

## CV3000 Alphaplus series

## Electric Top-Guided Single-Seated Control Valves

## Model AGVB / AGVM

## OVERVIEW

The CV3000 Alphaplus range of top-guided single-seat control valves features a compact valve body with excellent flow control and minimal pressure loss. Alphaplus valves have large Cv values, high range ability, and accurate flow control performance.

When securely held in place by a top-guided stem with a long stroke, the valve plug is highly resistant against vibration and provides flow shutoff performance that fully satisfies IEC standards.

The actuator section performs two-position control or proportional control by directly receiving the signal of 4 to 20 mA DC or 1 to 5V DC from the electronic-type controller. The provided electric-type actuator offers high accuracy, compactness, and sturdy structure.

Model AGVB/AGVM control valves are especially suitable for process control applications where high reliability and tight flow shutoff are essential.

## 1. Selection of Alphaplus Specifications

Selection of control valves has traditionally required knowledge and experience. However, CV3000 Alphaplus offers you more accurate product specifications, so that you can easily pinpoint the control valve that satisfies fluid specifications (such as flowrate, pressure, and temperature) at your plant and provides the functions that you need.

If you do not find a valve that completely satisfies your requirements, contact the Azbil Group representative for assistance.

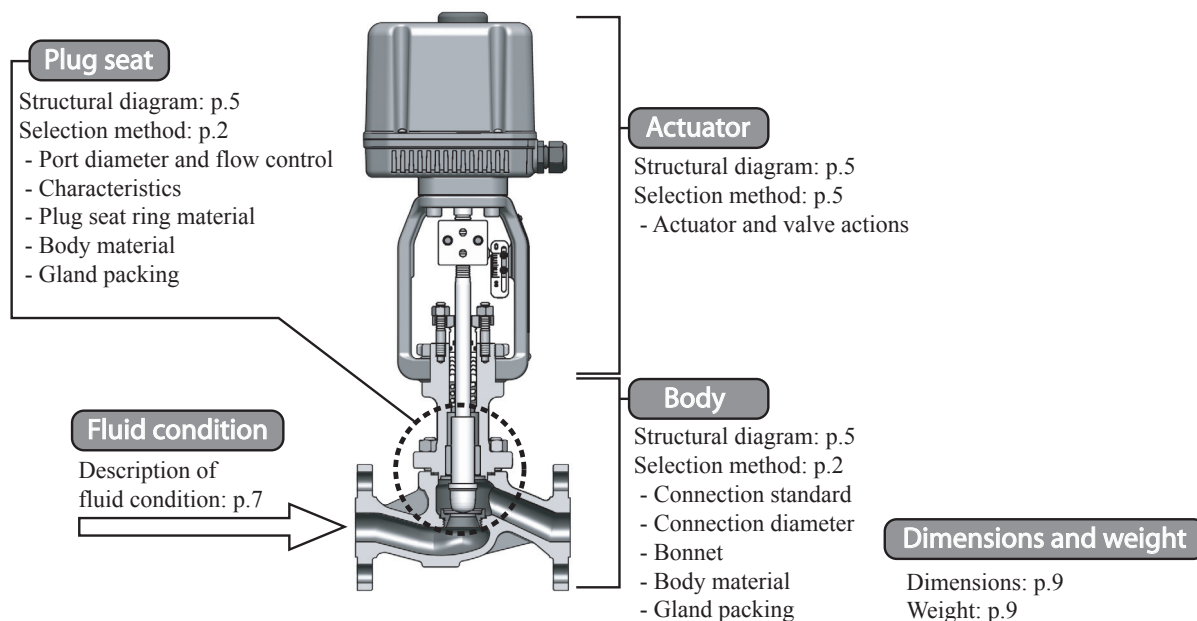


Figure 1. CV3000 Alphaplus selection map

## 2. Basic Model Numbers

### Basic model: 1/2 to 4 inches

Please select basic model no. from the following two kinds according to connected rating.

Model AGVB: JIS 10K, ANSI 150, JPI 150

Model AGVM: JIS 16K, JIS 20K, JIS 30K, ANSI 300, JPI 300

## 3. Optional Specifications

### 3-1 Body

Figure 2 shows optional specifications of the body.

