

This manual should be read by those who design and maintain equipment that uses this product.

Be sure to keep this manual nearby for handy reference.

Please read "Terms and Conditions" from the following URL before ordering and use.

https://www.azbil.com/products/factory/order.html

#### NOTICE

Be sure that the user receives this manual before the product is used.

Copying or duplicating this user's manual in part or in whole is forbidden. The information and specifications in this manual are subject to change without notice.

Considerable effort has been made to ensure that this manual is free from inaccuracies and omissions. If you should find an error or omission, please contact the azbil Group.

In no event is Azbil Corporation liable to anyone for any indirect, special or consequential damages as a result of using this product.

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### SAFETY PRECAUTIONS

Safety precautions are for ensuring safe and correct use of this product, and for preventing injury to the operator and other people or damage to property. You must observe these safety precautions. Also, be sure to read and understand the contents of this user's manual.

Key to symbols

# WARNING

Warnings are indicated when mishandling this product might result in death or serious injury to the user.

# 🗥 CAUTION

Cautions are indicated when mishandling this product might result in minor injury to the user, or only physical damage to this product.



Before installing, removing, or wiring this product, be sure to shut off the power and gas. Otherwise, an electric shock or gas leak may result.

The installation, wiring, adjustment, inspection, and maintenance of this product should be carried out only by specialists with sufficient knowledge and technical skill concerning combustion and industrial furnaces.

After piping and wiring, be sure to check for gas leaks before introducing gas into the piping. Failure to do so may cause fire or device failure.

Do not repair, modify, or disassemble this product. Otherwise, an electric shock or gas leak may result. Be sure to obtain genuine Azbil Corporation parts for replacement use and when purchasing separately sold accessories.

Because the solenoid coil can reach high temperatures, do not touch it when the product is operating.

Before use, carry out a trial run to check the operation of this product, and make any necessary adjustments.

If dust enters this product, it may not shut off gas properly, resulting in a serious accident. Flush the piping with air before installing this product. In addition, install a filter on the upstream side of the product.



This product has a limited lifetime. Replace it before the end of its service life is reached. If this product is used beyond its service life, a serious accident such as a gas leak may result.

If LPG is used, install a mist trap in order to prevent reliquefied gas components (adhesive material) from entering this product.

# 



- Prolonged vibration

Before installation, check that the model is appropriate for the use.

Use this product correctly within the ranges specified in this user's manual. Otherwise, gas leakage or device failure may result.

### UNPACKING

When unpacking this product,

1. Check the model number printed on the labels on the solenoid coil and valve unit to confirm that you have the model you ordered.



Azbil product label



- 2. Check the appearance for any apparent damage.
- 3. Check that all accessories are included.

Items indicated below are included with the product.

After unpacking, handle this product carefully to avoid damaging the unit or losing the accessories.

If there is any problem with your purchase, contact the azbil Group promptly.

| ltem            | Model No. | Qty. | Notes  |  |  |  |
|-----------------|-----------|------|--|--|--|--|
| Valve unit      | GV-A      | 1    | MODEL SELECTION (page 8)                     |  |  |  |
| M20 cable gland | —         | 2    | GV-AGR<br>GV-AGL                             |  |  |  |
|                 |           | 1    | For models other than the above              |  |  |  |
| Bolt set        | _         | 4    | Set of bolts with octagonal washers and nuts |  |  |  |
| Strainer        | _         | 1    | Already mounted on the valve unit            |  |  |  |
| O-ring A*       | _         | 2    | Already mounted on the valve unit            |  |  |  |

\* O-rings are used between the valve and the dedicated pipe flanges.

### **OVERVIEW**

The GV-A gas solenoid valve (hereafter "this product") can be used for turning on or off gas burners and gas combustion equipment for natural gas, LP gas, etc., and as a safety shutoff valve.

This product was made by Elster GmbH **krom** and imported from Germany.

