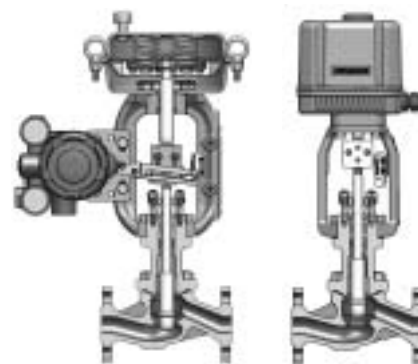


AGVB, AGVM

CV3000 Alphaplus

Top-Guided Single-Seated Control Valves

The CV3000 Alphaplus range of top-guided, single-seat control valves feature a compact valve body with superior flow control and minimal pressure loss. Alphaplus valves have wide rangeability, accurate flow control and high Cv values, particularly suitable for process control applications where high reliability and tight flow shutoff are essential.



Pneumatic model

Electric model

Specifications

● Pneumatic model

Basic model No.	AGVB: JIS10K, ANSI150, JPI150 AGVM: JIS16K, JIS20K, JIS30K, ANSI300, JPI300		
Fluid temperature	Body material	SCPH2	SCS13A/SCS14A
	Bonnet		
	Normal	-5 to +230°C	-17 to +230°C
	Extension type I (high-low temperature)	230 to 400°C	-45 to -17°C 230 to 400°C
	Extension type II (Liquid O ₂ -N ₂)	—	-196 to -45°C

● Electric model

Basic model No.	AGVB: JIS10K, ANSI150, JPI150 AGVM: JIS16K, JIS20K, JIS30K, ANSI300, JPI300
Fluid temperature	-45°C to +400°C

● Actuator (motor) of electric model

Type		Electric motor
Control action		Positional control or two-position control
Power		100Vac ±10% or 200Vac ±10%, 50/60Hz
Input signal		4–20mAdc, 1–5Vdc, switching contact input (100Vac/200Vac WET)
Action		Direct or reverse
Input signal failure action		Close, open or hold
Input resistance		250Ω
Power consumption		24VA for operation, 1.5VA for non-operation (100Vac)
Insulation resistance		100MΩ between input terminal and case / 500Vdc
Dielectric strength		500V for 1 min between power supply terminal and case
Material	Case	Die-cast aluminum alloy (ADC12)
	Stem	SUS303
	Yoke	Carbon steel (SCPH2)
Protective structure		Equivalent to IP65
Motor		Reversible motor
Coil insulation class		E
Rated temperature		Continuous duty (built-in thermal switch)
Position sensor		Potentiometer
Protective device		• Built-in open/close limit switch • Built-in lower torque limiter
Electrical connection		G1/2
Ambient temperature		-25 to 55°C
Ambient humidity		10 to 90% RH
Vibration resistance		2G, 5 to 100Hz
Travel transmission		1–5Vdc
Manual operation		Top handle

Selection Guide

- Pneumatic model: See Table 1.
- Electric model: See Table 2.

Mass

(Unit: kg)

● Pneumatic model

Valve size (in.)	1/2		3/4		1		1 1/2	
	JIS 10K	JIS 20K	JIS 10K	JIS 20K	JIS 10K	JIS 20K	JIS 10K	JIS 20K
	ANSI 150	ANSI 300	ANSI 150	ANSI 300	ANSI 150	ANSI 300	ANSI 150	ANSI 300
Actuator	PSA1	15	16	16	19	17	19	27
	PSA2	18	19	19	22	20	22	30
	PSA3	—	—	—	—	—	50	55
	PSA4	—	—	—	—	—	68	73
	PSA6	—	—	—	—	—	—	—
	PSA6	—	—	—	—	—	—	—

Valve size (in.)	2		2 1/2		3		4	
	JIS 10K	JIS 20K	JIS 10K	JIS 20K	JIS 10K	JIS 20K	JIS 10K	JIS 20K
	ANSI 150	ANSI 300	ANSI 150	ANSI 300	ANSI 150	ANSI 300	ANSI 150	ANSI 300
Actuator	PSA1	30	33	—	—	—	—	—
	PSA2	33	36	—	—	—	—	—
	PSA3	53	56	71	77	73	81	89
	PSA4	71	74	89	95	91	99	107
	PSA6	—	—	190	197	192	201	208
	PSA6	—	—	190	197	192	201	208