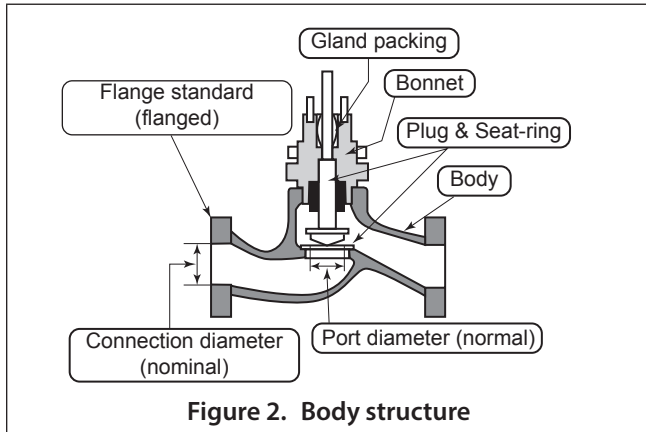


Figure 2. Body structure

#### 3-1-1 Nominal size

Azbil Corporation manufactures diameters from 1/2 inch (15 mm) to 2 inches (50 mm) as shown in Table 1.

**For other diameters, we recommend a selection from the CV3000 series of control valves.**

#### 3-1-2 Port size and flow characteristics

The selection of the port size and the rated Cv value falls within the scope of Table 1 according to the nominal size. For nominal sizes 1 inch (25 mm) or less, port sizes are expressed in terms of Cv values. Flow characteristics depend on the rated Cv value.

**Based on the rated Cv value and the calculated necessary Cv value, check the controllability (valve position) using the flow control characteristics tables in Figure 4, 5, and 6.**

#### 3-1-3 Pressure (flange type)

RF ;  
JIS 10K, 16K, 20K, 30K, (JIS B2210-1984)  
ANSI 150, 300 (ASME/ANSI B16.5-1988)  
JPI 150, 300 (JPI-75-15-1993)

**For other rated pressures and connection types, you are recommended to consider the CV3000 series of control valves.**

### 3-1-4 Bonnet

We manufacture bonnets that can be used at fluid temperatures ranging from -196 to +400 °C.

[Unit: °C]

Body material / Bonnet type	SCPH2	SCS13A/ SCS14A
General use	-5 to +30	-17 to +230
Extension type (high&low temp.)	+230 to +400	-45 to -17 +230 to +400

**For fluid temperatures outside the above temperature range, we recommend a selection from the CV3000 series of control valves.**

### 3-1-5 Body and plug seat ring materials

For combinations of body and plug seat ring materials and their applicable temperature ranges, see Table 2. In some ranges the plug seat ring material needs hardening treatment. See Figure 10. When you select a soft seat, refer to Figure 11.

**For materials other than those shown in Table 2, we recommend a selection from the CV3000 series of control valves.**

### 3-1-6 Valve seat leakage

For the seat leak performance when the valve is fully closed, select from among the following four classifications, which conform to IEC60534-4:2006 or JIS B2005-4:2008

- Class IV:  $10^{-4} \times$  rated Cv value (0.01% of rated Cv value)
- Class VI:  $3 \times$  valve differential pressure (MPa)  $\times$  leakage coefficient mL/min. shown below

Nominal size inches (mm)	1 (25)	1-1/2 (40)	2 (50)	2-1/2 (65)	3 (80)	4 (100)
Leakage coefficient	0.15	0.23	0.36	0.51	0.62	1.20

**For shutoff valves, choose either Class VI. (soft seat)**

### 3-1-7 Inherent range ability:

Rated Cv	Inherent Range ability
0.1, 0.16, 0.25, 0.4	20:1
0.63	30:1
1.0 or more than 1.0	50:1 (75:1*)

Note) \*:Optional, metal seat and equal percentage only.

### 3-1-8 Gland packing

According to your application, select appropriate type of gland packing from among the following:

Usage	Type	Material
General use (oils, solvent acids, alkalis, etc.)	PTFE yarn packing (P4519)	Woven PTFE yarn with carbon fiber core
General use and oil-free treatment	V shaped PTFE packing	PTFE molding
Vacuum service	V shaped PTFE packing (direct+reverse mounted)	PTFE molding
Low temperature service	V shaped PTFE packing	PTFE molding
High temperature service	Graphite yarn packing*1 (P6610CL+P6722)	Graphite
Low leakage spec. for VOC*2 regulation (SECURE-SEAL™)*3	PTFE yarn packing(P4519) with live load structure	Woven PTFE yarn with carbon fiber core

