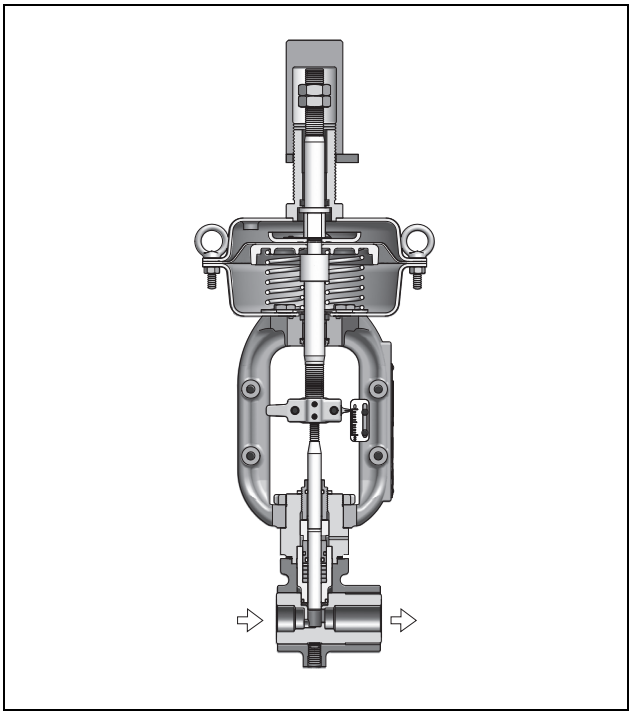
# Corrosion-Resistant Type Small Size Ceramic Control Valves

## Model HMC

## OVERVIEW

The Corrosion-Resistant Type Small Size Ceramic Control Valves (HMC) employs high-performance ceramic with excellent corrosion-resistant capabilities on entrire surfaces of body and trim in contact with fluids. Thus, the HMC are best suitable for control of corrosive fluids such as acid and alkali. The multi-spring type diaphragm motor with small size and large output is used for actruator, resulting in minimizing installation space.



## SPECIFICATIONS

### Body

#### Type
Straight-through, Ceramic control valve

#### Nominal size
1 inch

#### Pressure rating
Maximum operating pressure: 1960 kPa {20 kgf/cm$^2$}
(Maximum test pressure: 2940 kPa {30 kgf/cm$^2$})

#### Operating temperature
0 to 200°C

#### Thermal shock resistance
Aluminum ceramic: 70°C
Silicon carbide ceramic: 150°C
*Note) Do not apply thermal shock over these values.*

#### End connection
Wafer type
Equivalent to JIS 10K RF, 20K RF
Equivalent to ANSI Class 150 RF, 300 RF
Bolts (material: SNB7) and nuts (material: S45C) are supplied as standard accessories.

#### Material
Body: 99% aluminum ceramic, Silicon carbide ceramic
Body casing: FCD450, SCS13

#### Bonnet
Plain bonnet (0 to 200°C)

#### Gland type
Screwed gland

#### Packing
PTFE yarn packing (Grease not provided)
*Note) PTFE: Polytetrafluoroethylene*

#### Gasket
Type
Flat type gasket with scraper
Material
PTFE reinforced with carbon fiber

#### O-ring
Fluoric rubber (AFLAS)

### Trim

#### Material
Valve plug: 99% aluminum ceramic, Silicon carbide ceramic
Packing box: same as valve plug
Non-wetted parts: SUS316

### Actuator

#### Type
Single acting diaphragm actuator (Type PSA)

#### Action
Direct or reverse action

#### Diaphragm
Cloth embedded ethylene propylene rubber

### Spring range
90 to 240 kPa {0.9 to 2.4 kgf/cm$^2$}
80 to 230 kPa {0.8 to 2.3 kgf/cm$^2$}

### Supply pressure
340 kPa {3.5 kgf/cm$^2$}, 270 Pa {2.8 kgf/cm$^2$}

### Air connection
Rc1/4 internal thread

### Ambient temperature
-20 to 70°C

### Travel stopper
Minimum travel stopper is provided as standard.

### Valve action
Air-to-close (Direct action actuator is combined.)
Air-to-open (Reverse action actuator is combined.)

## Optional accessories
Positioner, pressure regulator with filter, limit switch, solenoid valve, and others.

*Note) For the optional items, refer to the specification sheets and installation drawing of respective accessories.*

