CV3000 Alphaplus series

Top-Guided Single-Seated Control Valves

Model AGVB / AGVM

OVERVIEW

The CV 3000 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 valve also features a compact but powerful multi-spring actuator.
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.

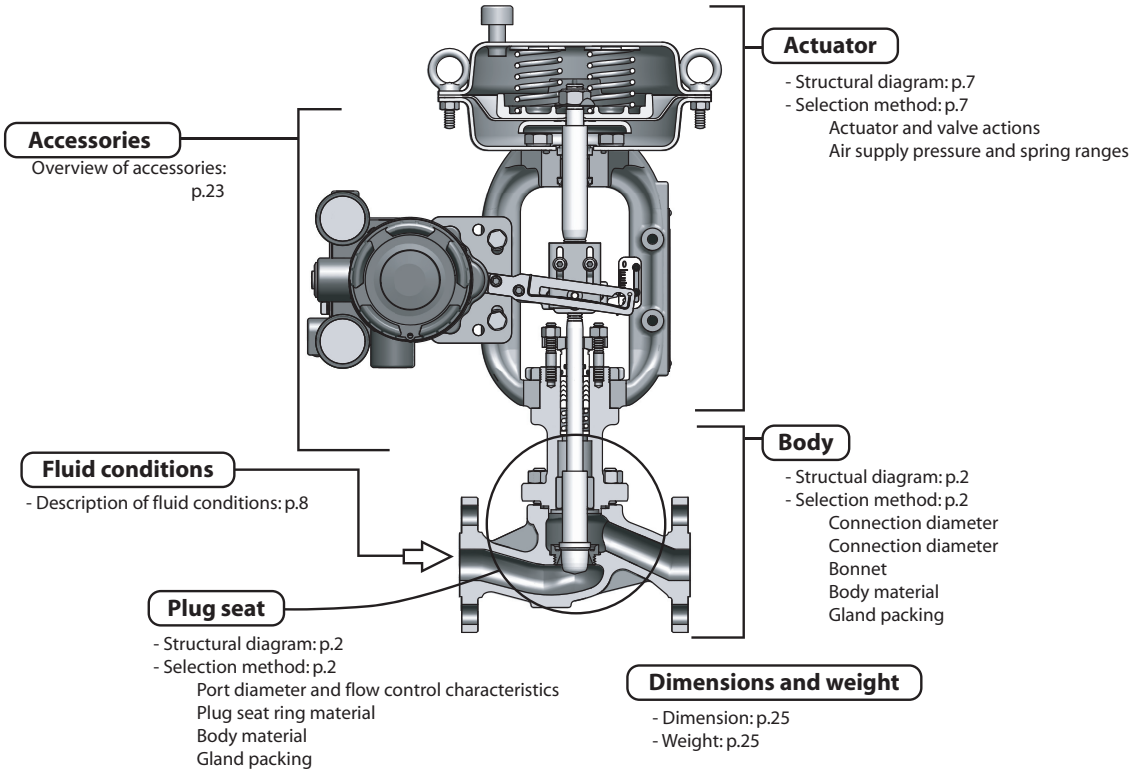


Figure 1 CV3000 Alphaplus selection map

2. Basic model numbers

Basic model: 1/2 to 4 inches

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.

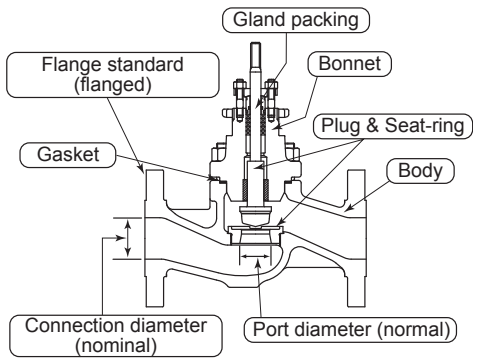


Figure 2 Body structure

3-1-1 Nominal size

Azbil Corporation manufactures diameters from 1/2 inch (15 mm) to 4 inches (100 mm) as shown in Table 6.

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 1inch (25 mm) or less, port sizes are expressed in terms of Cv values. Flow characteristics depend on the rated Cv value, be set to linear model or equal percentage model.

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, 6, 7 and 8.

3-1-3 Pressure rating and end connection (flange type)

We manufacture
RF:
JIS 10K, 16K, 20K, 30K (JIS B2210-1984)
ANSI 150, 300 (ASME/ANSI B16.5-1988)
JPI 150, 300 (JPI-7S-15-1993)
Option: Socket weld, butt weld

For other rated pressures and connection types, you are recommended to consider the CV 3000 series of control valves.

3-1-4 Bonnet style

We manufacture bonnets that can be used at fluid temperatures ranging from -196°C to +400°C.
The standard of plain bonnet is integral structure. (In case of with PSA6 actuator, plain bonnet is welded structure.)
The standards of Extension type I and II bonnet are welded structure.

Table 1 [Unit: °C]

Body material / Bonnet	SCPH 2	SCS13A/SCS14A
Plain	-5 to +230	-17 to +230
Extension type I (High•Low temperature)	+230 to +400	-45 to -17 +230 to +400
Extension type II (Liquid O2•N2)	-	-196 to -45

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

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

For combinations of body, plug and seat ring materials and their applicable temperature ranges, see Table 7. 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 7, we recommend a selection from the CV3000 series of control valves, or other Azbil Corporation's 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 IEC 60534-4:2006 and JIS B 2005-4:2008 :

Class IV: 10^{-4} × rated Cv value
(0.01% of rated Cv value)

Class IV-S1: 5×10^{-6} X rated Cv value
(0.0005% of rated Cv value)

Class V: 1.8×10^{-4} × Valve differential pressure (MPa) × Port size (mm) ℓ/h

Class VI: 3 × valve differential pressure (MPa) × leakage coefficient mℓ/min. shown below

Table 2 Leakage coefficient value

Nominal size inches (mm)	1 (25)	1¼ (32)	1½ (40)	2 (50)	2½ (65)	3 (80)	4 (100)
Leakage coefficient	0.15	0.17	0.23	0.36	0.51	0.62	1.20

For shutoff valves, choose either Class V or VI.
To maintain over time the performance of Class V or Class IV-S1 valves, the plug seat material requires hardening treatment. Class IV valves, seat type is soft seat (PTFE). Additionally with the selection of the low-temperature service, oil-proof, water-proof service for the choice of material seat, the set leakage is Class IV-S1.

3-1-7 Inherent range ability:

Table 3 Inherent range ability Vs rated Cv value

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*)

*: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:

Table 4 Selection of gland packing

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 pacing*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 No. and Azbil Corporation will take your request under advice.