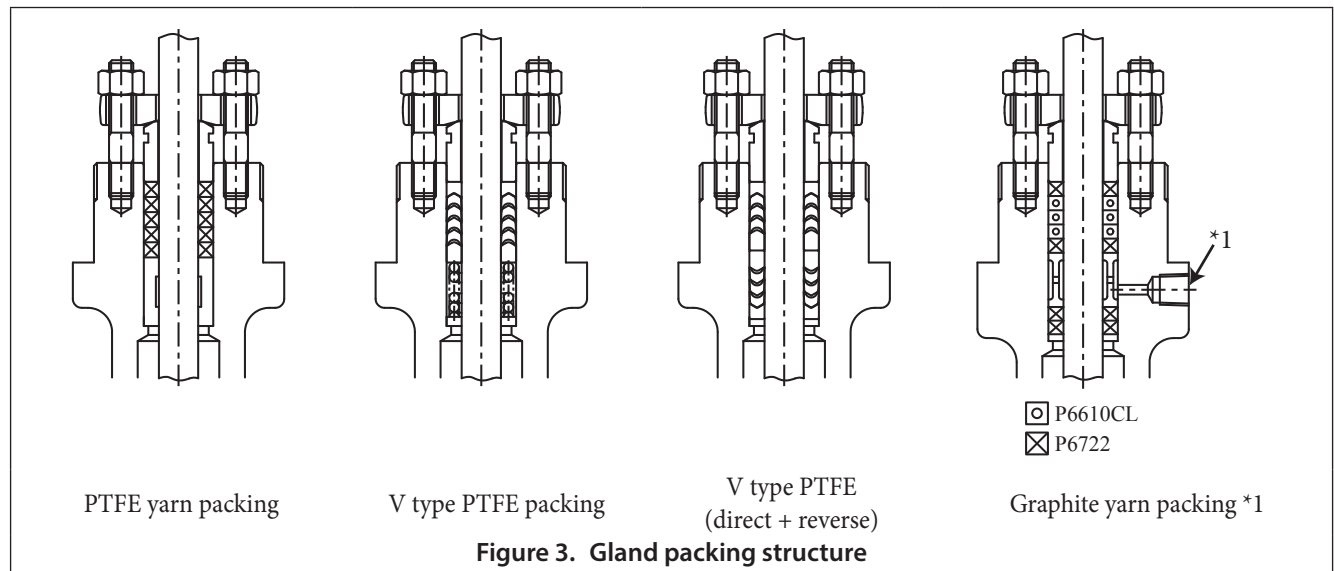
Note) PTFE: polytetrafluoroethylene resin

\*1 Grease provided

\*2 Volatile Organic Compound

\*3 Refer to No.SS2-SSL100-0100 about detail of SECURE-SEAL™.

**For other gland packing materials, please provide closest model number and Azbil Corporation will take your request under advice.**



Note)\*1: Grease is used.

### 3-1-9 Gasket

	General / Low temp.	High temperature	General or low temp. / Oil-free treatment
Between bonnet and body	Metal gasket (PTFE coating) V543 (PTFE)	Metal gasket V543	Metal gasket (PTFE coating) V543 (PTFE)
Between seat ring and body	Not necessary	Flat metal gasket V564 (Monel)	Flat metal gasket with PTFE coating V563(PTFE)

**Table 1. Models of AGVB and AGVM**

Nominal size inches (mm)	1 (25)						1-1/2 (40)			2(50)			2-1/2(65)			3(80)			4(100)								
	3/4 (20)					10	1	1-1/4	1-1/2	1-1/4	1-1/2	2	1-1/2	2	2-1/2	2	2-1/2	3	2-1/2	3	4						
	1/2 (15)			0.1	0.16																	0.4	1.0	2.5	8.0	14	14
Port diameter (inches)																											
Rated Cv value																											
Rated travel (mm)	20																										
Flow control characteristics	Fig. 4						Figure 5, 7															Figure 6, 7					

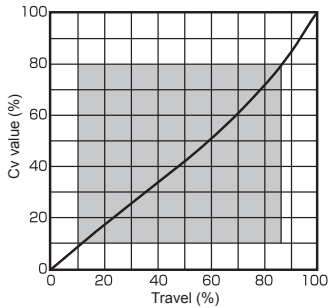


Figure 4. Cv values 0.1, 0.16, and 0.25 (linear model)

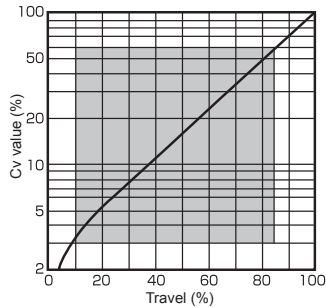


Figure 5. Cv values 0.4 to 14 (equal percentage model)