● Electric model

Valve size (in.)	JIS10K, ANSI150, JPI150		JIS 16K		JIS20K, JIS30K, ANSI300, JPI300	
	General use bonnet	Extension bonnet	General use bonnet	Extension bonnet	General use 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

■ Table 1 Selectoin Guide for Pneumatic Model: AGVB and AGVM

AGVB or AGVM - I II III IV V VI VII VIII IX X XI - XII XIII XIV XV XVI - XVII

Examples: AGVB-1AJ11211A11-XXXXX-X

AGVM-1AB11211A11-XXXXX-X

Segment	Model No. selection		Description
-	Basic No.	AGVB ↓	CV300 Alaphplus, AGVB model or AGVM model
		AGVM ↓	
I	Valve size	1 ○ ○	1/2 inch
		2 ○ ○	3/4 inch
		3 ○ ○	1 inch
		4 ○ ○	1 1/2 inch
		5 ○ ○	2 inches
		6 ○ ○	2 1/2 inches
		7 ○ ○	3 inches
		8 ○ ○	4 inches
II	Port size and plug flow characteristics*1	A ○ ○	Cv = 0.1 Linear*2
		B ○ ○	Cv = 0.16 Linear*2
		C ○ ○	Cv = 0.25 Linear*2
		D ○ ○	Cv = 0.4 Equal %
		E ○ ○	Cv = 0.63 Equal %
		F ○ ○	Cv = 1.0 Equal %
		G ○ ○	Cv = 1.6 Equal %
		H ○ ○	Cv = 2.5 Equal %
		J ○ ○	Cv = 4.0 Equal %
		4 ○ ○	Cv = 6.3 Equal %
		K ○ ○	Cv = 8.0 Equal %
		L ○ ○	Cv = 10 Equal %
		M ○ ○	1 inch, Cv = 14 Equal %
		N ○ ○	1 1/4 inch Equal %
		P ○ ○	1 1/2 inch Equal %
		R ○ ○	2 inches Equal %
III	Connection rating	S ○ ○	2 1/2 inches Equal %
		T ○ ○	3 inches Equal %
		U ○ ○	4 inches Equal %
		J ○ ○	- JIS 10K RF
		A ○ ○	- ANSI 150 RF
		P ○ ○	- JPI 150 RF
		B ○ ○	- JIS 16K RF
		C ○ ○	- JIS 20K RF
		D ○ ○	- JIS 30K RF
		E ○ ○	- ANSI 300 RF
IV	Bonnet	F ○ ○	- JIS 300 RF
		1 ○ ○	Standard type (-17 to +230°C)
		2 ○ ○	Extension type I (-45 to -17°C, or +230 to 400°C)
		3 ○ ○	Extension type II (-196 to 45°C)
		1 ○ ○	SCPH2
		2 ○ ○	SCS13A
V	Body material	3 ○ ○	SCS14A
		9 ○ ○	Other (enter request)
VI	Plug and seat material	2 ○ ○	SUS316
		4 ○ ○	SUS316 stellite
		5 ○ ○	SUS440C
		6 ○ ○	SUS316 soft seat
		7 ○ ○	SUS316 stellite facing*2
		8 ○ ○	SUS316L
		A ○ ○	SUS316L stellite
		B ○ ○	SUS316L soft seat
VII	Seat leakage	9 ○ ○	Other (enter request)
		1 ○ ○	Class IV: 0.01% of the rated Cv value
		2 ○ ○	Class V: high shutoff model Seat: stellite or SUS440C
		3 ○ ○	Class VI: shutoff performance (soft seat)
VIII	Gland packing	4 ○ ○	Class IV-SI: ultra low leakage Seat: stellite or SUS440C
		1 ○ ○	PTFE yarn (general use)
		2 ○ ○	V-shaped PTFE (general use)
		A ○ ○	V-shaped PTFE (oil-free use)
		3 ○ ○	V-shaped PTFE (D)+(R) (vacuum service)
		5 ○ ○	V-shaped PTFE (low temp. use)
		4 ○ ○	Graphite yarn (high temp. / water resistant)
		6 ○ ○	Graphite yarn (high and low temp. / oil-free)
		7 ○ ○	Graphite yarn (anti-alkaline or acid service)
		8 ○ ○	Graphite yarn (for solvent use)
IX	Actuator and valve action	9 ○ ○	Other (enter request)
		A ○ ○	PSA1R Reverse action (air-to-open)
		B ○ ○	PSA1D Direct action (air-to-close)
		C ○ ○	PSA2R Reverse action (air-to-open)
		D ○ ○	PSA2D Direct action (air-to-close)
		E ○ ○	PSA3R Reverse action (air-to-open)
		F ○ ○	PSA3D Direct action (air-to-close)
		G ○ ○	PSA4R Reverse action (air-to-open)
		H ○ ○	PSA4D Direct action (air-to-close)
		J ○ ○	PSA6R Reverse action (air-to-open)