#### Features

- The product is composed of a valve body and a dedicated pipe flange.
- The double-seated valve allows larger gas flow and smaller piping port.
- The maximum operating pressure is 50 kPa.
- This product is available in both quick-open and slow-open types. The quick-open type has a mechanism for adjusting the maximum flow rate.

The slow-open type has a mechanism for adjusting the initial gas flow rate and maximum flow rate.

- Models with POC (proof of closure) have a function to show whether the valve is shut off.
- With the blue LED, which is a standard feature, power status can be visually checked.
- The product complies with EN 161 Class A.
- The product has obtained SIL2 and PLd certification. When two GV-A units are connected in series, the product complies with SIL3 and PLe.



The blue LED indicates that the solenoid valve is powered.

#### SIL 3 (Safety Integrity Level 3)

Safety system SIL safety certification must be received from a third party. SIL3 is the level at which risk is reduced between 1/1,000 and 1/10,000 of the risk at a plant where safety measures are not adopted. SIL1 indicates that risk is reduced to the 1/10–1/100 range.

#### Performance Level (PL)

The performance level indicates the ability of safety-related parts to perform a safety function. Hardware failure rates and software safety requirements were added to the qualitative requirements described in category B, items 1 to 4 in EN 954-1 and ISO 13849-1:1999 (JIS B 9705-1:2000) to provide quantitative safety levels designated from PLa to PLe.

### PART NAMES

This product is composed of the valve body and a dedicated pipe flange. The structure and part names are shown below.

### 🗖 Main unit



#### Models without a POC switch



### Models with a POC switch



### Slow-open type



### ! Handling Precautions

- Function inspection screw
  - This screw is for function inspection by the manufacture. It is not for onsite adjustment. Please do not turn it. Doing so might cause an oil leak or prevent the valve from opening.

### PIPING

# **WARNING**

After piping, check for gas leaks.

Do not use this product with gas having a temperature that exceeds the specifications, gas that contains dust, gas that contains moisture, or condensed gas.



### ! Handling Precautions

• When screwing the product into the pipe, do not apply too much force to the valve unit. Doing so will damage the main unit or cause gas leakage.



#### Before piping

• Strainer check Check that the strainer is securely attached to the inlet of the upstream side valve unit.

• Air flushing

Before installing this product on the piping, flush the pipes with air to remove metal shavings, burrs, and any other foreign matter.

### Piping

(1) Apply sealing tape or sealant to the male threads of the pipe.



Apply an appropriate amount of sealant, except on the two threads near the end.

#### Correct



Incorrect



### **!** Handling Precautions

- Sealant applied in large amounts or foreign matter in the pipes will clog the strainer and reduce the flow rate.
- (2) Tighten the octagonal part of the dedicated pipe flange with a wrench.



(3) Check the flow direction, and insert this product between the upstream and downstream dedicated pipe flanges.



### ! Handling Precautions

- Push the piping apart and insert the valve, taking care not to damage the O-rings attached to both sides of the valve.
- The O-rings should be set securely in the grooves of the valve. If the O-rings are not fitted well, the connection between this product and the piping may not be sealed completely.
- Attach the O-rings and the strainer before mounting the valve on the dedicated pipe flanges.
- (4) Recheck the position of the dedicated pipe flanges and the gas flow direction. Tighten the bolts of the dedicated pipe flanges with a hex wrench.

### ! Handling Precautions

 Bolt tightening torque is indicated below. Do not tighten the bolts excessively. Doing so will damage the bolts and may cause gas leakage.

Bolt for valve size 1: 4.5 N·m

Bolt for valve size 2: 8.0 N·m

Bolt for valve size 3: 14.0 N·m

Set the octagonal nuts and washers in the correct position as shown below. If they are in the wrong position, the bolt set will not fit into the flange and the valve unit completely. This would cause a loose connection between the flange and the valve, resulting in gas leakage.



WIRING



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Make sure that there are no loose connections.

- (1) Select a knockout for the power cable of this product.
- (2) With the terminal box cover closed, remove the knockout with a tool such as a screwdriver.



