Failure to follow these instructions may cause sparks due to short circuits or overcurrent, resulting in fire. In addition, wiring errors or the application of improper voltage may cause electric shock, resulting in serious injury or death.

CAUTION	
	Apply power to the coil only when it is assembled onto the valve main unit. Turning on the power to the coil while it is detached may cause abnormal heating, resulting in burns or fire.
	The surface of the product may become very hot during or immediately after use. Avoid touching it directly with bare skin. Also, wear appropriate protective gear, such as gloves, when handling the product. Direct contact with the product may cause burns.

- After installing the product correctly, be sure to perform a trial operation and confirm that the entire system functions properly before use.
- Do not use the product outside the fluid temperature and ambient temperature ranges specified in the drawings. Doing so may cause coil burnout (smoke or fire).
- Do not turn on the power while the coil is detached from the main unit. Doing so may cause coil burnout (smoke or fire).
- Do not insulate the coil. Doing so may cause coil burnout (smoke or fire).
- Use the product under conditions that prevent freezing. Doing so may cause sealing failure or coil burnout (smoke or fire).
- Do not use the product in locations where water droplets may come into contact with the coil while it is turned on. Doing so may cause coil burnout (smoke or fire).

9. Maintenance and Inspection

WARNING	
	Use the product only under the conditions described in the instruction manual. Also, perform periodic maintenance. Use in harsh environments beyond the specified operating conditions, long-term use, or prolonged storage without use may cause the valve to seize and become uncontrollable, resulting in continued voltage application and a rise in coil temperature. In addition, the sealing integrity of the main unit may deteriorate. In any of these cases, leaked refrigerant may cause fire or suffocation.
	When performing work, work in a well-ventilated location or use an exhaust system with adequate ventilation. Also, be sure to wear appropriate protective gear, such as a mask. Failure to do so may result in respiratory disorders due to accumulated gas or suffocation due to leaked gas or similar substances.
	When replacing the product, recover the refrigerant from the refrigeration system and perform the work only after confirming that no refrigerant remains inside the product. If refrigerant recovery is incomplete, refrigerant may leak, causing fire due to ignition or suffocation due to a decrease in oxygen concentration. In addition, always follow the correct refrigerant recovery procedure, and thoroughly check the connections and control the recovered amount.
	Do not tighten screws related to sealing integrity, such as those in joints or gasket seal sections, without proper torque control. Always tighten them to the appropriate torque specified in the instruction manual and properly control the tightening force. Failure to do so may result in refrigerant leakage, leading to fire or suffocation.
	When charging the product with refrigerant, before starting work, check the condition of the joint connections and the tightness of the threaded joints, and confirm that there is no leakage. In addition, perform the work in a well-ventilated area or in a location where adequate ventilation can be ensured so that refrigerant does not accumulate. Failure to take all necessary safety precautions may result in fire or suffocation due to refrigerant leakage.
	Be sure to turn off the power before maintenance or inspection. Performing the work with power on may cause accidental contact with the live part, resulting in serious injury or death due to electric shock.
	Before maintenance or inspection, ensure that no water is present on the product, and perform the work in an environment where the product is not exposed to water, such as rain or condensation. Performing the work with the product wet may cause electric shock, resulting in serious injury or death.

WARNING	
	When wiring the product, wear appropriate protective gear (work gloves, protective goggles, etc.) to ensure safety. There is a risk of injury from sharp edges on the product or tools, flying debris, or the product falling or striking against something. Also, if debris or similar matter enters the eyes, it may cause blindness.
	Before turning on the power to the product, carefully check that there are no short circuits or wiring errors, and confirm safety. In addition, apply voltage and pressure only within the limits specified in the product specifications. Failure to follow these instructions may cause sparks due to short circuits or overcurrent, resulting in fire. In addition, wiring errors or the application of improper voltage may cause electric shock, resulting in serious injury or death.

