

# Corrosion-Resistant PTFE Body Control Valves

## Model HIT

### OVERVIEW

The Corrosion Resistant PTFE Body Control Valves (model HIT) are best suited for handling corrosive fluids such as acids and alkali because the wet parts are made of corrosion-resistant materials. The valve body employs the structure not affected by the pipe line stress.

The actuator utilizes a compact, powerful multi-spring diaphragm motor integrated with simple mechanism.

### SPECIFICATIONS

#### Body

##### Type

Straight-through, PTFE barstock globe valve

##### Nominal size

3/4, 1, 1½, 2 inches

##### Pressure rating

For the operating temperature and pressure ranges, refer to Figure 1.

connection rating : JIS 10K, ANSI 150

##### End connection

Stud bolts type

##### Material

##### Body

PTFE: Polytetrafluoroethylene

##### Casing

SUS304

##### Bonnet

Plain bonnet

##### Gland type

Screwed gland

##### Packing

V-shaped PTFE packing

*Note) PTFE: Polytetrafluoroethylene*

#### Trim

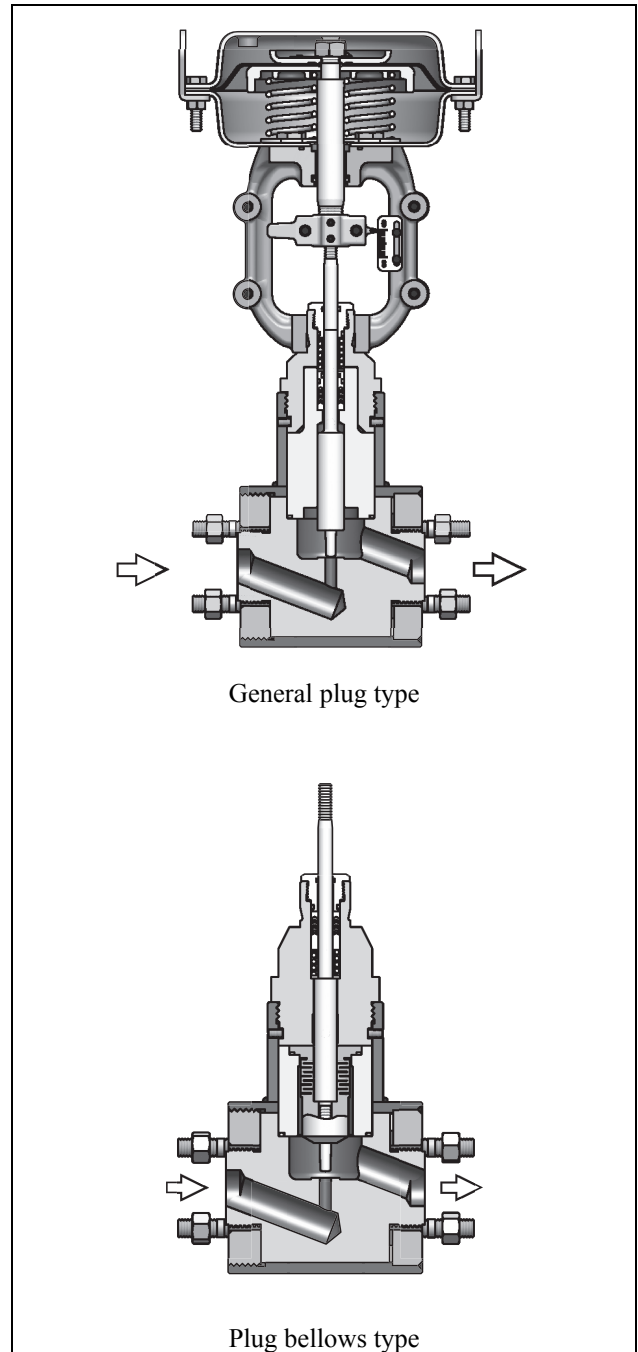
##### Valve plug

Single seated, contoured type plug

Equal percentage (%C)

Linear (LC)

On-Off



**Material**

Valve plug  
 Standard..... PTFE  
 Additional spec.....Glass-reinforced PTFE  
 ASTM CW-12MW  
 (equivalent to Hastelloy-C)

Plug stem  
 SUS316

**Plug design and material combination**

Plug design	Material
General plug type	PTFE
	Glass-reinforced PTFE
	ASTM CW-12MW
Plug bellows type	PTFE

For the operating temperature and pressure ranges of plug bellows type, refer to Figure 1.