- (3) Remove the terminal box cover.
- (4) Attach the power cable to the M20 cable gland that is supplied with this product.



(5) Pass the M20 cable gland through the knockout hole.



(6) Pass the cable through the nut inside the terminal box.



(7) Tighten the nut to secure the M20 cable gland to the terminal box.



(8) Connect the high potential (H) wire to LV1(+) and the low potential (G) wire to N(-).Connect the ground wire to the ground terminal.

#### Models without a POC switch



#### Models with a POC switch



- (9) Tighten the nut on the outside of the terminal box to secure the power cable.
- (10) Put the terminal box cover back on the unit.

### ! Handling Precautions

- If the POC switch is used with a low-voltage circuit, be sure to isolate the wires to the low-voltage circuit from the wires to the line voltage in order to prevent induction from the line voltage that drives this product.
- When wiring the POC switch, lift the connector off the board. After wiring, put the connector back in place without turning it upside down.
- If terminals at the bottom of the terminal box for the POC switch are used for internal wiring of this product, use the terminals at the top.
- Use cables that are heat resistant to 80 °C or more.
- The solenoid coil reaches high temperatures. Wire the cables so that they do not touch the coil.
- Do not use No.2 terminal of the POC switch in case of slow-open types.

### ADJUSTMENT

#### Maximum and initial gas flow rate adjustment

|                 | Adjustment mechanism      |                              |  |  |  |  |  |
|-----------------|---------------------------|------------------------------|--|--|--|--|--|
|                 | Max. flow rate adjustment | Initial flow rate adjustment |  |  |  |  |  |
| Slow-open type  | Approx. 20–100 %          | Approx. 0–70 %*              |  |  |  |  |  |
| Quick-open type | of max. flow rate         | -                            |  |  |  |  |  |

\* Initial flow rate < Maximum flow rate

#### Maximum flow rate adjustment

With 100 % as the flow rate when the valve is full-open, the flow rate can be adjusted within the range of approximately 20 to 100 %.

#### Initial gas flow rate adjustment

The initial flow rate is the flow rate of the gas that is supplied to the pipe immediately after the power is turned on. A slow-open type of valve, which can adjust the initial gas flow

rate to prevent detonation ignition, is available for this product.

When powered, the valve of the slow-open type opens slowly, taking approximately 10 s at a maximum. The flow rate immediately after power-on can be adjusted within a range of 0 to 70 % of the maximum flow rate.

### Adjusting the maximum flow rate

The position for maximum flow rate is set at the factory. Adjust the maximum flow rate according to the application.

Turn the flow rate adjustment screw with a hex wrench.



### Adjusting the initial gas flow rate (for the slowopen type only)

The time required for the valve to open depends on the initial gas flow rate that is set.

The factory default is 0 %. Adjust the initial gas flow rate according to the application.

#### 📖 Note

- The damper unit can be rotated for up to five full turns.
- To make the damper unit work perfectly, it is necessary to allow an interval of at least 20 s after the valve is closed and before the power is turned back on.
- (1) Loosen the setscrew with a hex wrench.



(2) Turn the damper unit clockwise (tightening) to reduce the initial flow rate, and counter-clockwise (loosening) to increase the rate.



(3) Tighten the setscrew with a hex wrench.



### MAINTENANCE

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Check the gas solenoid valve for both external and internal leakage at least once a month.

After piping and wiring, be sure to check for leaks before introducing gas into the piping. Failure to do so may cause fire or device failure.

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When discarding this product, please dispose of it as industrial waste, following local regulations.

### External leakage

Close manual regulating valves 1 and 3 in the figure in P Leakage (page 6), and check for a leak with a gas detector or leak detection fluid.



### **!** Handling Precautions

 If gas is leaking from the dedicated pipe flanges (external leakage), check whether components of the seal such as the O-rings are properly attached (if not, attach them properly) and free from damage. Replace any damaged components of the seal.

#### Internal leakage

Close only manual control valve 1, connect a rubber hose to manual control valve 3, and then place the other end 10 mm deep in water to see if any bubbles come out.