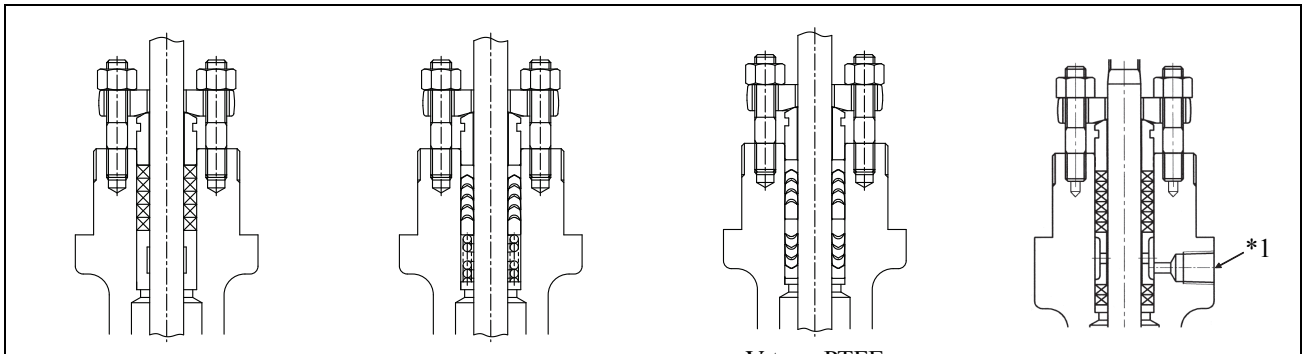


Figure 3 Gland packing structure

*Note) *1 Grease provided by lubricator*

3-1-9 Gasket

Table 5 Selection of gasket

	Super-low temperature / Oil-free (Liquid O_2•N_2)	General / Low temp.	High temperature	Oil-free treatment
Between bonnet and body	Spiral-shaped gasket Hoop material: SUS316 Filler material: PTFE	Metal gasket (PTFE coating) V543(PTFE)	Metal gasketV543	Metal gasket (PTFE coating) V543 (PTFE)
Between seat ring and body	Metal gasket	Not necessary	Metal gasketV564 (Monel)	Metal gasket (PTFE coating) V563 (PTFE)

Table 6 Models of AGVB and AGVM

Nominal size inches (mm)	1/2 (15)	3/4 (20)	1 (25)				1½ (40)			2(50)			2½(65)			3(80)			4(100)		
Port size (inches)	0.1	0.4	1.0	2.5	8.0	10	1	1¼	1½	1¼	1½	2	1½	2	2½	2	2½	3	2½	3	4
Rated Cv value	0.16 0.25	0.63	1.6	4.0	6.3	14	14	21	30	21	30	50	30	50	85	50	85	115	85	115	200
Rated travel (mm)	20						20			20			38			38			38		
Flow characteristics	Fig.4	Fig. 5					Fig. 6, 7														

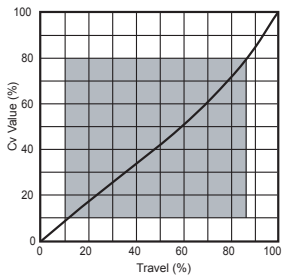


Figure 4 Cv values 0.1, 0.16, and 0.25 (linear model)

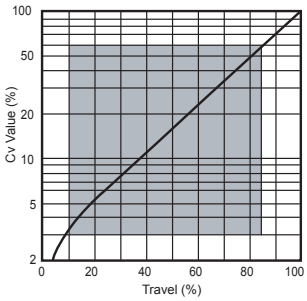


Figure 5 Cv values 0.4 to 14 (equal percentage model)

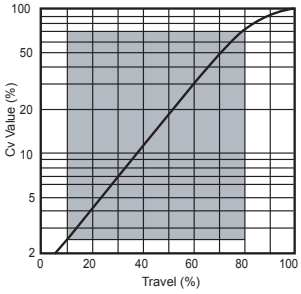


Figure 6 Port size 1 to 4 inches (equal percentage model)

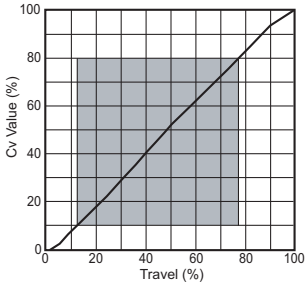


Figure 7 Cv values 0.4~14 (linear model)

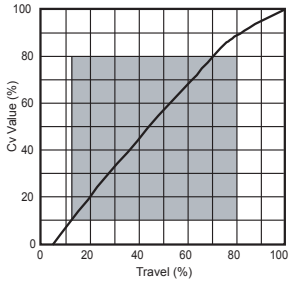


Figure 8 Port size 1½ to 4 inches (linear model)

Scope of control generally considered feasible. (*Cv value in percentage and travel in percentage.)

*2 Grease provided by lubricator

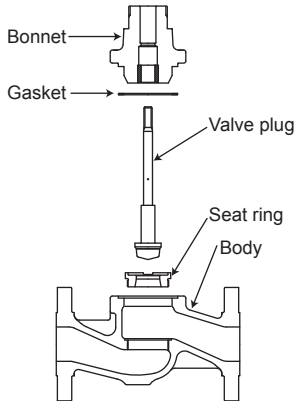


Figure 9 Development view of AGVB/AGVM

Table 7 Body, plug and seat ring material

Material combination		Temperature ranges (°C)		
SUS 316		-5 to +300	-45 to +300	-45 to +300
SUS 316 Stellite		-5 to +400	-196 to +400	-196 to +400
SUS440C		-5 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	-196 to +400	-196 to +400
SUS 316L		---	-45 to +300	-45 to +300
SUS 316L Stellite		---	-196 to +400	-196 to +400
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.*

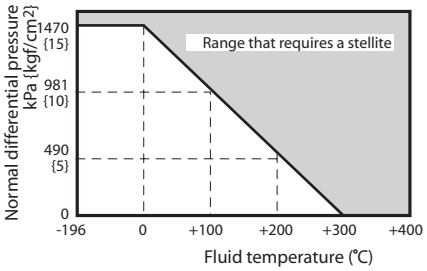


Figure 10 Temperature and normal differential pressure ranges requiring a stellite

Note) 1) Depending on the methods of hardening treatment, stellite welding or SUS440C is available.

2) For valves for cavitation/flashing service, oil-proof service, or tight shutoff service, a stellite is recommended regardless of process fluid temperatures or differential pressures.

3) For valves for cavitation/flashing service for water or for valves for superheated water above 100 ℃, SUS 440C is recommended.

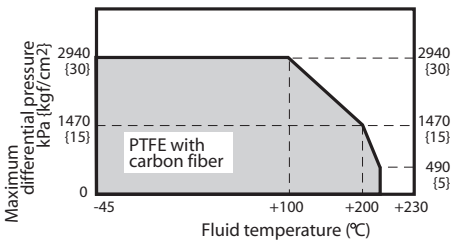


Figure 11 Temperature and maximum differential pressure ranges for soft seat

Note) 1) When there is a possibility of erosion by such fluids as saturated steam and heated water please use metal seats.

2) WIth the fluid connecting parts (inside the body) the material of the seat which oil-proof washing treatment had been completed is PTFE entered with glass.

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

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

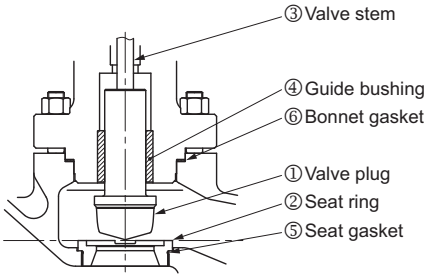


Figure 12 Structural drawing of trim (with guide bushing)

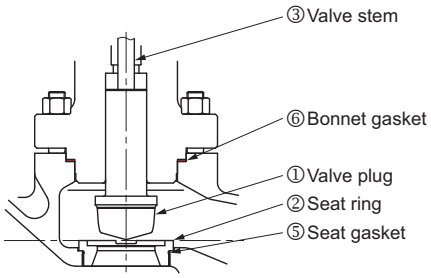


Figure 13 Structural drawing of trim (without guide bushing)

Table 8 The valve body material is carbon steel (SCPH2/A216WCB).