*Note) Seat: Integrated to valve body*

**Actuator**

**Type**

Single acting diaphragm actuator (model PSK)

**Action**

Direct or reverse action

**Diaphragm**

Cloth-embedded ethylene propylene rubber

**Spring range**

80 to 240 kPa {0.8 to 2.4 kgf/cm<sup>2</sup>},  
 120 to 290 kPa {1.2 to 3.0 kgf/cm<sup>2</sup>}

**Supply pressure**

270 to 390 kPa {2.8 to 4.0 kgf/cm<sup>2</sup>}

*Note) Allowable differential pressure varies depending on spring range and air supply pressure. Refer to Table 2.*

**Air connection**

Rc1/4 or 1/4NPT internal thread

**Ambient temperature**

-30 to 70 °C

**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, top hand wheel, Solenoid valve, Lock-up valve.

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

**Additional specification (by special order)**

- Oil/water free treatment
- Copper free treatment
- Stainless steel (SUS304) atmosphere-exposed nuts and bolts.
- Vinyl-wrapped copper tubing
- ASTM CW-12MW valve stem (equivalent to Hastelloy-C)

**Performance**

**Rated Cv value**

Refer to Table 1.

**Inherent rangeability**

30 : 1 (linear),  
 20 : 1 (equal percentage)

**Allowable differential pressure**

Refer to Table 2 and 3.

**Leakage specification**

IEC 60534-4:2006 or JIS B2005-4:2008  
 Class IV: Leakage less than 0.01% of maximum valve capacity.

**Hysteresis error**

Without positioner: Within 1% F.S.

**Linearity**

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

**Dimensions**

Refer to Figure 4, Table 4 and Table 5.

**Weight**

Refer to Table 6.