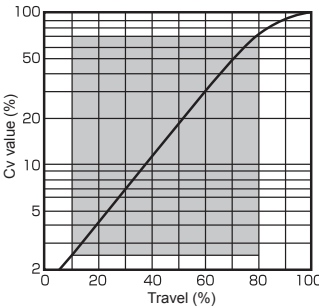


Figure 6. Port diameter 1 to 2 inch (equal percentage model)

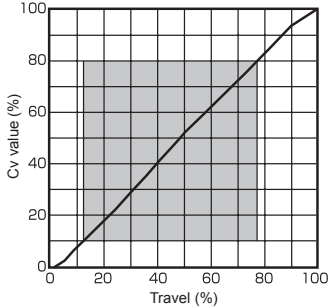


Figure 7. Cv values 0.4 to 14 (linear model)

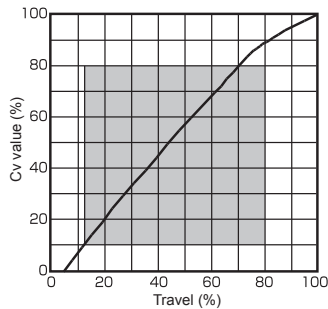


Figure 8. Cv values 0.4 to 14, Port diameter 1 to 2 inch (linear model)

☐ : Scope of control generally considered feasible (Cv value in percentage and travel in percentage)

**Table 2. Body, plug and seat ring materials**

Trim material		Temperature range (°C)		
SUS 316		-5 to +300	-45 to +300	-45 to +300
SUS 316 Stellite		-5 to +400	-45 to +400	-45 to +400
SUS440C		-5 to +400	-45 to +400	-45 to +400
SUS 316 soft seat		-5 to +230	-45 to +230	-45 to +230
SUS 316 Stellite face		-5 to +400	-45 to +400	-45 to +400
SUS 316L		---	-45 to +300	-45 to +300
SUS 316L Stellite		-5 to +230	-45 to +400	-45 to +400
SUS 316L soft seat		-5 to +230	-45 to +230	-45 to +230
Body material	JIS	SCPH2	SCS13A	SCS14A
	ASTM	A216WCB	A351CF8	A351CF8M

Note) \*1: Parts that adjust flow (such as a plug and a seat ring) are referred to as the valve trim.

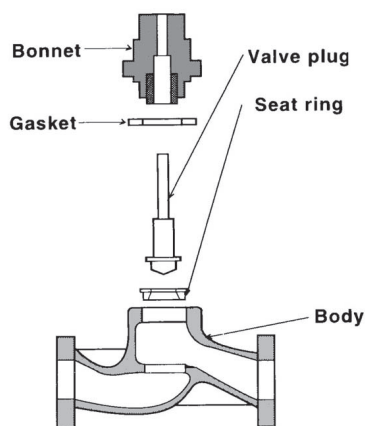
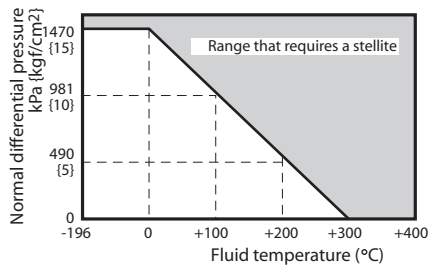
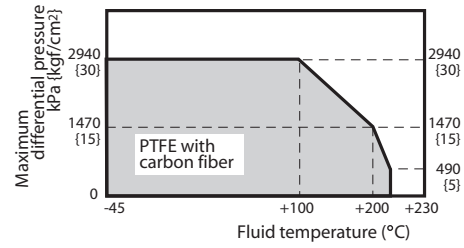


Figure 9. Development view of AGVB/AGVM



**Figure 10. Temperature and normal differential pressure ranges that require a Stellite**

Note) 1. For valves for cavitation/flushing service, oil-proof service, or tight shutoff service, a stellite is recommended regardless of process fluid temperatures or differential pressures.  
 2. For valves for cavitation/flushing service for water or for valves for superheated water above 100 °C, SUS 440C is recommended.