CAUTION	
	The surface of the product may become very hot during or immediately after use. Avoid touching it directly with bare skin. Also, wear appropriate protective gear, such as gloves, when handling the product. Direct contact with the product may cause burns.
	Before maintenance, inspection, or replacement, be sure to recover the refrigerant from the refrigeration system and perform the work only after confirming that no refrigerant remains inside the product. Failure to do so may cause fire or suffocation due to refrigerant leakage. In addition, escaping refrigerant or flying debris may cause eye or bodily injury, or even blindness.

- Be sure to turn off the power during maintenance and inspection.
- Periodic operational checks are recommended.

10. Disposal

When you no longer need the product, dispose of it properly in accordance with the laws, regulations, and ordinances of your local government.
The power cord and copper tube can be recycled by cutting them off. See p.7 for the parts configuration.
Also, do not reuse any part of the product.

CONSENT RELATED TO DISCLAIMERS

We, SAGINOMIYA SEISAKUSHO, INC., (hereinafter referred to as "Saginomiya"), truly appreciate your choosing Saginomiya's product.
When using Saginomiya's own products and other products supplied by Saginomiya (hereinafter referred to as the "Product"), 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 the Product (hereinafter referred to as "Customers") are requested to, after properly installing the Product, test the operation of the Product to confirm that all the systems in connection with the 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 the 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 the Product
Be sure to confirm the proper operation of the 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 the Product caused by Saginomiya.

• RESTRICTIONS OF USE

The 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 the Product for any instrument or system related to human life or health purposes.
Therefore, the use of the 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 the 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 the Product under the fields related to items (1) through (10), (except for item (3), in relation to which the 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 the 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 refrigeration/air conditioning equipment using flammable and/or toxic refrigerants, excluding A2L refrigerants as defined in ISO 817, or various industrial equipment using flammable and/or toxic fluids, excluding A2L refrigerants as defined in ISO 817;
(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.
(11) Machinery and equipment that are intended or expected to be used under conditions other than those specified in the catalogues and instruction manuals;

It is recommended to replace the 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 the Product.

• SCOPE OF WARRANTY

SAGINOMIYA WILL PROVIDE TIIE CUSTOMERS WITH REPLACEMENT OR REPAIRED TIIE PRODUCT DELIVERED, FREE OF COST, ONLY WITHIN ONE YEAR (NOTE 1) OF DELIVERY TO THE CUSTOMER, IF FAILURE OCCURS IN THE CUSTOMERS' EQUIPMENT USING THE PRODUCT DUE TO ADEFECT OF THE PRODUCT; PROVIDED, HOWEVER, THAT IN ANY EVENT THE AMOUNT THAT SAGINOMIYA BEARS FOR THE DAMAGES INCURRED BY THE FAILURE OF THE PRODUCT OR CUSTOMERS' EQUIPMENT SHALL NOT EXCEED THE PRICE OF THE 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 THE 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 THE PRODUCT;
(3) WHEN CAUSED BY MODIFICATION OR REPAIR OF THE PRODUCT MADE BY ANYONE OTHER THAN SAGINOMIYA OR DESIGNEE OF SAGINOMIYA;
(4) WHEN CAUSED BY THE USE OF THE 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 THE PRODUCT FROM INTERNET AUCTION, ETC.
(NOTE 1): IN THE CASE OF DANFOSS PRODUCTS, WITHIN EIGHTEEN (18) MONTHS FROM THE DATE OF MANUFACTURE.

SAGINOMIYA SEISAKUSHO,INC.

This document shall apply to any catalogue and instruction manual issued by Saginomiya on or after December 2025.
STF04001 Annex1a 2025.12

The information in this instruction manual is current as of the date of publication and is subject to change without prior notice due to specification changes or improvements to the product.

We have made every effort to ensure its accuracy, but we shall not be responsible for any damages, direct or indirect, arising from errors, omissions, or use of the information.

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