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

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

Table 9 The valve body material is stainless steel (SCS13A/A351CF8 or SCS14A/A351CF8M)

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

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

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

3-2 Actuator

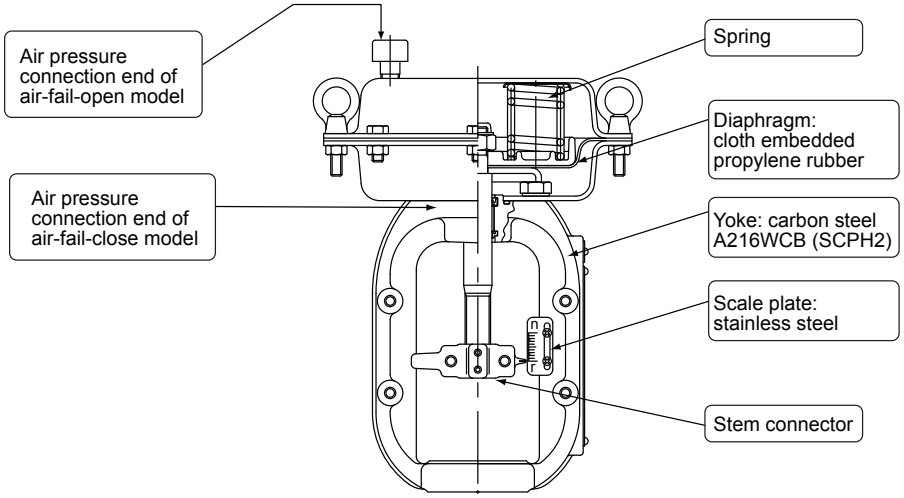


Figure 14 Actuator structure

3-2-1 Actuator and valve actions

Selection of actuator actions determines valve actions (in response to input signals).

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

Air-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 air-to-open or air-to-close actuator is chosen.
The material of bolt and nut are SUS304.

3-2-2 Tables of allowable differential pressures

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

Leakage, specification Class IV (0.01% of rated Cv value)

- Model AGVB
  Air-to-open: Table 11 and 12
  Air-to-close: Table 13 and 14
- Model AGVM
  Air-to-open: Table 15 and 16
  Air-to-close: Table 17 and 18

Leakage, specification Class V (high shutoff model: metal seat) or Class IV-S1 (0.0005% of rated Cv value)

- Model AGVB
  Air-to-open: Table 19 and 20
  Air-to-close: Table 21 and 22
- Model AGVM
  Air-to-open: Table 23 and 24
  Air-to-close: Table 25 and 26

Leakage, specification Class VI (high shutoff model: soft seat)

- Model AGVB
  Air-to-open: Table 27 and 28
  Air-to-close: Table 29 and 30
- Model AGVM
  Air-to-open: Table 31 and 32
  Air-to-close: Table 33 and 34

At your request, we can manufacture control valves with normal pressures exceeding 1.96 MPa.

3-2-3 Supply pressure and spring ranges

Select the actuator using the table of allowable differential pressures. The table also assists in determining the actuator's required supply pressure and required spring range.

If the applicable value in the table of allowable differential pressures is not large enough for the shutoff pressure you need, we sill, at your request, consider a larger actuator size.

3-2-4 Performance (with positioner)

Actuator		PSA1	PSA2 to 4	PSA6
Linearity	VPE	±3	-	-
	AVP	±2	±1	±2
	HEP			
	HTP			
Hysteresis error		1	1	2

3-2-5 Finish

The normal standard coating color for Azbil Corporation's control valves is blue (Munsell color 10B 5/10). Silver is also available as standard.

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

Standard colors are also used for such optional accessories as positioners, pressure regulator with filter, and solenoid valves.

3-2-6 Ambient temperature

-30 to 70 ºC

4. Fluid conditions

Please clear the fluid conditions as follows

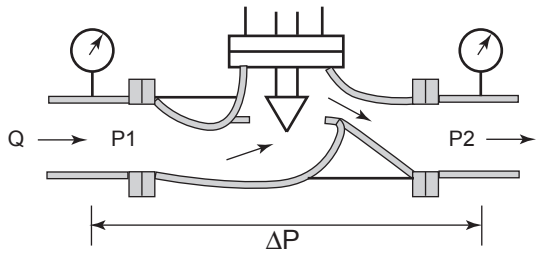


Figure 15 Fluid flow

Table 10 Fluid condition

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 (P1 in Figure 15)
P2	Downstream pressure	Pressure on downstream side of control valve (P2 in Figure 15)
ΔP	Differential pressure	Pressure loss at control valve (ΔP in Figure 15)
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
Selection of Cv values: No. IB1-8000-0100
Selection of expected noise: No. IB1-8000-1700

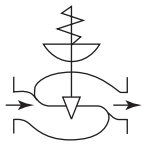
Azbil Corporation has developed personal computer software to calculate Cv values and expected noise.
Please specify if you require such a PC-based tool.

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

Table 11 Model AGVB flange nominal size 1/2, 3/4, and 1 inch

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

Air-to-open



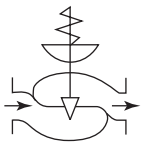
Nominal size inches	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa {kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2	PSA1R	140 {1.4}	20 to 98 {0.2 to 1.0}			1650 {16.8}	1020 {10.4}	550 {5.6}	410 {4.2}
3/4	PSA1R	270 {2.8}	80 to 240 {0.8 to 2.4}			1960 {20.0}			
1	PSA2R	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--			1070 {10.9}	800 {8.2}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 12 Model AGVB nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-open



Nominal size inches	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa {kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1R	140 {1.4}	20 to 98 {0.2 to 1.0}	410 {4.2}	250 {2.6}	170 {1.8}	100 {1.1}	--	--	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}	1780 {18.2}	1210 {12.3}	720 {7.4}	--	--	--
	PSA2R	140 {1.4}	20 to 98 {0.2 to 1.0}	800 {8.2}	490 {5.0}	330 {3.4}	200 {2.0}	--	--	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	1960 {20.0}		1400 {14.3}	--	--	--
	PSA3R	140 {1.4}	20 to 98 {0.2 to 1.0}	1420 {14.5}	880 {8.9}	590 {6.0}	350 {3.6}	--	--	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	--	--	--
	PSA4R	140 {2.8}	20 to 98 {0.2 to 1.0}	1960 {20.0}	1510 {15.4}	1030 {10.5}	610 {6.2}	--	--	--
2½ 3 4	PSA3R	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	590 {6.1}	350 {3.6}	220 {2.2}	160 {1.6}	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}		1530 {15.6}	1100 {11.3}	620 {6.3}
	PSA4R	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	1030 {10.5}	610 {6.2}	380 {3.9}	270 {2.8}	150 {1.16}
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	--	--	1960 {20.0}	1910 {19.4}	1070 {10.9}
	PSA6R	260 {2.6}	100 to 180 {1.0 to 1.8}	--	--	--	--	--	1960 {20.0}	1450 {14.8}
		400 {4.0}	200 to 340 {2.0 to 3.5}	--	--	--	--	--	--	1960 {20.0}

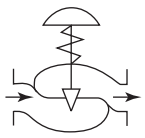
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

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

Table 13 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.