## Additional specifications (by special order)
- Special inspection
  Flow characteristic inspection
- Stainless steel (SUS304) atmosphere exposed nuts and bolts
- Special air piping and joint
- Vinyl wrapped copper tubing

## Performance
### Rated Cv value
Refer to Table 1

### Flow characteristic
Linear

### Inherent rangeability
30:1

### Allowable differential pressure
Refer to Table 2 and 3.

### Leakage specification
Leakage less than 2.0% of maximum valve capacity

### Hysteresis error
With positioner: Within 1%F.S.

### Linearity
With positioner: Within ±2%F.S. with model AVP/HEP positioner
Within ±3%F.S. with model VPE positioner

### Dimensions
Refer to Figure 1 and Table4

### Weight
13.5 kgf

### Finish
Blue (Munsell 10B5/10) or silver, or other specified colors.

**Table 1 Cv value and travel**

| Nominal size (inches) | 1 | | |
|---|---|---|---|
| Rated Cv value | 1.0 | 2.5 | 4.0 |
| Rated travel (mm) | 13 | | |

## Allowable differential pressure

**Table 2 Air-to-close**

| Actuator model No. | Supply pressure kPa {kgf/cm²} | Spring range kPa {kgf/cm²} | Positioner | Differential pressure kPa {kgf/cm²}) |
|---|---|---|---|---|
| PSA1D | 340 {3.5} | 90 to 240 {0.9 to 2.4} | ✔ | 1960 {20.0} |

**Table 3 Air-to-open**

| Actuator model No. | Supply pressure kPa {kgf/cm²} | Spring range kPa {kgf/cm²} | Positioner | Differential pressure kPa {kgf/cm²}) |
|---|---|---|---|---|
| PSA1R | 270 {2.8} | 80 to 220 {0.8 to 2.3} | ✔ | 1960 {20.0} |

**Table 4 Face-to-face dimensions and external dimensions**

| Nominal size (inches) | A (mm) | H (mm) | | $\phi$B (mm) |
|---|---|---|---|---|
| | | PSA1D | PSA2R | |
| 1 | 102 | 506 | 501 | 218 |

*Note) Face-to-face dimensions conform to following standards.*
*- IEC 60534-3-2 : 2001*
*- JIS B2005-3-2 : 2005*

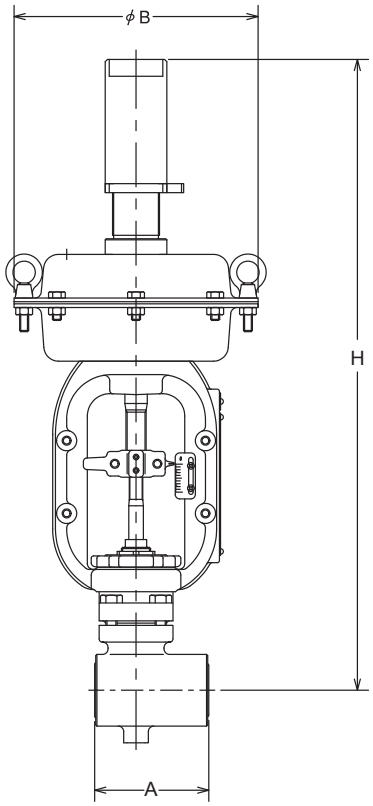



***Figure 1. Face-to-face and external dimensions***

## Ordering information

*When ordering, please specify;*

1) Model number: HMC
2) Nominal size × Port size
3) Process connections
4) Body and trim material
5) Type of actuator
6) Supply air pressure
7) Valve action (direct or reverse)
8) Necessity of positioner or pressure regulator with filter
9) Necessity of special spec. such as special test.
10) Name of flow medium
11) Normal flow and maximum required flow
12) Pressure of flow medium, upstream and downstream pressure (at fully closed and sully opened)
13) Temperature and specific gravity of flow medium
14) Viscosity of flow medium, inclusive or exclusive of slurry

Please, read ‘Terms and Conditions’ from following URL before the order and use.

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*Specifications are subject to change without notice.*


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