Segment	Model No. selection		Description
X	Air supply and spring range	1 ○ ○	140kPa, 20–98kPa
		2 ○ ○	160kPa, 20–98kPa
		3 ○ ○	270kPa, 80–240kPa
		4 ○ ○	390kPa, 80–240kPa
		5 ○ ○	400kPa, 200–340kPa
		6 ○ ○	260kPa, 100–180kPa
XI	Paint	1 ○ ○	Standard: blue (M10B5/10)
		2 ○ ○	Silver
		3 ○ ○	Heat-resistant silver
		4 ○ ○	Corrosion-resistant silver
		5 ○ ○	Saline-resistant silver (recommended bolt and nut material: SUS304)
XII	Hand wheel	9 ○ ○	Other (body, diaphragm case and yoke—enter request)
		X ○ ○	None
XIII	Positioner	S ○ ○	Side hand wheel
		X ○ ○	None
		C ○ ○	Smart I/P [AVP300]
		D ○ ○	Smart I/P (with motion transmitter) [AVP301]
		G ○ ○	Smart I/P JIS flameproof type [AVP300]
		H ○ ○	Smart I/P JIS flameproof (with motion transmitter) [AVP301]
		1 ○ ○	I/P JIS waterproof [HEP17]
		2 ○ ○	I/P new JIS flameproof [HEP15]
		5 ○ ○	Compact pneumatic type (PSA1 only) [VPE]
		6 ○ ○	Pneumatic type only [HTP]
XIV	Pressure regulator with filter	9 ○ ○	Other (enter request)
		X ○ ○	None
		1 ○ ○	Regulator without pressure gauge [KZ03] (for AVP, HEP, HTP)
		2 ○ ○	Regulator with pressure gauge [KZ03] (for VPE)
XV	Solenoid valve	9 ○ ○	Other (enter request)
		X ○ ○	None
		1 ○ ○	General purpose J320G174 (ASCO)
		3 ○ ○	JIS flameproof type JE3J320G174 (ASCO)
XVI	Limit switch	9 ○ ○	Other (enter request)
		X ○ ○	None
		1 ○ ○	Waterproof single mount [VCL5001]
		2 ○ ○	Waterproof dual mount [VCL5001]
		3 ○ ○	JIS flameproof single mount [VCX5001]
XVII	Options	4 ○ ○	JIS flameproof dual mount [VCX5001]
		9 ○ ○	Other (enter request)
		X ○ ○	None
		A ○ ○	Vinyl-sheathed copper tube + cap
		B ○ ○	Exposed bolts and nuts: SUS304*3
		D ○ ○	Water-free treatment
		E ○ ○	Copper-free treatment (wetted part)
		9 ○ ○	Other

• A circle (○) denotes availability.

Notes:

*1. Output characteristics conversion:

• In case of "None," A to C will be linear characteristics, and D to U will be equal % characteristics.

• In case of "Yes," A to C will be equal % characteristics, and D to U will be linear characteristics.

*2. Plug and seat materials should be SUS316 stellite facing or SUS316L stellite seat when Cv values are 0.1, 0.16 or 0.25.