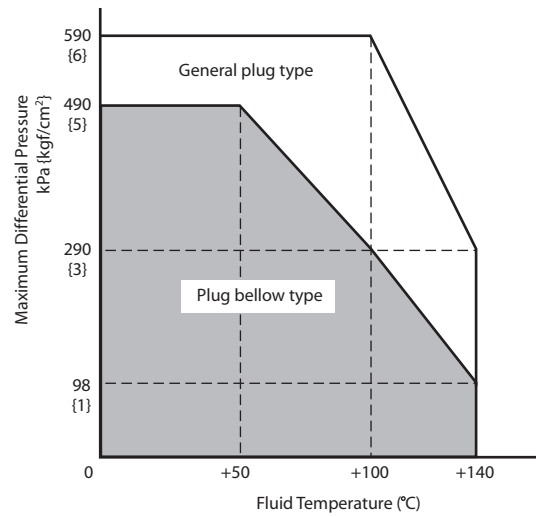
**Finish**

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

**Table 1 Cv value and Travel**

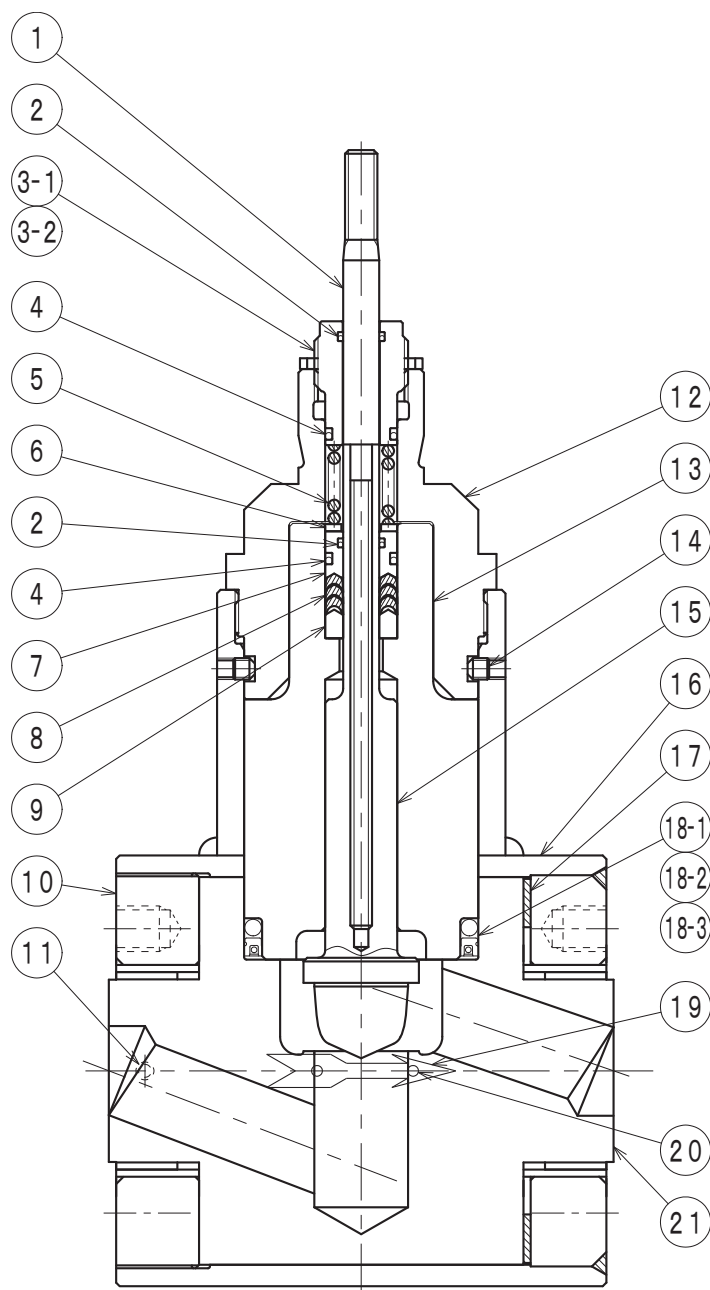
Nominal size (inches)	1						1½			2		
	3/4											
Rated Cv value	1.0	1.6	2.5	4.0	6.0	10	10	15	20	15	20	35
Equal percentage (%C)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linear (LC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
On-off	-	-	-	-	✓	✓	-	-	✓	-	-	✓
Rated travel (mm)	20											

*Note) ✓ : Available*



**Figure 1 Operating temperature and pressure range**

*Note) Meshed range shows for plug bellows type only. Use plug bellows type and ASTM CW-12MW valve stem for corrosive gas service (i.e. hydrogen sulfide)*