Air-to-close



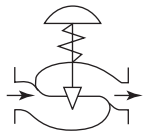
Nominal size inch	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa {kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1D	140{1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0}				1380 {14.1}	1030 {10.5}
		160{1.6}	20 to 98 {0.2 to 1.0}						1860 {18.9}
		390{4.0}	80 to 240 {0.8 to 2.4}						
	PSA2D	140{1.4}	20 to 98 {0.2 to 1.0}	--	--	--	--		
		160{1.6}	20 to 98 {0.2 to 1.0}	--	--	--	--	--	

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 14 Model AGVB nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-close



Nominal size inches	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa{kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1D	140 {1.4}	20 to 98 {0.2 to 1.0}	1030 {10.5}	640 {6.5}	430 {4.4}	260 {2.6}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1860 {18.9}	1150 {11.7}	780 {7.9}	460 {4.7}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0}			1500 {15.3}	--	--	--
	PSA2D	140 {1.4}	20 to 98 {0.2 to 1.0}		1230 {12.6}	840 {8.5}	500 {5.1}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}			1510 {15.4}	900 {9.2}	--	--	--
		390 {4.0}	80 to 240 {0.2 to 1.0}	--	--	--	1960 {20.0}	--	--	--
	PSA3D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	1960 {20.0}	1490 {15.1}	890 {9.0}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0}	1600 {16.3}	--	--	--
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--		1530 {15.6}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	--	1960 {20.0}	--	--	--
2½ 3 4	PSA3D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	1490 {15.1}	890 {9.0}	550 {5.6}	390 {4.0}	220 {2.3}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0}	1600 {16.3}	990 {10.0}	710 {7.2}	400 {4.1}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--					1290 {13.1}
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--		1530 {15.6}	950 {9.6}	680 {6.9}	380 {3.9}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--		1960 {20.0}	1700 {17.4}	1230 {12.5}	700 {7.0}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	--	--	--	1960 {20.0}

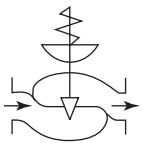
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2.The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

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

Table 15 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.

Air-to-open



Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa {kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1R	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0}		1650 {16.8}	1020 {10.4}	550 {5.6}	410 {4.2}
				5100 {52.0}	3120 {31.8}				
		270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}					
				5100 {52.0}				3870 {39.5}	2890 {29.5}
	PSA2R	140 {1.4}	20 to 98 {0.2 to 1.0}	--	1960 {20.0}			1070 {10.9}	800 {8.2}
					5100 {52.0}	3200 {32.6}	1970 {20.1}		
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	--	--	1960 {20.0}	
								5100 {52.0}	

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.

2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

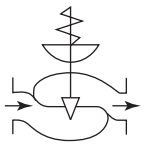
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

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

Table 16 Model AGVM nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-open



Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1R	140 {1.4}	20 to 98 {0.2 to 1.0}	410 {4.2}	250 {2.6}	170 {1.8}	100 {1.1}	--	--	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}	1780 {18.2}	1210 {12.3}	720 {7.4}	--	--	--
				2890 {29.5}						
	PSA2R	140 {1.4}	20 to 98 {0.2 to 1.0}	800 {8.2}	490 {5.0}	330 {3.4}	200 {2.0}	--	--	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}			1400 {14.3}	--	--	--
				5100 {52.0}	3460 {35.2}	2340 {23.9}				
	PSA3R	140 {1.4}	20 to 98 {0.2 to 1.0}	1420 {14.5}	880 {8.9}	590 {6.1}	350 {3.6}	--	--	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	1960 {20.0}			--	--	--
					5100 {52.0}	4160 {42.4}	2480 {25.3}			
	PSA4R	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0}	1510 {15.4}	1030 {10.5}	610 {6.2}	--	--	--
				2450 {25.0}						
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}		--	--	--
						5100 {52.0}	4290 {43.6}			
2½ 3 4	PSA3R	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	590 {6.1}	350 {3.6}	220 {2.2}	160 {1.6}	--
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}		1530 {15.6}	1100 {11.3}	620 {6.3}
						4160 {42.4}	2480 {25.3}			
	PSA4R	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	1030 {10.5}	610 {6.2}	380 {3.9}	270 {2.8}	150 {1.6}
		270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}			1910 {19.4}	1070 {10.9}
						5100 {52.0}	4290 {43.6}	2650 {27.0}		
	PSA6R	260 {2.6}	100 to 180 {1.0 to 1.8}	--	--	--	1960 {20.0}			1450 {14.8}
							5100 {52.0}	3570 {36.4}	2570 {26.2}	
		400 {4.0}	200 to 340 {2.0 to 3.5}	--	--	--	1960 {20.0}			
							5100 {52.0}			3050 {31.1}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.

2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

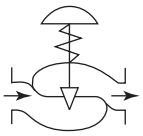
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

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

Table 17 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.

Air-to-close



Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	8.0 6.3	10 14
1/2 3/4 1	PSA1D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0}				1380 {14.1}	1030 {10.5}
				5100 {52.0}		4130 {42.1}	2550 {26.0}		
		160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0}					1860 {18.9}
				5100 {52.0}			4590 {46.8}	2490 {25.4}	
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0}					
				5100 {52.0}					
	PSA2D	140 {1.4}	20 to 100 20 to 98 {0.2 to 1.0}	--	--	1960 {20.0}			
						5100 {52.0}	4940 {50.3}	2680 {27.3}	2000 {20.4}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	--	1960 {20.0}		
							5100 {52.0}	4830 {49.2}	3600 {36.7}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.

2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

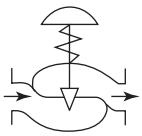
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

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

Table 18 Model AGVM nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-close



Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1D	140 {1.4}	20 to 98 {0.2 to 1.0}	1030 {10.5}	640 {6.5}	430 {4.4}	260 {2.6}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1860 {18.9}	1150 {11.7}	780 {7.9}	460 {4.7}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0} / 5100 {52.0}	3690 {37.7}	2510 {25.6}	1500 {15.3}	--	--	--
	PSA2D	140 {1.4}	20 to 98 {0.2 to 1.0}	2000 {20.0}	1230 {12.6}	840 {8.5}	500 {5.1}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0} / 3600 {36.7}	2220 {22.7}	1510 {15.4}	900 {9.2}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	1960 {20.0} / 5100 {52.0}	4860 {49.5}	2900 {29.6}	--	--	--
	PSA3D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0} / 3550 {36.2}	2190 {22.3}	1490 {15.1}	890 {9.0}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0} / 5100 {52.0}	3940 {40.2}	2670 {27.3}	1600 {16.3}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} / 5100 {52.0}		--	--	--
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0} / 5100 {52.0}	3780 {38.6}	2570 {26.2}	1530 {15.6}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0} / 4620 {47.1}	2760 {28.1}	--	--	--
2½ 3 4	PSA3D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	1490 {15.1}	890 {9.0}	550 {5.6}	390 {4.0}	220 {2.3}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0} / 2680 {27.3}	1600 {16.3}	990 {10.0}	710 {7.2}	400 {4.1}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} / 5100 {52.0}		3180 {32.4}	2290 {23.3}	1290 {13.1}
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0} / 2570 {26.2}	1530 {15.6}	950 {9.6}	680 {6.9}	380 {3.9}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0} / 4620 {47.1}	2760 {28.1}	1700 {17.4}	1230 {12.5}	690 {7.0}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	--	1960 {20.0} / 5100 {52.0}	3950 {40.3}	2220 {22.6}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.

