**OVERVIEW**

Mounted on control valves, HEP Electro-Pneumatic Valve Positioners model HEP25/26 control valve positions swiftly and accurately by supplying or discharging air from pneumatic actuators in response to input signals from controllers.

**FEATURES**

- The magnet is a high-precision mobile coil. With a terminal box, it forms an explosion-proof structure. To check the inside, the covers of these models can be removed during operation.
- The rare-earth metal magnet has excellent magnetic characteristics. The mobile coil is round and energized by a flat spring. It requires no leads.
- Since each model is compact and lightweight, it can be used with even a small actuator. No piping is required because the KZ03 pressure regulator with filter can be directly attached to the positioner.

**China RoHS**

This device is used in the Oil & Gas, Petrochemical, Chemical, Pulp & Paper, Food & Beverage, Machinery, Steel/Metal & Mining, and Automobile industries and therefore does not fall under the China RoHS Legislation. If this device is used in semiconductor manufacturing equipment, labeling on the device and documents for the China RoHS may be required. If such documents are required, consult an Azbil Corp. representative.

**SPECIFICATIONS**

**Models**

Model HEP25: TIIS Flameproof approval
Model HEP26: TIIS Intrinsically safe approval

**Input signals**

4 to 20 mA DC,
Half range (4 to 12 mA DC and 12 to 20 mA DC)

**Input resistance**

250 ± 10 Ω (4 to 20 mA DC input)

**Output characteristics**

Linear, equal-percentage, and quick-opening

**Air supply pressure**

200 to 690 kPa [2.0 to 7.0 kgf/cm²]

**Air consumption**

15 L/min(N)
(steady-state under air supply pressure 490 kPa [5.0 kgf/cm²])

**Maximum passing air volume**

250 L/min(N)
(steady-state under air supply pressure 490 kPa [5.0 kgf/cm²])

**Air connection**

Rc 1/4 (standard), 1/4 NPT internal thread

**Electrical connection**

G1/2, 1/2 NPT (model HEP26 only)

**Ambient temperature range**

HEP25: -10 to +70°C
HEP26: -10 to +60°C

**Ambient humidity range**

10 to 90% RH

**Specified actuators**

VP5 to 7

**Performance**

**Accuracy**

± 1% F.S.
Dead band
Within 0.1% F.S.

Travel adjustment range
12 to 100 mm

Type of protection
TIIS Flameproof approval (model HEP25)
With Flameproof terminal box or one with cable gland
Complies with JIS C0903 Class d2G4 and JIS F8001

TIIS Intrinsically safe approval (model HEP26)
Compiles with JIS C0903 Class i3aC5
(With signal line supply voltage of 23.5 to 27.5V DC)
Zener Barrier No.: 8907/51-24/45 (Certificate No.: 29911)

Additional mechanism (factory-mounted upon request)
- Model KZ03 pressure regulator with filter
- Universal elbow of Flameproof construction
- Cable grand adaptor

Outer dimensions
Refer to Figure 2.

Weight
4 kg (4.7 kg with pressure regulator with filter)

Housing
Aluminum alloy

Finish
- Standard finish (acrylic-baked)
- Corrosion-proof finish (epoxy-baked, Y138B)
- Corrosion-proof silver finish (acrylic-baked, Y138D)

Note) Silver finish is not suitable in alkaline atmospheres.

Standard finish colors
Case
Dark beige (Munsell 10YR 4.7/0.5)

Cover
Light beige (Munsell 4Y 7.2/1.3)

Selection of input/output characteristics
Since control valve flow rate characteristics are set by the selection of valve plug characteristics, select linear as the input/output characteristics of the positioner. However, if the valve plug's flow rate characteristics, which are determined by the valve type and structure, are not what is required, select equal-percentage or quick-opening. Overall flow rate characteristics of control valve can then be adjusted with the positioner.

Table 1. Adjustment of control valve flow rate characteristics using positioner

<table>
<thead>
<tr>
<th>Valve plug characteristics</th>
<th>I/O characteristics of positioner</th>
<th>Overall flow rate characteristics of control valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>Quick-opening</td>
<td>Quick-opening</td>
</tr>
<tr>
<td>Linear</td>
<td>Equal-percentage</td>
<td>Equal-percentage</td>
</tr>
<tr>
<td>Equal-percentage</td>
<td>Quick-opening</td>
<td>Linear</td>
</tr>
</tbody>
</table>
# MODEL SELECTION