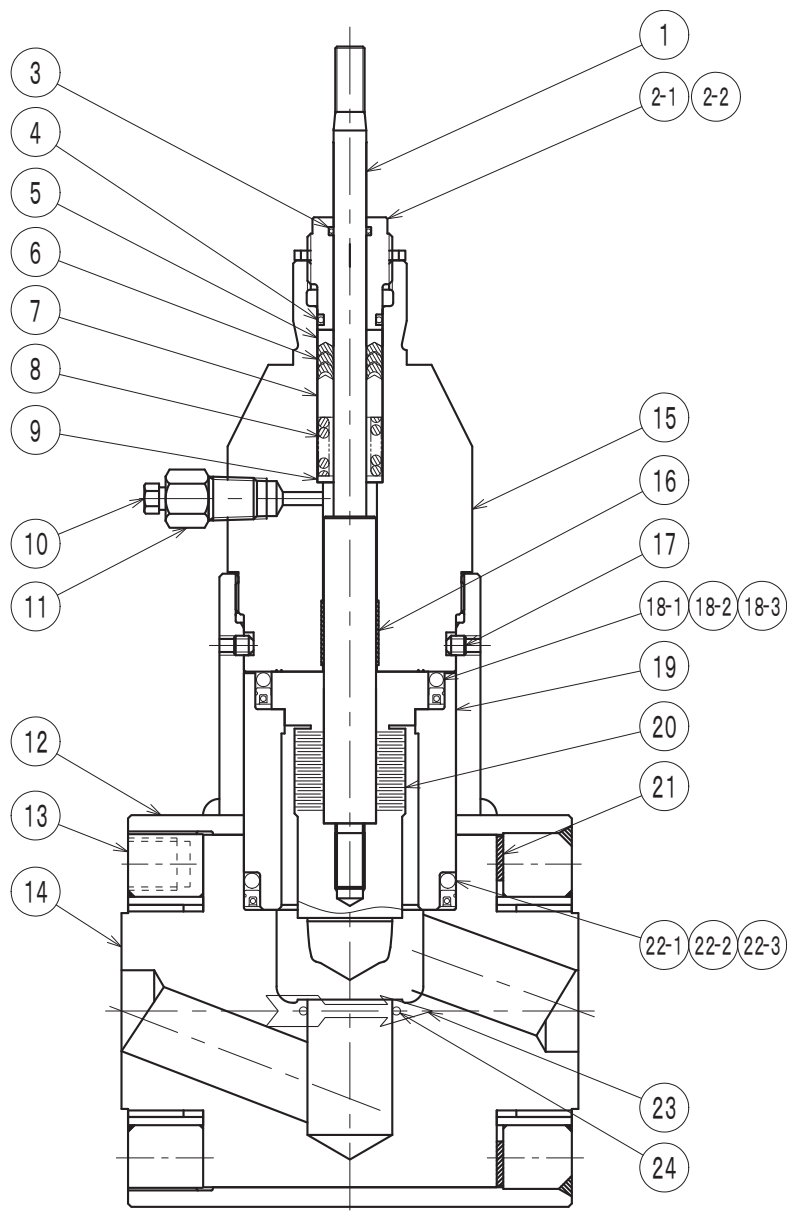


No.	Parts name	Material
1	Valve stem	SUS316
2	O-ring (P10)	FEPM (AFLAS®)*1,2
3-1	Packing compression nut	SUS316
3-2	Lock nut	SUS304
4	O-ring (P16)	FEPM (AFLAS®)*1,2
5	Spring	SUS316
6	Packing ring	SUS316
7	V PTFE retainer	PTFE
8	V PTFE packing	PTFE
9	V PTFE receiver	PTFE
10	Retainer	SUS304
11	Screw	SUS316
12	Bonnet	SUS304
13	Guide holder	PTFE
14	Screw (M6 x 10L)	SUSXM7
15	Valve plug	PTFE
16	Valve body	PTFE
17	Rubber sheet	FPM
18-1	O-ring	FEPM (AFLAS®)*1,2
18-2	PTFE ring	PTFE
18-3	O-ring	FEPM (AFLAS®)*1,2
19	Flow direction indicator	SUS304
20	Driving screw	SUS304
21	PTFE main body	FEPM (AFLAS®)*1,2

\*1. Standard material of O-ring is FEPM (AFLAS®).  
If Other material is needed, please contact our sales.

\*2. AFLAS® is a registered trademark of the Asahi Glass Co., Ltd.

Figure 2 Structure of general plug type



No.	Parts name	Material
1	Valve stem	SUS316
2-1	Packing compression nut	SUS316
2-2	Lock nut	SUS304
3	O-ring (P10)	FEPM (AFLAS®)*1,2
4	O-ring (P16)	FEPM (AFLAS®)*1,2
5	V PTFE retainer	SUS316
6	V PTFE packing	PTFE
7	V PTFE reciever	SUS316
8	Spring	SUS316
9	Packing ring	SUS316
10	Vent plug	SUS316
11	Vent bushing	SUS316
12	Valve body	SUS304
13	Retainer	SUS304
14	PTFE main body	PTFE
15	Bonnet	SUS304
16	Tape liner	PTFE (V-7980)
17	Screw (M6 x 10L)	SUSXM7
18-1	O-ring	FEPM (AFLAS®)*1,2
18-2	PTFE ring (For upper guide spacer)	PTFE
18-3	O-ring	FEPM (AFLAS®)*1,2
19	Guide spacer	PTFE
20	Valve plug	PTFE
21	Rubber sheet	FEPM (AFLAS®)*1,2
22-1	O-ring	FEPM (AFLAS®)*1,2
22-2	PTFE ring (For lower guide spacer)	PTFE
22-3	O-ring	FEPM (AFLAS®)*1,2
23	Flow direction indicator	SUS304
24	Driving screw	SUS304

\*1. Standard material of O-ring is FEPM (AFLAS®). If Other material is needed, please contact our sales.