2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

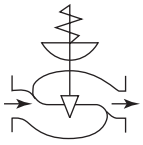
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

Valve seat leakage, Class V and Class IV-S1: high shutoff model: metal seat

Table 19 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.

Air-to-open



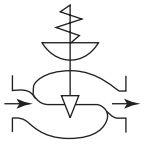
Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1R	270{2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}					

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 20 Model AGVB nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-open



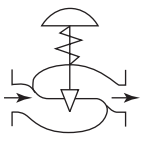
Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1R	270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}	1110 {11.3]	660 {6.7}	270 {2.8}	--	--	--
	PSA2R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	1960 {20.0}	1550 {15.8}	810 {8.2}	--	--	--
	PSA3R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}	1660 {16.9}	--	--	--
	PSA4R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	--	--	--
2½ 3 4	PSA3R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}	1660 {16.9}	910 {9.3}	570 {5.8}	190 {2.0}
	PSA4R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	1790 {18.2}	1200 {12.3}	550 {5.6}
	PSA6R	260 {2.6}	100 to 180 {1.0 to 1.8}	--	--	--	--	1960 {20.0}	1850 {18.9}	910 {9.3}
		400 {4.0}	200 to 340 {2.0 to 3.5}	--	--	--	--	--	1960 {20.0}	

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 21 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.

Air-to-close



Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2	PSA1D	160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0}				1640 {16.8}	1150 {11.7}
3/4		390 {4.0}	80 to 240 {0.8 to 2.4}						
1	PSA2D	160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	--	--		

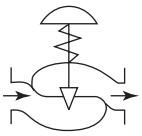
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Valve seat leakage, Class V and Class IV-S1: high shutoff model: metal seat

Table 22 Model AGVB nominal size 1½, 2, 2½, 3, and 4 inches

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

Air-to-close



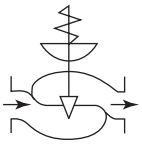
Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1D	160 {1.6}	20 to 98 {0.2 to 1.0}	1150 {11.7}	600 {6.1}	310 {3.2}	--	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0}			1100 {11.2}	--	--	--
	PSA2D	160 {1.6}	20 to 98 {0.2 to 1.0}		1430 {14.6}	880 {9.0}	410 {4.1}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	--	--	--
	PSA3D	160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0}		1790 {18.3}	950 {9.7}	--	--	--
	PSA4D	160 {1.6}	20 to 98 {0.2 to 1.0}				1850 {18.9}	--	--	--
2½ 3 4	PSA3D	160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1790 {18.2}	950 {9.7}	470 {4.8}	260 {2.6}	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}			1830 {18.7}	900 {9.2}
	PSA4D	160 {1.6}	20 to 98 {0.2 to 1.0}	--	--		1850 {18.9}	1030 {10.5}	660 {6.7}	240 {2.5}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	--	--	1960 {20.0}	1780 {18.1}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 23 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.

Air-to-open



Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1R	270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}					
				5100 {52.0}				2750 {28.0}	1980 {20.2}
	PSA2R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	--	--	1960 {20.0}	4100 {41.8}
								5100 {52.0}	

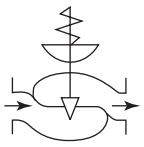
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

Valve seat leakage, Class V and Class IV-S1: high shutoff model: metal seat

Table 24 Model AGVM nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-open



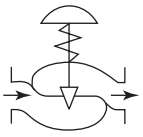
Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1R	270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0} 1980 {20.2}	1110 {11.3}	660 {6.7}	270 {2.8}	-- --	-- --	-- --
	PSA2R	270 {2.8}	80 to 240 {0.8 to 2.4}	1960{20.0} 4110 {41.9}	2420 {24.7}	1550 {15.8}	810 {8.2}	--	--	--
	PSA3R	270 {2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0} 5100 {52.0}	4520 {46.1}	2970 {30.3}	1660 {16.9}	--	--	--
	PSA4R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	1960{20.0} 5100 {52.0}		3080 {31.4}	--	--	--
2½ 3 4	PSA3R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} 2970 {30.3}	1660 {16.9}	910 {9.3}	570 {5.8}	190 {2.0}
	PSA4R	270 {2.8}	80 to 240 {0.8 to 2.4}	--	--	1960{20.0} 5100 {52.0}	3080 {31.4}	1790 {18.2}	1200 {12.3}	550 {5.6}
	PSA6R	260 {2.6}	100 to 180 {1.0 to 1.8}	--	--	--	--	1960 {20.0} 2680 {27.3}	1850 {18.9}	910 {9.3}
		400 {4.0}	200 to 340 {2.0 to 3.5}	--	--	--	1960{20.0} 5100 {52.0}		4710 {48.0}	2520 {25.7}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

Table 25 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.

Air-to-close



Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1D	160 {1.6}	20 to 98 {0.2 to 1.0}	1960{20.0} 5100 {52.0}			3270 {33.3}	1640 {16.8}	1150 {11.7}
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0} 5100 {52.0}					
	PSA2D	160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	--	1960{20.0} 5100 {52.0}	3460 {35.3}	2500 {25.5}

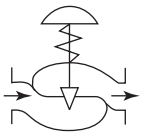
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

Valve seat leakage, Class V and Class IV-S1: high shutoff model: metal seat

Table 26 Model AGVM nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-close



Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1D	160 {1.6}	20 to 98 {0.2 to 1.0}	1150 {11.7}	600 {6.1}	310 {3.2}	--	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0}			1100 {11.2}	--	--	--
				5100 {52.0}	3150 {32.1}	2040 {20.8}				
	PSA2D	160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0}	1430 {14.6}	880 {9.0}	410 {4.1}	--	--	--
				2500 {25.5}						
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	1960 {20.0}			--	--	--
					5100 {52.0}	4230 {18.2}	2400 {24.5}			
	PSA3D	160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0}		1790 {18.3}	950 {9.7}	--	--	--
				4670 {47.6}	2770 {28.3}					
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}		--	--	--
						5100 {52.0}	4490 {45.8}			
	PSA4D	160{1.6}	20 to 98{0.2 to 1.0}	1960 {20.0}			1850 {18.9}	--	--	--
				5100 {52.0}	5000 {51.0}	3300 {33.6}				
		390{4.0}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	--	--	--
							5100 {52.0}			
2½ 3 4	PSA3D	160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1790 {18.2}	950 {9.7}	470 {4.8}	260 {2.6}	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}			1830 {18.7}	900 {9.2}
						5100 {52.0}	4490 {45.8}	2660 {27.1}		
	PSA4D	160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0}	1850 {18.9}	1030 {10.5}	660 {6.7}	240 {2.5}
						3300 {33.6}				
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}			1770 {18.0}
							5100 {52.0}	4810 {49.1}	3380 {34.4}	

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.