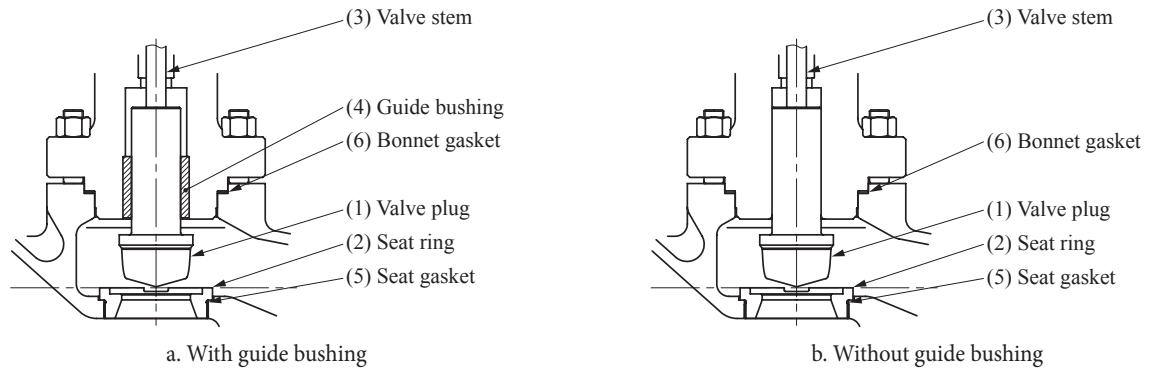


**Figure 11. Temperature and maximum differential pressure ranges for soft seats**

Note) 1. When there is a possibility of erosion by such fluids as saturated steam and heated water please use metal seats.  
 2. The material of washing treatment for oil-free of the wetted parts (inside the body) is PTFE with glass.

**3-1-10 Structural drawing of trim and body/trim material combinations**

Following table shows typical body/trim material combinations. Please contact us about materials that are not listed in this table.



**Figure 12. Structural drawing of trim**

**Table 3. The valve body material is carbon steel (SCPH2/A216WCB).**

(1) Valve plug (2) Seat ring	SUS316		SUS440C	SUS316 Stellite SUS316 Stellite face		SUS316 soft seat	
	General	Oil-free	General	General	Oil-free	General	Oil-free
(3) Valve stem	SUS316						
(4) Guide bushing	SUS440C	SUS316 Stellite face	SUS440C	SUS316 Stellite	SUS316 Stellite	SUS440C	SUS316 Stellite face
(5) Seat gasket	Without (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	Without (Design temperature: -17 to +230 °C)	Without (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	Without	SUS316 (PTFE coating)
	Monel (Design temperature: above +230 °C)		Monel (Design temperature: above +230 °C)	Monel (Design temperature: above +230 °C)			
(6) Bonnet gasket	SUS316(PTFE coating) (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	SUS316(PTFE coating) (Design temperature: -17 to +230 °C)	SUS316(PTFE coating) (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	SUS316 (PTFE coating)	SUS316 (PTFE coating)
	SUS316 (Design temperature: above +230 °C)		SUS316 (Design temperature: above +230 °C)	SUS316 (Design temperature: above +230 °C)			

(1) Valve plug (2) Seat ring	SUS316		SUS316L Stellite		SUS316L soft seat	
	General	Oil-free	General	Oil-free	General	Oil-free
(3) Valve stem	SUS316L					
(4) Guide bushing	SUS316L	SUS316L Stellite face	SUS316L Stellite	SUS316L Stellite	SUS316L	SUS316L Stellite face
(5) Seat gasket	Without (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	Without (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	Without	SUS316 (PTFE coating)
	Monel (Design temperature: above +230 °C)		Monel (Design temperature: above +230 °C)			
(6) Bonnet gasket	SUS316(PTFE coating) (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	SUS316(PTFE coating) (Design temperature: -17 to +230 °C)	SUS316 (PTFE coating)	SUS316 (PTFE coating)	SUS316 (PTFE coating)
	SUS316 (Design temperature: above +230 °C)		SUS316 (Design temperature: above +230 °C)			

**Table 4. The valve body material is stainless steel (SCS13A/A351CF8 or SCS14A/A351CF8M)**

(1) Valve plug (2) Seat ring	SUS316		SUS440C *1	SUS316 Stellite SUS316 Stellite face		SUS316 soft seat	
	General	Oil-free	General	General	Oil-free	General	Oil-free
(3) Valve stem	SUS316						
(4) Guide bushing	Without: bonnet guide (Design temperature: -17 to +230 °C)	SUS316 Stellite face	SUS440C	SUS316 Stellite	SUS316 Stellite	Without (bonnet guide) (Design temperature: -17 to +230 °C)	SUS316 Stellite face
	SUS316 (Design temperature: above +230 °C and below -17 °C)					SUS316 (Design temperature: above +230 °C and below -17 °C)	
(5) Seat gasket	Without (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	Without (Design temperature: -17 to +230 °C and below -17 °C)	Without (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	Without	SUS316 (PTFE coating)
	Monel (Design temperature: above +230 °C)		Monel (Design temperature: above +230 °C)	Monel (Design temperature: above +230 °C)			
(6) Bonnet gasket	SUS316(PTFE coating) (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	SUS316(PTFE coating) (Design temperature: -17 to +230 °C and below -17 °C)	SUS316(PTFE coating) (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	SUS316 (PTFE coating)	SUS316 (PTFE coating)
	SUS316 (Design temperature: above +230 °C)		SUS316 (Design temperature: above +230 °C)	SUS316 (Design temperature: above +230 °C)			