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Figure 3 Structure of bellows type

**Allowable differential pressure**

**Table 2 Air-to-close**

Actuator model no.	Supply pressure kPa {kgf/cm <sup>2</sup> }	Spring range kPa {kgf/cm <sup>2</sup> }	Positioner	Type	Differential pressure kPa {kgf/cm <sup>2</sup> }			
					3/4	1	1½	2
PSK1D	270 {2.8}	80 to 240 {0.8 to 2.4}	✓	Plug bellows type	490{5.0}	490{5.0}	190{1.9}	120{1.2}
				General plug type	590{6.0}	490{5.0}	190{1.9}	120{1.2}
	390 {4.0}	120 to 290 {1.2 to 3.0}		Plug bellows type	-	-	490{5.0}	490{5.0}
				General plug type	-	-	590{6.0}	590{6.0}

Note) ✓ : Positioner is necessary

**Table 3 Air-to-open**

Actuator model no.	Supply pressure kPa {kgf/cm <sup>2</sup> }	Spring range kPa {kgf/cm <sup>2</sup> }	Positioner	Type	Differential pressure kPa {kgf/cm <sup>2</sup> }			
					3/4	1	1½	2
PSK1R	270 {2.8}	80 to 240 {0.8 to 2.4}	✓	Plug bellows type	490{5.0}	490{5.0}	490{5.0}	490{5.0}
				General plug type	590{6.0}	590{6.0}	590{6.0}	490{5.0}
	340 {3.5}	120 to 290 {1.2 to 3.0}		Plug bellows type	-	-	-	490{5.0}
				General plug type	-	-	-	590{6.0}

Note) ✓ : Positioner is necessary

## DIMENSIONS

Table 4 Face-to-face Dimensions

Nominal size (inches)	3/4	1	1½	2
Dimensions A (mm)	140	140	200	240

Table 5 External Dimensions

Nominal size (inches)	3/4	1	1½	2	
Dimensions H (mm)	PSK1D	425	425	455	455
	PSK1R	445	445	475	475

Table 6 Weight

Nominal size (inches)	3/4	1	1½	2
Weight (kg)	15	15	18	23

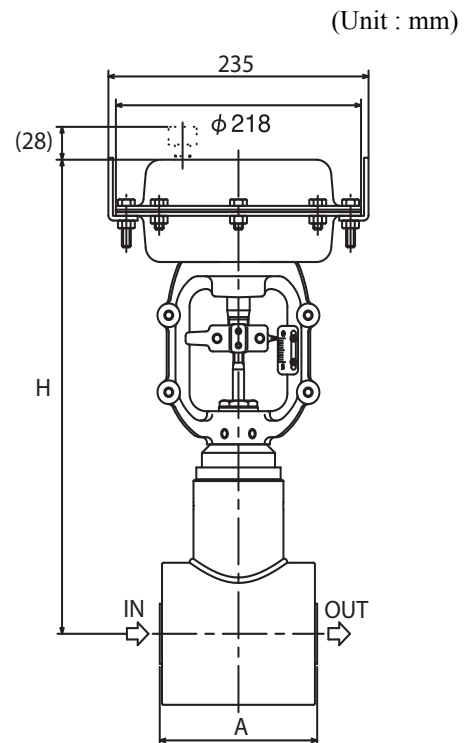


Figure 4 Face-to-face and external dimensions

### Ordering Information

When ordering, please specify;

- 1) Model number: HIT
- 2) Valve size x Cv value
- 3) Body rating and type of end connection
- 4) Body and trim material
- 5) Valve characteristics of type of plug
- 6) Type of bonnet
- 7) Type of actuator, and supply air pressure
- 8) Valve action (Direct or reverse)
- 9) Accessories (Necessity of positioner, pressure regulator with filter, etc.)
- 10) Necessity of special spec. such as oil-free, free from copper, etc.
- 11) Name of flow medium
- 12) Normal flow and maximum flow required
- 13) Pressure of flow medium, upstream and downstream pressure at fully closed and fully opened
- 14) Temperature and specific gravity of flow medium
- 15) Viscosity of flow medium, inclusive or exclusive of slurry, or flushing

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

<http://www.azbil.com/products/bi/order.html>

*Specifications are subject to change without notice.*

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