2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

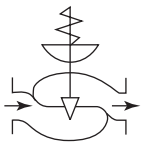
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

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

Table 27 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.

Air-to-open



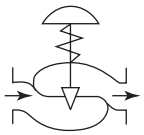
Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1R	270{2.8}	80 to 240{0.8 to 2.4}	1960 {20.0}				1440 {14.7}	1030 {10.5}
	PSA2R	270{2.8}	80 to 240{0.8 to 2.4}	--	--	--	--	1960 {20.0}	

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 28 Model AGVB nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-open



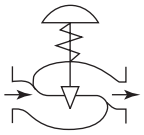
Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1R	270{2.8}	80 to 240 {0.8 to 2.4}	1030 {10.5}	460 {4.7}	190 {1.9}	--	--	--	--
	PSA2R	270{2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}	1740 {17.7}	1270 {13.0}	640 {6.5}	--	--	--
	PSA3R	270{2.8}	80 to 240 {0.8 to 2.4}	--	1960 {20.0}		1580 {16.1}	--	--	
	PSA4R	270{2.8}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	--	--	--
2½ 3 4	PSA3R	270{2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}	1580 {16.1}	960 {9.8}	640 {6.5}	280 {2.9}
	PSA4R	270{2.8}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	1920 {19.6}	1450 {14.8}	770 {7.9}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 29 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.

Air-to-close



Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1D	140 {1.4}	20 to 98 {0.2 to 1.0}	1240 {12.6}	1240 {12.6}	690 {7.0}	110 {1.1}	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0}			1480 {15.1}	640 {6.5}	330 {3.4}
		390 {1.4}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}		
	PSA2D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0}			1910 {19.5}	1230 {12.5}	790 {8.1}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	--	1960 {20.0}		1750 {17.8}

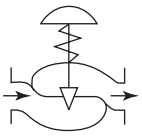
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

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

Table 30 Model AGVB nominal size 1½, 2, 2½, 3, and 4 inches

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

Air-to-close



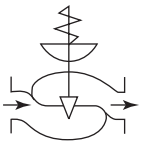
Nominal size (inches)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1D	390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0}	1860 {19.0}	1390 {14.2}	730 {7.4}	--	--	--
	PSA2D	140 {1.4}	20 to 98 {0.2 to 1.0}	790 {8.1}	310 {3.2}	--	--	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1750 {17.8}	1170 {11.9}	680 {6.9}	280 {2.9}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	1960 {20.0}		1860 {18.0}	--	--	
	PSA3D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0}	1410 {1.41}	880 {9.0}	400 {4.1}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}			1710 {17.4}	1050 {10.7}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	1960 {20.0}	--	--	--
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0}			1320 {13.5}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--			--	--	--
2½ 3 4	PSA3D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	880 {9.0}	400 {4.1}	150 {1.5}	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1710 {17.4}	1050 {10.7}	550 {5.6}	340 {3.5}	110 {1.1}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--				1710{ 17.4}	960 {9.8}
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0}	1320 {13.5}	730 {7.4}	470 {4.8}	190 {1.9}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--			1410 {14.4}	980 {10.0}	480 {4.9}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	--	1960 {20.0}		1820 {18.6}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.

Table 31 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.

Air-to-open



Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by Cv value) kPa{kgf/cm^2}					
				0.1 0.16 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4	PSA1R	270{2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0}				1440 {14.7}	1030 {10.5}
				2940 {30.0}		2850 {29.1}	2140 {21.8}		
1	PSA2R	270{2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0}			
						2940 {30.0}			2450 {25.0}

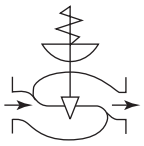
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

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

Table 32 Model AGVM nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-open



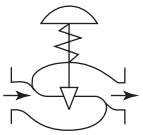
Nominal size inches	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa {kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1R	270{2.8}	80 to 240 {0.8 to 2.4}	1030 {10.5}	460 {4.7}	180 {0.17}	--	--	--	--
	PSA2R	270{2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0} 2450 {25.0}	1740 {17.7}	1270 {13.0}	640 {6.5}	--	--	--
	PSA3R	270{2.8}	80 to 240 {0.8 to 2.4}	1960 {20.0} 2940 {30.0}		2370 {24.2}	1580 {16.1}	--	--	--
	PSA4R	270{2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} 2940 {30.0}	2840 {29.0}	--	--	--
2½ 3 4	PSA3R	270{2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} 2370 {24.2}	1580 {16.1}	960 {9.8}	640 {6.5}	280 {2.9}
	PSA4R	270{2.8}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} 2940 {30.0}	2.84 {29.0}	1920 {19.6}	1450 {14.8}	770 {7.9}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

Table 33 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.

Air-to-close



Nominal size (inch)	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa{kgf/cm^2}	Differential pressure (by Cv value) kPa {kgf/cm^2}					
				0.1 160 0.25	0.4 0.63	1.0 1.6	2.5 4.0	6.3 8.0	10 14
1/2 3/4 1	PSA1D	140 {1.4}	20 to 98 {0.2 to 1.0}	1240 {12.6}	1240 {12.6}	690 {7.0}	110 {1.1}	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0} 2310 {23.6}		1980 {20.2}	1480 {15.1}	640 {6.5}	330 {3.4}
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0} 2940 {30.0}					2620 {26.7}
	PSA2D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0} 2940 {30.0}		2550 {26.0}	1900 {19.3}	1230 {12.6}	790 {8.1}
		160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0} 2940 {30.0}				2140 {21.8}	1750 {17.9}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	--	--	1960 {20.0} 2940 {30.0}

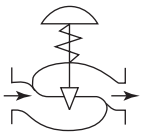
Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

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

Table 34 Model AGVM nominal size 1½, 2, 2½, 3 and 4 inches

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

Air-to-close



Nominal size inches	Actuator	Supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Differential pressure (by port size (inches)) kPa{kgf/cm^2}						
				1	1¼	1½	2	2½	3	4
1½ 2	PSA1D	160 {1.6}	20 to 98 {0.2 to 1.0}	330 {3.4}	--	--	--	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0} 2620 {26.7}	1860 {18.9}	1390 {14.2}	730 {7.4}	--	--	--
	PSA2D	140 {1.4}	20 to 98 {0.2 to 1.0}	790 {8.1}	310 {3.2}	--	--	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1750 {17.8}	1170 {11.9}	680 {6.9}	280 {2.9}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	1960 {20.0} 2940 {30.0}		2780 {28.4}	1860 {19.0}	--	--	--
	PSA3D	140 {1.4}	20 to 98 {0.2 to 1.0}	1990 {20.3}	1410 {14.4}	880 {9.0}	400 {4.1}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	1960 {20.0} 2940 {30.0}	2290 {23.4}	1710 {17.4}	1050 {10.7}	--	--	--
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} 2940 {30.0}		-- --	--	--
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	1960 {20.0} 2940 {30.0}	2660 {27.1}	1990 {20.3}	1320 {13.5}	--	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	1960 {20.0} 2940 {30.0}		1990 {21.3}	--	--	--
2½ 3 4	PSA3D	140 {1.4}	20 to 98{0.2 to 1.0}	--	--	880 {9.0}	400 {4.1}	150 {1.5}	--	--
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1710 {17.4}	1050 {10.7}	550 {5.6}	340 {3.5}	110 {1.1}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	1960 {20.0} 2940 {30.0}		2250 {22.9}	1710 {17.4}	960 {9.8}
	PSA4D	140 {1.4}	20 to 98 {0.2 to 1.0}	--	--	1990 {20.3}	1320 {13.5}	730 {7.4}	470 {4.8}	190 {1.9}
		160 {1.6}	20 to 98 {0.2 to 1.0}	--	--	1960 {20.0} 2940 {30.0}	2090 {21.3}	1410 {14.4}	980 {10.0}	480 {4.9}
		390 {4.0}	80 to 240 {0.8 to 2.4}	--	--	--	--	1960 {20.0} 2940 {30.0}		1820 {18.6}