### Leakage

GV-A100/200: 40 mL/h max.

GV-A300: 60 mL/h max.

Note: The above figures are for a pressure of 50 kPa and include both internal and external leakage.



### **REPLACING A VALVE UNIT**

- (1) Disconnect the power cable and the cable for the POC switch.
- (2) Shut off the gas.
- (3) Remove the bolts that connect the dedicated pipe flange to the valve unit.



(4) Pull out the valve unit.



- (5) Check that the O-rings, connecting O-ring, strainer, and retaining frame are not damaged.
- (6) Attach the strainer, retaining frame, new O-rings and connecting O-ring to the new valve unit.

#### When a single unit is used



#### When two units are connected



user's manual for the combustion equipment.

(8) Check for internal and external leakage.
 MAINTENANCE (page 6) and the user's manual for the combustion equipment.

(9) Adjust the maximum and initial gas flow rates.
 CF ADJUSTMENT (page 5) and the user's manual for the combustion equipment.

### ! Handling Precautions

- When removing only one of two connected valve units, remove both units from the dedicated pipe flanges, and then detach one from the other.
- When installing or removing valves, replace the components of the seal.

### **CONNECTING TWO VALVES IN SERIES**

### Connecting two valves in series

The parts shown in the figure below are necessary to connect two valves in series.

First, connect two valve units and attach the dedicated pipe flanges to the pipe. Then, insert the valve units between the flanges.

PIPING (page 3)

The dedicated pipe flanges and connecting O-rings are sold separately.

PARTS SOLD SEPARATELY (page 8)

### ! Handling Precautions

- If it is necessary to connect the terminal boxes, open the knockout hole of the terminal boxes before connecting the valve units.
- Check that the flow direction of the valves is the same.
  - (1) Remove the strainer from the downstream valve unit.
  - (2) Remove each O-ring A from the facing surfaces of the valve units, and in their place attach the connecting O-ring and retaining frame (sold separately).Discard the two removed A-type O-rings and the strainer.
  - (3) For models with a POC switch, connect the terminal boxes with a cable bushing before connecting the valve units together.
    Connecting terminal boxes (page 7) (for details)
    - Connecting terminal boxes (page 7) (for details)
  - (4) Insert the two bolts that are included with the product to the connecting part at the center, and tighten the bolts.page 4 (for the tightening torque)



### Connecting terminal boxes



Cable bushing (sold separately)

### **!** Handling Precautions

- For models with a POC switch, the direction of the terminal box cannot be changed.
- For models without a POC switch
  - For single valve configuration: The direction of the terminal box can be changed.
  - For double-valve configuration: For valve size 1 and 2, the adjacent coils interfere each other. Therefore, the direction of the terminal boxes can be changed only in 90-degree increments. The direction cannot be changed after the valve units are connected. For valve size 3, the direction of the terminal boxes can be changed after the valve units are connected.

### 📖 Note

• If the upstream and downstream valves are wired independently, it is not necessary to connect the terminal boxes.

### Connecting method

(1) With the terminal box cover closed, remove the knockout from the connecting side with a tool such as a screwdriver.



### ! Handling Precautions

- Be careful not to damage the inside of the terminal box.
- (2) Remove the terminal box cover.



(3) For the GV-A200 and the GV-A300, remove the ground terminal (supporting hex bolt : width across flats = 8) at the center of the terminal box.



(4) Attach the cable bushing.



- (5) For the GV-A200 and the GV-A300, put the ground terminal (supporting hex bolt) back in the original position. (Recommended tightening torque: 3.0 N·m)
- (6) Put the terminal box cover back on the unit.