(1) Valve plug (2) Seat ring	SUS316L		SUS316L Stellite		SUS316L soft seat		
	General	Oil-free	General	Oil-free	General	Oil-free	
(3) Valve stem	SUS316L						
(4) Guide bushing	Without: bonnet guide (Design temperature: -17 to +230 °C)	SUS316L Stellite face	SUS316L Stellite	SUS316L Stellite	SUS316L Stellite	Without: bonnet guide (Design temperature: -17 to +230 °C)	SUS316L Stellite face
	SUS316L (Design temperature: above +230 °C and below -17 °C)					SUS316L (Design temperature: below -17 °C)	
(5) Seat gasket	Without (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	Without (Design temperature: -17 to +230 °C and below -17 °C)	Without (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	Without	SUS316 (PTFE coating)
	Monel (Design temperature: above +230 °C)		Monel (Design temperature: above +230 °C)	Monel (Design temperature: above +230 °C)			
(6) Bonnet gasket	SUS316(PTFE coating) (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	SUS316(PTFE coating) (Design temperature: -17 to +230 °C and below -17 °C)	SUS316(PTFE coating) (Design temperature: -17 to +230 °C and below -17 °C)	SUS316 (PTFE coating)	SUS316 (PTFE coating)	SUS316 (PTFE coating)
	SUS316 (Design temperature: above +230 °C)		SUS316 (Design temperature: above +230 °C)	SUS316 (Design temperature: above +230 °C)			

Note) \*1 SUS440C is applicable to body material SCS14A/A351CF8M.

### 3-2 Actuator

#### 3-2-1 Actuator and valve actions

Table 5. Specification of actuator

Type	Electronic motor
Control action	Proportional control or two-position control
Power supply	Single phase 100V, 110V, 115V, 120V, 200V, 210V, 220V, 230V, 240V AC ±10%, 50/60 Hz)
Input signal	4 to 20 mA DC, 1 to 5 VDC Open or close contact input
Action	Direct or reverse
Power failure action	Close, open or hold
Input resistance	250 Ω
Power supply capacity (general)	0.32A (power supply 100V AC) 0.18A (power supply 200V AC)
Insulation resistance	Between input terminal and case 100 MΩ / 500V DC
With stand voltage	Between power supply terminal and case 500V / 1 min
Main material	Case: Aluminium die-casting (ADC 12) Stem: SUS303 Yoke: Carbon steel (SCPH2)
Type of protection	IP65 equivalent
Explosion-proof	None
Motor	Reversible motor
Coil insulation class	E
Rated temperature	Continuity (built-in thermal switch: 120°C trip automatic operation type)
Position sensor	Potentiometer
Protective device	Built-in open/close limit switch (standard) Built-in lower torque limiter (standard)
Electrical connection	G1/2 (two position)
Ambient temperature limits	-25 to +55°C
Ambient humidity limits	10 to 90%RH
Vibration tolerance	2 G 5 to 100 Hz
Travel transmission*	1 to 5V DC
Manual operation	Top handle (standard)
Dead band	Within ±1% F.S.
Operation speed (open ↔ close)	16 sec.

Note) \*: The travel transmission is a standard specification for the proportional control, but that is a optional specification for the two position control.

#### Valve action

The valve action is decided by selecting the operation of the actuator action.

Signal to open: actuator action where the valve opens as the input signal increases

Signal to close: actuator action where the valve closes as the input signal increases

- With the Alphaplus, the valve closes as the plug lowers. The valve action depends, in turn, on whether an signal to close or signal to open actuator is chosen.
- When the power supply is “Stop”, the actuator keeps the travel transmission of that time.

#### 3-2-2 Tables of allowable differential pressures

Ensure the required shut-off differential pressure specified in the equipment design is satisfied by selecting an actuator with an allowable differential pressure equal to or higher than the shut-off pressure, according to the seat leakage class.