Note) 1. In the case of using positioners, please the setting of supply pressure with pressure regulator.
2. The maximum allowable differential pressures must not exceed the maximum working pressures specified by JISB2201-1984, ANSIB16.34-1981, and JPI-7S-65-831.
3. In the differential pressure column, upper figures show normal differential pressures and lower figures differential pressures when the valve is fully closed.

5. Accessories

5-1 Hand wheel

Use: The manual hand wheel enables you to open and close the valve manually.
Orientation: Side hand wheel, which is mounted to the yoke of the actuator.

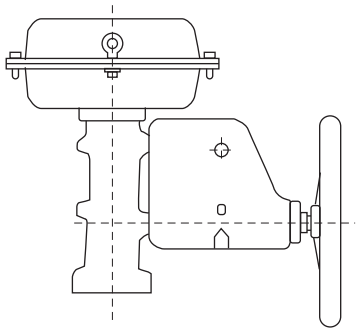


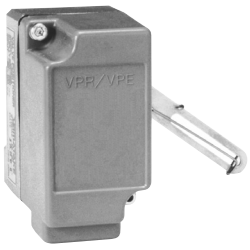
Figure 16 Side hand wheel

5-2 Positioner

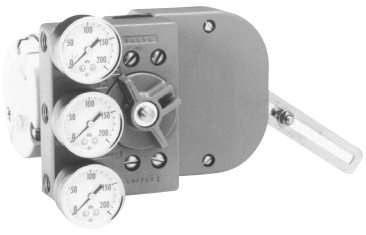
Use: In response to input signals from the controller, the positioner controls the valve accurately and swiftly, switches between direct and reverse operation, and changes valve characteristics.
Models: According to input signals and applications, select one of the models shown below.

Model AVP70X/30X Smart valve positioner

Input signal:	AVP300 4 to 20mADC (Any split range is available) AVP301 4 to 20mADC (with travel transmission) AVP701 HART communication protocol (with travel transmission) AVP702/302 HART communication protocol AVP703 Foundation™ fieldbus
Common Model:	JIS C 0920 water-proof NEMA TYPE4X, IP66
Approval:	TIIS Flameproof, FM Explosionproof, FM Intrinsically safe, CSA Explosionproof, ISSeP/ATEX Flameproof, KEMA/ ATEX Intrinsically safe



VPE 04/05 model
Single acting pneumatic positioner
Input signal:
0.2 to 1.0 kgf/cm^2
20 to 100 kPa and half range
Note) Usable with PSA1 only.



HTP model
Single acting pneumatic positioner
Input signal: 0.2 to 1.0 kgf/cm
20 to 100 kPa and half range

HEP model
Single acting pneumatic positioner
HEP 15: JIS Flameproof
HEP 16: JIS Intrinsically Safe
HEP 17: JIS Safe water-proof
HEP 18: FM intrinsically safe
HEP 19: FM intrinsically safe
Input signal: 4 to 20mA DC
Half range: (4 to 12 or 12 to 20mA DC)

Note) In the photograph, the pressure regulator is attached.

5-3 Pressure regulator with filter

Function: The Pressure regulator with filter reduce the pressure of application air, drains application air, and removes foreign substances.
Model: The model KZ03 is the standard.

KZ03 Pressure regulator with filter

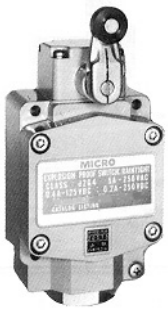
5-4 Solenoid valve

Function: Electric signals make the solenoid valve to open and close the control valve.
Model: According to applications, select one of those shown below.
Waterproof model:
J320b175type (Maker: Nippon Asco)
Explosionproof model: JE3J320G174 (Maker: Nippon Asco)

Three-way solenoid valve made by Nippon Asco

5-5 Limit switch

Function: The limit switch converts the open and closed positions of the control valve into electric signals.
Model: The roller lever actuator is standard. According to applications, select one of the models shown below.
Waterproof model: VCL5001
Explosionproof model: VCX7001



Roller lever type limit switch

5-6 Booster relay

Use: The booster relay improves the working speed of the control valve.
Model: Use a booster relay that amplifies the output signals of the positioner.

Booster relay (IL 100-02) made by SMC

5-7 Lock-up valve

Function: In response to air pressure signals or in anticipations of fluctuations in the supply pressure, the lock-up valve maintains the position of the control valve.
Model: single acting selector switch, which reverts on pressure recovery. You can freely set the change-over pressure within the range from 140 to 690 kPa.

Lock-up valve (IL 201-02 type) made by SMC

Please check specification (explosion proof, power supply or additional voltage, connection method of electric wiring) about electric equipment, such as positioner, solenoid valve and limit switch.

6. Dimensions and weight

Table 35 and 36 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 35 Main dimensions

Connection diameter (inches)	Actuator	Dimensions (mm)								
		A					H			ϕB
		JIS10K ANSI150JPI150*1	JIS16K	JIS20K, 30K ANSI300 JPI300*1	JIS10K, 16K, 20K, 30K ANSI150, 300 JPI150, 300		General use bonnet	Extension type I bonnet	Extension type II bonnet	
					SW	BW				
1/2, 3/4	PSA1D, R	184	190	194	206	--	420	545	945	218
	PSA2D, R						450	575	975	267
1	PSA1D, R	184	193	197	210	--	420	545	945	218
	PSA2D, R						450	575	975	267
1½	PSA1D, R	222	231	235	251	--	420	605	945	218
	PSA2D, R						450	635	975	267
	PSA3D, R						630	760	1160	350
	PSA4D, R						680	815	1215	470
2	PSA1D, R	254	263	267	286	--	420	605	945	218
	PSA2D, R						450	635	975	267
	PSA3D, R						630	760	1160	350
	PSA4D, R						680	815	1215	470
2½	PSA3D, R	276	288	292	--	311	675	800	1155	350
	PSA4D, R						725	855	1210	470
	PSA6R						1145	1275	--	470
3	PSA3D, R	298	313	317	--	337	675	800	1155	350
	PSA4D, R						725	855	1210	470
	PSA6R						1145	1275	1710	470
4	PSA3D, R	352	364	368	--	394	680	800	1155	350
	PSA4D, R						730	860	1210	470
	PSA6R						1150	1275	1710	470

*Note) *1 : Face-to-face dimentions conform to following standards.*
- IEC 60534-3-1:2001
- JIS B 2005-3-1:2005
**2 : H +135 mm for PSA6 with hand wheel.*

Table 36 Product weight (kg)