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### **MODEL SELECTION**

### GV-A

| Basic<br>model No. | Valve size | Operation<br>type | Rated<br>power   | POC<br>switch | Inspection<br>report   | Add'l proc. | Description  |  |
|--------------------|------------|-------------------|--|---------------|------------------------|-------------|--|--|
| GV-A               |            |                   |  |               |                        |             | High-performance gas solenoid valve for industrial applications  |  |
|                    | 100        |                   |  |               |                        |             | Valve size 1 (for port sizes 10A, 15A, 20A, 25A)   |  |
|                    | 200        |                   |  |               |                        |             | Valve size 2 (for port sizes 25A, 32A, 40A, 50A)   |  |
|                    | 300        |                   |  |               |                        |             | Valve size 3 (for port sizes 40A, 50A, 65A)  |  |
|                    |            | N                 |  |               |                        |             | Quick-open type  |  |
|                    |            | L                 |  |               |                        |             | Slow-open type   |  |
|                    |            |                   | Р  |               |                        |             | 100 V AC   |  |
|                    |            |                   | Y  |               |                        |             | 200 V AC   |  |
| GR                 |            |                   | With POC switch<br>Fluid flows from left to right, as viewed when facing the front of the<br>terminal box (blue LED) |               |                        |             |  |  |
|                    |            |                   |  | GL            |                        |             | With POC switch<br>Fluid flows from right to left, as viewed when facing the front of the<br>terminal box (blue LED) |  |
|                    |            |                   |  | 00            |                        |             | Without POC switch   |  |
|                    |            | D                 |  |               | With inspection report |             |  |  |
| 0                  |            |                   | Without inspection report  |               |                        |             |  |  |
|                    |            |                   |  |               |                        | 0           | None   |  |

Note: A dedicated pipe flange (sold separately) that is appropriate for the pipe size is necessary.

### PARTS SOLD SEPARATELY

# 

Installation of parts sold separately for maintenance, etc., should be carried out only by specialists with sufficient knowledge and technical skill concerning combustion and industrial furnaces.

After installing parts, carry out inspections, such as a gas leak check.

#### • Dedicated pipe flange

One dedicated pipe flange is included. Two flanges are required for one valve unit.

| Model No. | Name                           | Product code* |
|-----------|--------------------------------|---------------|
| 74921504  | Port size 10A for valve size 1 | FLV110R/B     |
| 74921505  | Port size 15A for valve size 1 | FLV115R/B     |
| 74922229  | Port size 20A for valve size 1 | FLV120R/B     |
| 74922230  | Port size 25A for valve size 1 | FLV125R/B     |
| 74922231  | Port size 25A for valve size 2 | FLV225R/B     |
| 74922232  | Port size 32A for valve size 2 | FLV232R/B     |
| 74922233  | Port size 40A for valve size 2 | FLV240R/B     |
| 74922234  | Port size 50A for valve size 2 | FLV250R/B     |
| 74922235  | Port size 40A for valve size 3 | FLV340R/B     |
| 74922236  | Port size 50A for valve size 3 | FLV340R/B     |
| 74922237  | Port size 65A for valve size 3 | FLV365R/B     |

\* A product identification code that is printed on this product's package along with the model number Valve size and pipe size can be recognized by checking the code.



• Connecting O-ring set

Use these parts for connecting valve units together. The set includes an O-ring and a retaining frame for connection.

| Model No. | Name                                      |
|-----------|---|
| 74924978  | Connecting O-ring set<br>For valve size 1 |
| 74924979  | Connecting O-ring set<br>For valve size 2 |
| 74924980  | Connecting O-ring set<br>For valve size 3 |



• Cable bushing set

The bushing is used for connecting the terminal box of two POC switch model valve units that are connected in series.

| Model No. | Name                                  |
|-----------|---------------------------------------|
| 74921985  | Cable bushing set for<br>valve size 1 |
| 74921986  | Cable bushing set for<br>valve size 2 |
| 74921987  | Cable bushing set for<br>valve size 3 |



#### 📖 Note

• When connecting a unit with the POC switch to a unit without the POC switch, the terminal boxes cannot be connected because the height of the boxes differs.

#### • Bolt set and strainer set

Use the parts below for maintenance as needed.