## Basic model

<table>
<thead>
<tr>
<th>HEP</th>
<th>Input signal</th>
<th>Air supply pressure</th>
<th>Unit of pressure gauge</th>
<th>Input/output character</th>
<th>Actuator action</th>
<th>Actuator type</th>
<th>Air connection</th>
<th>Electrical connection</th>
<th>Finish</th>
<th>Positioner action</th>
<th>Actuator type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4 to 20 mA (Accuracy ± 1% F.S.)</td>
<td>130 ≤ Ps ≤ 150 kPa (Suitable press. gauge scale 200 kPa)</td>
<td>kPa</td>
<td>Linear (Standard)</td>
<td>Direct action</td>
<td>---</td>
<td>Rc1/4 (Standard)</td>
<td>GI/2</td>
<td>Standard finish *2</td>
<td>Direct action (Standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 to 12 mA (Accuracy ± 2% F.S.)</td>
<td>150 &lt; Ps ≤ 300 kPa (Suitable press. gauge scale 400 kPa)</td>
<td>kgf/cm² *1</td>
<td>Equal % (EQ%)</td>
<td>Reverse action</td>
<td>---</td>
<td>1/4NPT</td>
<td>1/2NPT</td>
<td>Corrosion-proof finish (Baked epoxy paint Y138B)</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 to 20 mA (Accuracy ± 2% F.S.)</td>
<td>300 &lt; Ps ≤ 400 kPa (Suitable press. gauge scale 600 kPa)</td>
<td>MPa</td>
<td>Quick opening (QO)</td>
<td>Reverse action</td>
<td>---</td>
<td>1/4NPT (with Rc1/4 - 1/4NPT adaptor)</td>
<td>1/2NPT (with GI/2 - 1/2NPT adaptor)</td>
<td>Silver corrosion-resistant finish (Baked acrylic paint Y138D) *3</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 ± 1 to 20 mA (Accuracy ± 2% F.S.)</td>
<td>400 &lt; Ps ≤ 450 kPa (Suitable press. gauge scale 600 kPa)</td>
<td>bar</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 to 20 mA (Accuracy ± 2% F.S.)</td>
<td>450 &lt; Ps ≤ 500 kPa (Suitable press. gauge scale 1000 kPa)</td>
<td>psi *1</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>

## Note

- *1 Not for Japanese local market due to SI unit
- *2 When replacement, the finish of the existing HEP is corrosion resistant (Y138A), select this code of "S".
- *3 When replacement, the finish of the existing HEP is silver paint (Y138C), select this code of "D".
- *4 Specification of pressure regulator are selected by supply air pressure, painting and pressure gauge. The pressure regulator with filter must be separated with HEP (on selection 12, choose code "2") when any of following conditions are matched.
  - In case, the mounting position of actuator is not vertical.
  - In case, other equipments are put between pressure regulator and HEP.
  - In case, there are conjunction between pressure regulator and HEP.
  - In case, code "D" on selection 13, on Option II is chosen.

## Table 2. Bracket for double acting actuator

<table>
<thead>
<tr>
<th>Actuator type</th>
<th>Mounting bracket (Mounting plate / bolts)</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP5</td>
<td>H1</td>
<td></td>
</tr>
<tr>
<td>VP6</td>
<td>H2</td>
<td></td>
</tr>
<tr>
<td>VP7</td>
<td>H3</td>
<td></td>
</tr>
<tr>
<td>SLOP560</td>
<td>H4</td>
<td></td>
</tr>
<tr>
<td>SLOP1000</td>
<td>H5</td>
<td></td>
</tr>
<tr>
<td>SLOP1500</td>
<td>H6</td>
<td></td>
</tr>
<tr>
<td>SLOP1000X</td>
<td>H7</td>
<td></td>
</tr>
<tr>
<td>SLOP1500X</td>
<td>H8</td>
<td></td>
</tr>
</tbody>
</table>

## Option I

<table>
<thead>
<tr>
<th>Material of Bracket / bolt</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not attached</td>
<td>X</td>
</tr>
<tr>
<td>SS400 Zinc plating / SUS304</td>
<td>C</td>
</tr>
<tr>
<td>SUS304 / SUS304</td>
<td>D</td>
</tr>
</tbody>
</table>

## Option II

<table>
<thead>
<tr>
<th>Pressure regulator with filter</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulator type KZ03 (assemble to HEP) *4</td>
<td>1</td>
</tr>
<tr>
<td>Regulator type KZ03 (not assemble to HEP) *4</td>
<td>2</td>
</tr>
<tr>
<td>No option</td>
<td>X</td>
</tr>
</tbody>
</table>

## Option III

<table>
<thead>
<tr>
<th>Universal elbow, Explosion-proof (G1/2, SUS304)</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press-tight cable packing adaptor (G1/2)</td>
<td>A</td>
</tr>
<tr>
<td>Not applicable to 1/2NPT connection in selection (8)</td>
<td>B</td>
</tr>
<tr>
<td>Stainless filter (SH4040) for pressure regulator with filter</td>
<td>F</td>
</tr>
<tr>
<td>Tropicalization (SP0039)</td>
<td>N</td>
</tr>
</tbody>
</table>

---

**HEP25 (TIIS Flameproof)**

**HEP26 (TIIS Intrinsically safe)**
Figure 2. External dimensions

Please read “Terms and Conditions” from the following URL before ordering and use.
http://www.azbil.com/products/factory/order.html

Specifications are subject to change without notice.