##### Seat leakage, Class IV (0.01% of rated Cv value)

- Model AGVB: Table 6-1 and 6-2 on page 8
- Model AGVM: Table 6-3 and 6-4 on page 8

##### Seat leakage, Class VI (high shutoff model: soft seat)

- Model AGVB: Table 7-1 and 7-2 on page 8
- Model AGVM: Table 7-3 and 7-4 on page 8

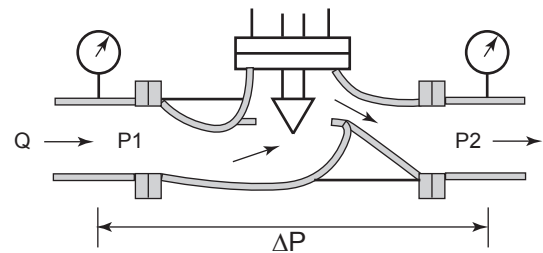
#### 3-2-3 Finish

Valve body and bonnet; Blue (Munsell 10B5/10) or silver. Actuator and yoke; Silver.

You can specify any other color using the number code of the Japan Paint Industry Assignment or the Munsell color system.

### 4. Fluid Conditions

It is important to make the fluid conditions clear in selecting the control valve. Please fill in each data on “Fluid specifications” column in the lower of the model selection table.



Mark	Name	Description
-	Fluid name	Name or symbol of fluid to flow through control valve
Q	Flow rate	Maximum (MAX), normal (NOR), and minimum (MIN) flow rates to be controlled
P1	Upstream pressure	Pressure on upstream side of control valve
P2	Downstream pressure	Pressure on downstream side of control valve
ΔP	Differential pressure	Pressure loss at control valve
ΔP close	Differential pressure when fully closed	Differential pressure when the valve is fully closed (actuator selection condition)
Temp	Temperature	Temperature of fluid on upstream side
G	Specific gravity	Specific gravity of the fluid
V	Viscosity	Viscosity at the temperature of the fluid on upstream side
-	Flashing %	Weight percentage of flashing to occur on downstream side when pressure is reduced by the control valve

#### Calculation of the Cv values and expected noise

For calculation of the Cv values and expected noise, refer to following document.

Selecting the control valves: No. IB2-8000-0100

Azbil Corporation has developed personal computer software to calculate Cv values and expected noise.

Please specify if you require such a PC-based tool.

**Valve seat leakage, Class IV: 0.01% of the rated Cv value**

**Table 6-1. Model AGVB nominal size 1/2, 3/4, and 1 inch**

Note that the allowable differential pressure varies with the rated Cv value you have selected.

Nominal size [inches]	Actuator	Differential pressure (by Cv value) kPa {kgf/cm <sup>2</sup> }					
		0.25 or less	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1 inch or less	EA1	1960{20.0}					

Note) Note that the maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-83.

**Table 6-2. Model AGVB nominal size 1-1/2, 2 inches**

Note that the allowable differential pressure varies with the port diameter (inches) you have selected.

Nominal size inches	Actuator	Differential pressure (by Port size) kPa {kgf/cm <sup>2</sup> }			
		1	1-1/4	1-1/2	2
1-1/2	EA1	1960 {20.0}	1870	1270	-
2		-	{19.0}	{12.9}	760 {7.7}

Note) Note that the maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB220-1-1984, ANSIB16.34-1981, and JPI-7S-65-83

**Table 6-3. Model AGVM nominal size 1/2, 3/4, and 1 inch**

Note that the allowable differential pressure varies with the rated Cv value you have selected.

Nominal size inches	Actuator	Differential pressure (by Cv value) kPa{kgf/cm <sup>2</sup> }					
		0.25 or less	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	EA1	1960{20.0}					
		5100{52.0}	4120{42.0}		3040{31.0}		

Note) 1. Note that the maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-83.

Note) 2. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed. At your request, we can manufacture control valves with normal pressures exceeding 1960 kPa.

**Table 6-4. Model AGVM nominal size 1-1/2, 2 inches**

Note that the allowable differential pressure varies with the port diameter (inches) you have selected.

Nominal size inches	Actuator	Differential pressure (by Port size) kPa{kgf/cm <sup>2</sup> }			
		1	1-1/4	1-1/2	2
1-1/2	EA1	1960 {20.0}	1870	1270	-
		3040 {31.0}	{19.0}	{12.9}	
2		-			760 {7.7}

Note) 1. Note that the maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-83.

Note) 2. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed. At your request, we can manufacture control valves with normal pressures exceeding 1960 kPa.