The initially required bolt and strainer sets are included with the product.

| ¢        | page | 2 | (for   | the | packing | list) |
|----------|------|---|--------|-----|---------|-------|
| <u>م</u> |      | _ | ·· - · |     | F       |       |

| Model No. | Name                          |
|-----------|-------------------------------|
| 74921992  | Bolt set for valve size 1     |
| 74921993  | Bolt set for valve size 2     |
| 74921994  | Bolt set for valve size 3     |
| 74921997  | Strainer set for valve size 1 |
| 74921998  | Strainer set for valve size 2 |
| 74921999  | Strainer set for valve size 3 |

Bolt set



Strainer set



Bolt (2) Washer (2) Nut (2)

Strainer (1)O-ring\* (2)\* The O-rings are used when attaching the dedicated pipe flange to the piping.

#### Pressure tap

The pressure tap is used to measure the primary and secondary pressure of the gas.

| Model No. | Name         |
|-----------|--------------|
| 74923390  | Pressure tap |



| Specifications                                       |   |   |   |  |  |  |  |  |  |
|--|---|---|---|--|--|--|--|--|--|
| Applicable gas type <sup>*1</sup>                    | Natural gas, LP gas (propane  | , butane), air                                  |   |  |  |  |  |  |  |
| Maximum operating pressure                           | 50 kPa  |   |   |  |  |  |  |  |  |
| Cv   | See the table of flow rate characteristics and weight on the next page. |   |   |  |  |  |  |  |  |
| Initial gas flow rate adjust-<br>ment range          | 0 to 70 % (function is availab  | le only for slow-open t                         | ype)  |  |  |  |  |  |  |
| Maximum flow rate adjust-<br>ment range              | 20 to 100 %   |   |   |  |  |  |  |  |  |
| Leak-tightness                                       | Internal and external leakage<br>GV-A100 and GV-A200: 40<br>GV-A300: 60 | e at 50 kPa:<br>mL/h max.<br>mL/h max.          |   |  |  |  |  |  |  |
| Valve operation                                      | When not powered: closed  |   |   |  |  |  |  |  |  |
| Valve operation type                                 | Two types: quick-open and s   | low-open  |   |  |  |  |  |  |  |
| Valve opening time                                   | Quick-open type: 1 second c   | r less. Slow-open type                          | approx. 10 seconds or less.                                   | ,  |  |  |  |  |  |
| Valve closing time                                   | 1 second or less (both quick-   | and slow-open types)                            |   |  |  |  |  |  |  |
| Allowable ambient<br>temperature                     | -20 to +60 °C (without conde  | ensation)                                       |   |  |  |  |  |  |  |
| Storage temperature                                  | -20 to +40 °C (without conde  | ensation)                                       |   |  |  |  |  |  |  |
| Standards  | EN 13611<br>EN 161 Class A Group 2                                      |   |   |  |  |  |  |  |  |
| Rated supply power                                   | 100 V AC, 50/60 Hz<br>200 V AC, 50/60 Hz                                |   |   |  |  |  |  |  |  |
| Allowable power                                      | -15 to +10 % of the rated voltage                                       |   |   |  |  |  |  |  |  |
| Cable gland  | M20 × 1.5   |   |   |  |  |  |  |  |  |
| Electrical wiring                                    | 2.5 mm dia. max. (12 AWG re   | commended)                                      |   |  |  |  |  |  |  |
| Power consumption                                    | Model No.   |   | 100 V models  | 200 V models   |  |  |  |  |  |
|  | GV-A100   |   | 25 W (26 VA)  | 25 W (26 VA)   |  |  |  |  |  |
|  | GV-A200   |   | 36 W (40 VA)  | 40 W (44 VA)   |  |  |  |  |  |
|  | GV-A300   |   | 36 W (40 VA)  | 40 W (44 VA)   |  |  |  |  |  |
| Protection class                                     | IP65 (except for electrical win   | ring ports; outdoor inst                        | allation is prohibited)                                       |  |  |  |  |  |  |
| Valve main unit material                             | Aluminum alloy  |   |   |  |  |  |  |  |  |
| Valve sealing material                               | NBR   |   |   |  |  |  |  |  |  |
| Connection   | Rp (ISO 7-1–compliant paral   | el internal thread for p                        | ipes)   |  |  |  |  |  |  |
| POC switch contact rating<br>(POC: proof of closure) | 12–30 V DC, 2–100 mA<br>Using No.2 terminal of the Pe                   | OC switch is prohibited                         | in case of slow-open types                                    |  |  |  |  |  |  |
| POC switch service life                              | 200,000 cycles  |   |   |  |  |  |  |  |  |
| Design life  | Compliant with EN 13611 an  | d EN 161  |   |  |  |  |  |  |  |
|  | Model No.   | De  | sign life   |  |  |  |  |  |  |
|  |   | Operation count<br>(number of operation         | Number of years   |  |  |  |  |  |  |
|  | GV-A100   | 500,000   | 10  |  |  |  |  |  |  |
|  | GV-A200, GV-A300  | 200,000   | 10  |  |  |  |  |  |  |
|  | This is based on the opera<br>tures can result in premat                | tion count or the num<br>ure wear of rubber mat | per of years, whichever is sn<br>erials and a shorter operati | naller. Prolonged operation at high tempera-<br>ng lifespan than the above values. |  |  |  |  |  |

