

Read all instructions thoroughly

I N S T R U C T I O N S

PULSE MOTOR EXPANSION VALVE

Type – MKV

SAGINOMIYA

<When to use>

- If the valve is hunting, change the controller settings, etc., or review whether the valve model selection is appropriate.

Maintenance and Inspection

- Be sure to turn off the power during maintenance and inspection.
- Never attempt to disassemble it.
- If disassembly or inspection is required, please contact us.

Confirmation of operation

After installing the product correctly, be sure to perform a test run to confirm that the entire system is fully functional.

LIMIT ON APPLICATION

The product is not designed and manufactured for such equipment or system that is intended to be used under such circumstances as to relate to human life. For application requiring specially high reliability, please contact Company first.

SCOPE OF WARRANTY

Unless otherwise agreed by the parties, warranty period of the Product shall be one year after delivery. In case of failure attributable to the Company within such period, the Product shall be repaired or replaced, provided that any one of followings are out of the warranty :

1. Improper handling or application by user
2. Modification or repair by other than the Company
3. Any failure to be caused by acts of God, fire, storm or the like, war, riot or the like

Warranty described in this paragraph means the warranty for the Product itself and does not include warranty for any consequential damage arising out of or occasioned by a defect or failure of the Product.

SAGINOMIYA
SEISAKUSHO, INC.

Shinjuku Garden Tower 22F
8-2, Okubo 3-chome, Shinjuku-ku, Tokyo, 169-0072 Japan
Tel : +81 3 6205 9123 Fax : +81 3 6205 9125
E-mail : inter@saginomiya.co.jp
URL : <http://www.saginomiya-global.com/en/>

INTRODUCTION

Thank you for purchasing our MKV type pulse motor expansion valve.

Please read the instruction manual carefully before use and use the product correctly.

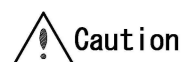
After reading, be sure to keep it in a place where the user can access it at any time.

NOTE FOR SAFETY



WARNING

- This valve is designed and manufactured for refrigerant control in refrigeration, and air conditioning. Do not use this valve for any other purpose.
- Do not use this valve in a system where impact pressure such as liquid hammer is applied to this valve. It may cause malfunction or fluid leakage.
- Select a solenoid valve that matches the size of this valve.
If an oversized solenoid valve is installed, excessive impact pressure will be applied to this valve, causing it to break.
- The voltage indicated on the label and the output voltage of the controller must match.
Applying a voltage other than that specified may cause the coil to burn out (smoke or fire) or malfunction. For the output voltage of our controllers, refer to the controller's instruction manual.
- Do not touch the coil when the power is on. It may become hot and may cause burns.
- Do not touch this valve at low temperatures. The touched part may not come off and you may get burned.
- Do not drop or otherwise subject this valve to impact or large loads. Also, do not ride on this valve. Doing so may cause coil burnout (smoking or ignition), malfunction, or fluid leakage.
- Do not keep the coil warm. Doing so may cause coil burnout (smoking or ignition).
- Do not place flammable materials around the coil. The heat generated by the coil may cause a similar fire.



Caution

- A separate controller is required to operate this valve. Use this controller together with our pulse converter (recommended sampling time: 10 seconds). Also, be sure to read the instruction manual for this controller.
- If you do not use our controller, please contact us for the excitation method, etc. before manufacturing. Use of an incompatible controller may result in malfunction.
- Loose or miswired terminals not only prevent correct control, but also cause malfunctions.

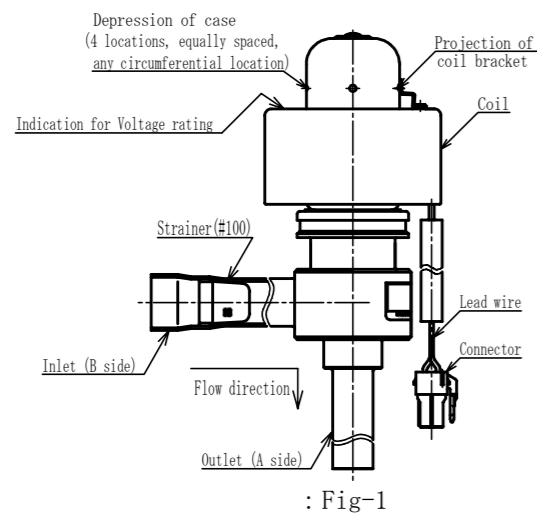
Feature

- This motorized control valve (electronic expansion valve) uses a stepping motor to control refrigerant.
- Since the valve opening is adjusted by pulse signals from the controller, various controls are possible without being affected by pressure or flow rate.
- Combined with our pulse converter, it can be used as a hot gas bypass valve for large packaged air conditioners, chiller units, GHPs, large refrigeration units, etc., for highly efficient refrigeration operation.

