This product is developed for use with Iwaki electromagnetic metering pumps and functions as an air vent valve, back pressure valve, relief valve and a way of releasing discharge line pressure. The pump head can be easily retrofitted with the multifunction valve after a pre-installed air vent valve.

**Specification**

1. Identification code
   - MFV- HT C-1
   - a : Model
   - b : Set pressure
   - Code | Back pressure valve (MPa) | Relief valve (Mpa)
   - H | 0.25±0.1 | 1.25±0.2
   - M | 0.25±0.1 | 0.55±0.1
   - L | 0.10±0.05 | –
   - c : End type
   - Code | Body | O ring | Diaphragm
   - TC | PVDF | PTFE | PTFE+EPDM (Not a wet end)
   - MFV-MFV-MTC-5/6/8 C31 MFV-LTC-5/6/8 B31/C36

**Applicable pumps**

This product is applicable to the following pumps.

<table>
<thead>
<tr>
<th>Model</th>
<th>Pump size</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFV-HTC-2/3/7/23/24</td>
<td>B11/B16/C16/C21</td>
</tr>
<tr>
<td>MFV-MTC-2/3/7/23/24</td>
<td>B21</td>
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<tr>
<td>MFV-MTC-5/6/8</td>
<td>C31</td>
</tr>
<tr>
<td>MFV-LTC-5/6/8</td>
<td>B31/C36</td>
</tr>
</tbody>
</table>

**Installation**

Turn off power and check the pump has stopped before work.

Release the discharge line pressure before work!
1. Turn the Lock nut anticlockwise and take out a pre-installed air vent valve from the pump head.
2. Mount the multifunction valve to the pump head and fasten the Lock nut clockwise.
3. Connect a discharge line and air vent line to corresponding port on the valve. See the instruction manual of the pump for detail.
4. Run the pump and check for a leak.

**Operation**

Rotate BV and RV relief knobs and activate a desired function. Each knob clicks every 90-degree rotation, indicating two different functions in turn.

- BV (Backpressure Valve):
  - Back pressure valve is active. Select this function for normal operation.
- RV (Relief Valve):
  - Relief valve is active. Select this function for normal operation.
- AV (Air Vent):
  - Air vent valve is active.

1. Dropping
   - Rotate the RV relief knob and select “AV”.
   - Run the pump until air has been expelled and liquid starts to come up through the air vent port.
   - Return the relief knob to “RV”.
2. Back pressure valve and Relief valve
   - After air has been expelled, select “BV” and “RV” and then start operation. A relief valve becomes ready to function and a certain level of back pressure is maintained during operation.
   - Once discharge pressure has reached the set pressure of the relief valve, the valve starts to expel liquid through air vent port.
   - When back pressure is not kept or the relief valve does not function, either relief knob may be out of a proper position. Always rotate the knob until it clicks!
3. Discharge line pressure release
   - Stop the pump.
   - Select “PF” by the BV relief knob to disable the back pressure valve.
   - Rotate the RV relief knob to “AV” to release discharge line pressure through the air vent port.

**Maintenance & Inspection**

Check the following points and stop operation upon sensing abnormalities. See “Troubleshooting” below in order to resolve problems.

<table>
<thead>
<tr>
<th>Item</th>
<th>States</th>
<th>Points to be checked</th>
<th>How to check</th>
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<td>1.</td>
<td>Flow rate failure</td>
<td>A position of RV relief knob</td>
<td>Flow meter/ Visual check</td>
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<tr>
<td>2.</td>
<td>Leak problem</td>
<td>Check for a leak and tighten joints</td>
<td>Visual check</td>
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<tr>
<td>3.</td>
<td>Air ingress from loose joints</td>
<td>Check a line and tighten joints</td>
<td></td>
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</tbody>
</table>

**Troubleshooting**

- BV relief knob hasn’t come to a proper position, so that overfeeding is caused.
- RV relief knob hasn’t come to a proper position, so that a leak is caused from the air vent port.
- PF (Pressure Free):
  - Discharge line pressure is being released. Note “AV” must be selected on the other side at this time.
- AV (Air Vent):
  - Air vent valve is active.

- BV is selected.
- RV is selected.
- PF is selected.

- 1. BV relief knob hasn’t come to a proper position, so that overfeeding is caused.
- 2. RV relief knob hasn’t come to a proper position, so that a leak is caused from the air vent port.
- 3. PF (Pressure Free):
  - Discharge line pressure is being released. Note “AV” must be selected on the other side at this time.
- 4. AV (Air Vent):
  - Air vent valve is active.

- a. Rotate the RV relief knob and select “AV”.
- b. Run the pump until air has been expelled and liquid starts to come up through the air vent port.
- c. Return the relief knob to “RV”.

- a. After air has been expelled, select “BV” and “RV” and then start operation. A relief valve becomes ready to function and a certain level of back pressure is maintained during operation.
- b. Once discharge pressure has reached the set pressure of the relief valve, the valve starts to expel liquid through air vent port.
- c. When back pressure is not kept or the relief valve does not function, either relief knob may be out of a proper position. Always rotate the knob until it clicks!

- 1. Degassing
   - Rotate the RV relief knob and select “AV”.
   - Run the pump until air has been expelled and liquid starts to come up through the air vent port.
   - Return the relief knob to “RV”.
   - 2. Back pressure valve and Relief valve
      - a. After air has been expelled, select “BV” and “RV” and then start operation. A relief valve becomes ready to function and a certain level of back pressure is maintained during operation.
      - b. Once discharge pressure has reached the set pressure of the relief valve, the valve starts to expel liquid through air vent port.
      - c. When back pressure is not kept or the relief valve does not function, either relief knob may be out of a proper position. Always rotate the knob until it clicks!

- 1. BV relief knob hasn’t come to a proper position, so that overfeeding is caused.
- 2. RV relief knob hasn’t come to a proper position, so that a leak is caused from the air vent port.
- 3. PF (Pressure Free):
  - Discharge line pressure is being released. Note “AV” must be selected on the other side at this time.
- 4. AV (Air Vent):
  - Air vent valve is active.

- a. Rotate the RV relief knob and select “AV”.
- b. Run the pump until air has been expelled and liquid starts to come up through the air vent port.
- c. Return the relief knob to “RV”.

- a. After air has been expelled, select “BV” and “RV” and then start operation. A relief valve becomes ready to function and a certain level of back pressure is maintained during operation.
- b. Once discharge pressure has reached the set pressure of the relief valve, the valve starts to expel liquid through air vent port.
- c. When back pressure is not kept or the relief valve does not function, either relief knob may be out of a proper position. Always rotate the knob until it clicks!

- 1. Degassing
   - Rotate the RV relief knob and select “AV”.
   - Run the pump until air has been expelled and liquid starts to come up through the air vent port.
   - Return the relief knob to “RV”.

- a. After air has been expelled, select “BV” and “RV” and then start operation. A relief valve becomes ready to function and a certain level of back pressure is maintained during operation.
- b. Once discharge pressure has reached the set pressure of the relief valve, the valve starts to expel liquid through air vent port.
- c. When back pressure is not kept or the relief valve does not function, either relief knob may be out of a proper position. Always rotate the knob until it clicks!