\* The air must be dry and not contain corrosive components (chlorine, sulfur, or acid). It must be clean, without dust or oil mist.

### External Dimensions

### ● Quick-open type



#### • Slow-open type







| MadalNia  | Connection port<br>diameter | Dimensions (mm) |    |    |     |    |     |     |        | Flow rate (m <sup>3</sup> /h) at a differential pressure of 0.25 kPa |                          | G    | Weight    |
|-----------|-----------------------------|-----------------|----|----|-----|----|-----|-----|--------|--|--------------------------|------|-----------|
| Model No. |                             | L1              | F* | E  | H1  | H2 | H3  | H4  | H5     | Specific gravity<br>0.65   | Specific gravity<br>1.53 |      | (kg)      |
| GV-A100   | 10A (Rp 3⁄8)                |                 | 15 |    |     |    |     | 161 | 226    | 8.5  | 5.4                      | 5.4  | Approx. 2 |
|           | 15A (Rp ½)                  | /5              | 15 | 75 | 145 | 22 | 200 |     |        | 9.7  | 6.6                      | 6.6  |           |
|           | 20A (Rp ¾)                  | 01              | 22 | /5 | 143 | 32 | 208 |     |        | 13.0   | 8.8                      | 8.8  |           |
|           | 25A (Rp 1)                  | 91              | 25 |    |     |    |     |     |        | 13.8   | 9.4                      | 9.4  |           |
| GV-A200   | 25A (Rp 1)                  |                 |    |    |     |    |     |     |        | 27.7   | 18.7                     | 18.7 | Approx. 5 |
|           | 32A (Rp 1 ¼)                | 120             | 20 | 85 | 170 | 47 | 235 | 191 | 91 256 | 32.5   | 22.0                     | 22.0 |           |
|           | 40A (Rp 1 ½)                | 120             | 50 |    |     |    |     |     |        | 34.7   | 23.5                     | 23.5 |           |
|           | 50A (Rp 2)                  |                 |    |    |     |    |     |     |        | 35.2   | 23.8                     | 23.8 |           |
| GV-A300   | 40A (Rp 1 ½)                |                 |    |    |     |    |     |     |        | 52.6   | 35.6                     | 35.6 | Approx. 6 |
|           | 50A (Rp 2)                  | 155             | 36 | 85 | 180 | 59 | 245 | 201 | 266    | 55.9   | 37.8                     | 37.8 |           |
|           | 65A (Rp 2 ½)                |                 |    |    |     |    |     |     |        | 57.9   | 39.2                     | 39.2 |           |

\* Dedicated pipe flanges (indicated by "F" in the above figures) are sold separately.

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