Product Specifications

- Before using the product, check the specifications with the drawings or product specifications.
- Do not use the product under conditions outside the specifications. Failure to do so may result in malfunction or damage.

Part Names



: Fig-1

MOUNTING METHOD

<Before Installation>

- Do not use in combination with body parts or coil parts made by other manufacturers.
- Do not use the product under water, in corrosive atmospheres, or in areas subject to severe vibration. Doing so may cause malfunction.
- Remove any dust or foreign matter in the piping. Doing so may cause malfunctions.
- Do not scratch the brazed part of the joint. Doing so may cause external leakage.
- Do not put strong magnetic objects near the case of the main unit. Doing so may disrupt the magnetic properties of the magnets inside the case and cause malfunctions.
- Do not suspend this valve by the coil lead wire. Doing so may cause a malfunction (disconnection).
- The mounting position should be within $\pm 15^\circ$ of vertical with the splash-proof case up.
- Allow space around the valve for maintenance and wiring.
- The specifications do not cover clogging of flow paths, erosion, or operational failures caused by foreign matter in the system.

<MOUNTING METHOD : Body part>

- Install in accordance with Figure 1. Do not confuse the inlet and outlet. There are arrows on the main unit to indicate the flow direction.
- Do not apply reverse pressure. Doing so may push up the needle valve that controls the flow rate, causing valve leakage, flow deviation, or malfunction.
- Fluid passing through the valve should not be subjected to shock pressure, such as a liquid hammer.
- Do not install a check valve or similar device on the inlet side. The inside of the piping will become liquid-sealed and abnormal pressure will be generated, which may cause damage or failure of the valve.
- Do not install the solenoid valve in such a position that the valve becomes a liquid reservoir.
- Securely fix the main unit and piping. Vibration of the piping may cause cracks in the joints
- When brazing, remove the coil section and wrap the main body with a damp cloth or place it in water to keep the temperature below 120°C. However, do not allow water to get inside. Do not point flames directly at the main unit. Be very careful to avoid burns and fire.
- When brazing, fill the inside with inert gas (nitrogen gas, carbon dioxide gas, etc.) to prevent the formation of oxide scale.
- The valve is set to open at 672 pulses when shipped, but may move due to vibration during transportation. When filling the inside with inert gas during brazing, move the valve so that it is fully open.
- Do not apply unreasonable force such as compression, tension, or torsion to the main unit. Doing so may cause deformation of the main unit and malfunction.
- Do not allow water to get inside the piping. Freezing or rusting may cause malfunction.
- Use the product in an environment lubricated with refrigeration oil. If the product is left in a high temperature environment without refrigeration oil, there is a possibility of operational failure due to creep of resin parts.

<MOUNTING METHOD : Coil part>

- When installing the coil section, insert the coil bracket straight into the main body case so that the cover will not be deformed, and then securely fit the coil bracket convex into the main body case concave so that it snaps into place. There are 4 recesses in the main body case, so please secure the coil bracket in a direction that makes it easy to pull out the lead wires.
- For lead wire extension, be sure to use our relay lead wires.
- Do not wrap lead wires around the coil section.
- Secure all parts of the lead wires between this valve and the controller to prevent vibration, etc. When bending the lead wires, do not bend them at a sharp angle, but make a curve with sufficient margin. Do not place or step on the lead wires. Doing so may cause damage or disconnection.
- Do not touch the lead wires at low temperatures. The sheath is hardened, which may cause breakage or disconnection.
- Since the connector part of the coil is not waterproof, please do not allow water drops, etc. to adhere to it. This may cause disconnection or malfunction.

<Wiring Method>

- When wiring, be sure to turn off the controller power.
- As shown in the table on the right, connect the wires so that they match the controller side based on the color of the lead wires.

Lead wire color	Phase
Orange	A
Red	B
Yellow	A
Black	B
Gray	C(COM. : +)