	Body size (inches)	1/2		3/4		1		1½	
	Pressure rating	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI 300	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI 300	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI 300	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI 300
Actuator	PSA 1	15	16	16	19	17	19	27	32
	PSA 2	18	19	19	22	20	22	30	35
	PSA 3	--	--	--	--	--	--	50	55
	PSA 4	--	--	--	--	--	--	68	73
	PSA 6	--	--	--	--	--	--	--	--

	Body size (inches)	2		2½		3		4	
	Pressure rating	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI 300	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI300	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI 300	JIS 10K ANSI 150 JPI 150	JIS 20K ANSI 300 JPI 300
Actuator	PSA 1	30	33	--	--	--	--	--	--
	PSA 2	33	36	--	--	--	--	--	--
	PSA 3	53	56	71	77	73	81	89	106
	PSA 4	71	74	89	95	91	99	107	124
	PSA 6	--	--	190	197	192	201	208	225

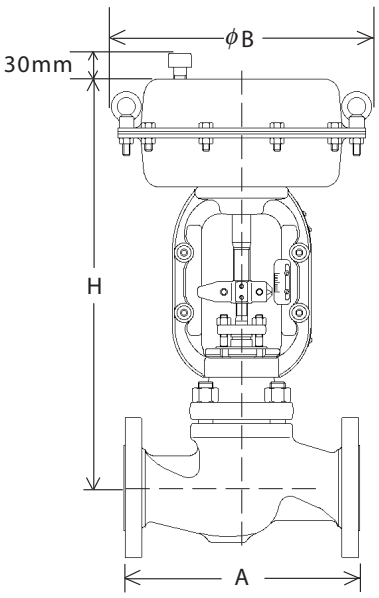


Figure 17 Face-to-face dimensions and overall dimensions

The overall dimensions and the valve weight will change when a manual hand wheel is mounted. Ins standard mounting, the position of operation of the side hand wheel is at the back of the actuator (on the side opposite that the valve positioner is mounted).

Table 37 Hand wheel dimensions

Type of hand wheel	Actuator	Dimension (mm)		Maximum driving force of hand wheel N (kgf)	Weight Weight (kg)
		ϕF	K		
Side hand wheel	PSA1D, R	200	215	190 (19)	7
	PSA2D, R	200		320 (32)	
	PSA3D, R	355	345	650 (65)	27
	PSA4D, R	355		850 (85)	
	PSA6R	380	307	127 (13)	35

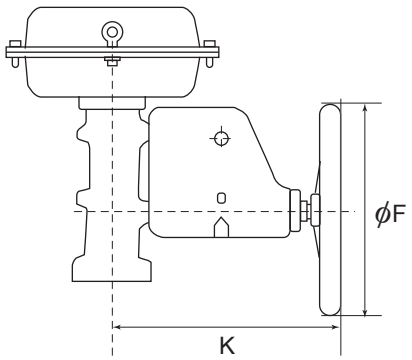


Figure 18 Side hand wheel (PSA1~4)

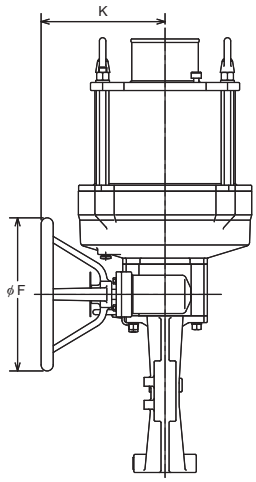
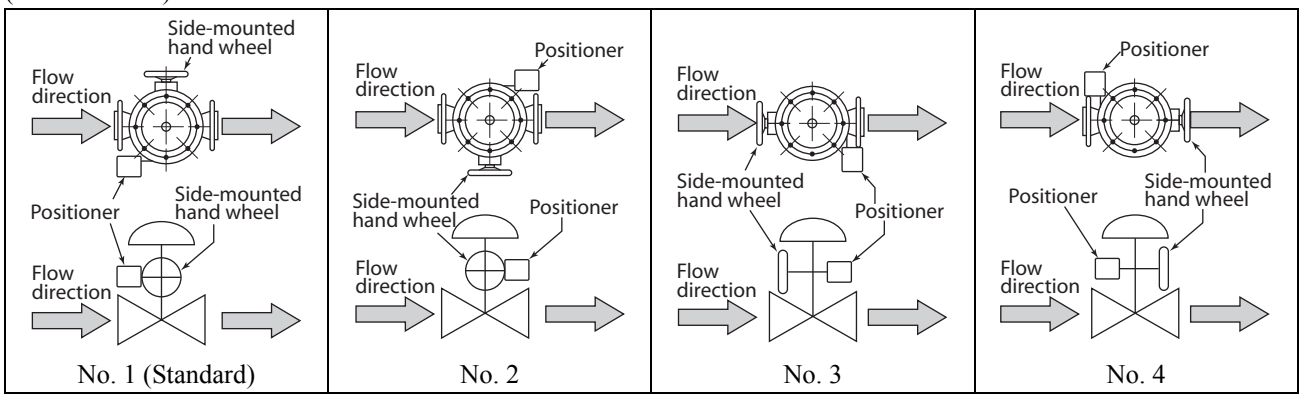


Figure 19 Side hand wheel (PSA6)

7. Actuator Orientation

(PSA Actuator)



(PSA6 Actuator)

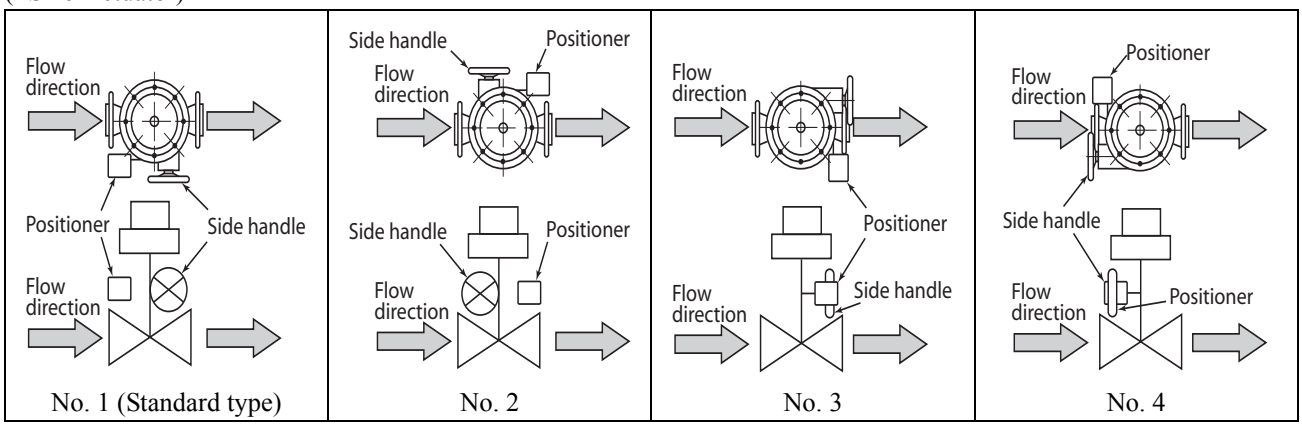


Figure 20 Actuator orientation

Note) Indicate by position number when installation other than the standard type is required.

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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