**Valve seat leakage, Class VI: high shutoff model: soft seat**

**Table 7-1. Model AGVB nominal size 1/2, 3/4, and 1 inch**

Note that the allowable differential pressure varies with the rated Cv value you have selected.

Nominal size inches	Actuator	Differential pressure (by Cv value) kPa{kgf/cm <sup>2</sup> }					
		0.25 or less	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1 inch or less	EA1	1960{20.0}					

Note) Note that the maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB220-1-1984, ANSIB16.34-1981, and JPI-7S-65-83.

**Table 7-2. Model AGVB nominal size 1-1/2, 2 inches**

Note that the allowable differential pressure varies with the port diameter (inches) you have selected.

Nominal size inches	Actuator	Differential pressure (by port size) kPa{kgf/cm <sup>2</sup> }			
		1	1-1/4	1-1/2	2
1-1/2	PSA1R	1700{17.3}	1100	630	-
2		-	{11.2}	{6.4}	250 {2.5}

Note) Note that the maximum allowable differential pressures must not exceed the maximum working pressure specified by JISB220-1-1984, ANSIB16.34-1981, and JPI-7S-65-83.

**Table 7-3. Model AGVM nominal size 1/2, 3/4, and 1 inch**

Note that the allowable differential pressure varies with the rated Cv value you have selected.

Nominal size inches	Actuator	Differential pressure (by Cv value) kPa{kgf/cm <sup>2</sup> }					
		0.25 or less	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	EA1	1960{20.0}				1700{17.3}	
		2940{30.0}		2070{21.1}			

Note) 1. Note that the maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB220-1-1984, ANSIB16.34-1981, and JPI-7S-65-83.

Note) 2. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed. At your request, we can manufacture control valves with normal pressures exceeding 1960 kPa.

**Table 7-4. Model AGVM nominal size 1-1/2, 2 inches**

Note that the allowable differential pressure varies with the port diameter (inches) you have selected.

Nominal size inches	Actuator	Differential pressure (by port size) kPa{kgf/cm <sup>2</sup> }			
		1	1-1/4	1-1/2	2
1-1/2	PSA1R	1700 {17.3}	1100	630	-
		-	{11.2}	{6.4}	
2		-			250 {2.5}

Note) 1. Note that the maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB220-1-1984, ANSIB16.34-1981, and JPI-7S-65-83.

Note) 2. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed. At your request, we can manufacture control valves with normal pressures exceeding 1960 kPa.



## DIMENSIONS

Table 8 and 9 show the dimensions and weight of the control valves. Note that the addition of any optional specifications will change their installed dimensions and weights.

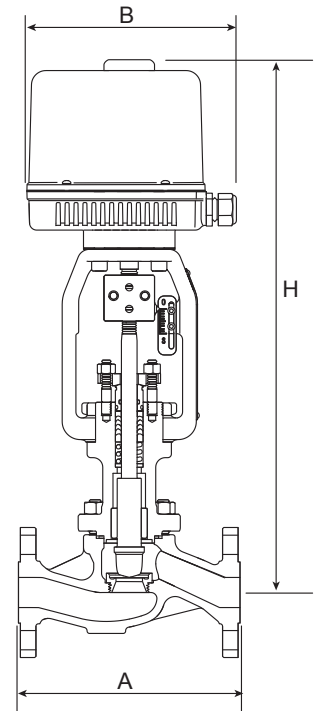
**Table 8. Face-to-face dimension and External dimensions**

Connection diameter (inches)	Actuator	Dimensions (mm)					
		A			H		B
		JIS10K ANSI150 JPI150	JIS16K	JIS20K, 30K ANSI300 JPI300	General use bonnet	Extension bonnet	
1/2, 3/4	EA1	184	190	194	445	570	180
1		184	193	197	445	570	180
1-1/2		222	231	235	445	630	180
2		254	263	267	445	630	180

**Table 9. Weight**

(unit: kg)

Nominal size (inches)	JIS10K, ANSI150, JPI150		JIS16K		JIS20K, JIS30K, ANSI300, JPI300	
	Plain bonnet	Extension bonnet	Plain bonnet	Extension bonnet	Plain bonnet	Extension bonnet
1/2	12	13	12	13	13	14
3/4	13	14	13	14	15	16
1	14	15	14	15	16	17
1-1/2	21	25	21	25	26	30
2	24	28	24	28	27	31



**Figure 13. Face-to-face dimension and External dimensions**

# Note

# Note

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