*3. Applicable to stud bolts for body, bolts and nuts for hand wheel, accessories, and actuators.

■ Table 2 Selectoin Guide for Electric Model: AGVB and AGVM

AGVB or AGVM - I II III IV V VI VII VIII IX X XI - XII XIII XIV XV XVI - XVII

Examples: AGVB-1AJ112115J1-TXXXX-X

AGVM-1AB112115J1-TXXXX-X

Segment	Model No. selection		Description	
-	Basic No.	AGVB	↓	CV300 Alphaplus, AGVB model or AGVM model
		AGVM	↓	
I	Valve size	1	○ ○	1/2 inch
		2	○ ○	3/4 inch
		3	○ ○	1 inch
		4	○ ○	1 1/2 inch
		5	○ ○	2 inches
II	Port size and plug flow characteristics*1	A	○ ○	Cv = 0.1 Linear*1
		B	○ ○	Cv = 0.16 Linear*1
		C	○ ○	Cv = 0.25 Linear*1
		D	○ ○	Cv = 0.4 Equal %
		E	○ ○	Cv = 0.63 Equal %
		F	○ ○	Cv = 1.0 Equal %
		G	○ ○	Cv = 1.6 Equal %
		H	○ ○	Cv = 2.5 Equal %
		J	○ ○	Cv = 4.0 Equal %
		4	○ ○	Cv = 6.3 Equal %
		K	○ ○	Cv = 8.0 Equal %
		L	○ ○	Cv = 10 Equal %
		M	○ ○	1 inch, Cv = 14 Equal %
		N	○ ○	1 1/4 inch Equal %
		P	○ ○	1 1/2 inch Equal %
		R	○ ○	2 inches Equal %
III	Connection rating	J	○ -	JIS 10K RF
		A	○ -	ANSI 150 RF
		P	○ -	JPI 150 RF
		B	- ○	JIS 16K RF
		C	- ○	JIS 20K RF
		D	- ○	JIS 30K RF
		E	- ○	ANSI 300 RF
IV	Bonnet	F	- ○	JIS 300 RF
V	Body material	1	○ ○	Standard type (-17 to +230°C)
		2	○ ○	Extension type I (-45 to -17°C, or +230 to 400°C)
VI	Plug and seat material	1	○ ○	SCPH2
		2	○ ○	SCS13A
		3	○ ○	SCS14A
		2	○ ○	SUS316
		4	○ ○	SUS316 stellite
		5	○ ○	SUS440C
		6	○ ○	SUS316 soft seat
		7	○ ○	SUS316 stellite facing*1
		8	○ ○	SUS316L
		A	○ ○	SUS316L stellite
		B	○ ○	SUS316L soft seat
VII	Seat leakage	1	○ ○	Class IV: 0.01% of the rated Cv value
		3	○ ○	Class VI: shutoff performance (soft seat)
VIII	Gland packing	1	○ ○	PTFE yarn (general use)
		2	○ ○	V-shaped PTFE (general use)
		A	○ ○	V-shaped PTFE (oil-free use)
		3	○ ○	V-shaped PTFE (D)+(R) (vacuum service)
		5	○ ○	V-shaped PTFE (low temp. use)
		4	○ ○	Graphite yarn (high temp. / water resistant)
		6	○ ○	Graphite yarn (high and low temp. / oil-free)
		7	○ ○	Graphite yarn (anti-alkaline or acid service)
IX	Actuator and valve action (power failure action)	8	○ ○	Graphite yarn (for solvent use)
		5	○ ○	EA1R Signal-to-open, proportional control [Close]
		6	○ ○	EA1R Signal-to-open, proportional control [Hold]
		7	○ ○	EA1R Signal-to-open, proportional control [Open]
		8	○ ○	EA1D Signal-to-close, proportional control [Close]
		L	○ ○	EA1D Signal-to-close, proportional control [Hold]
		M	○ ○	EA1D Signal-to-close, proportional control [Open]
IX		N	○ ○	EA1 Two-position control [Close]

Segment	Model No. selection		Description	
X	Power and input signal type	J	○ ○	100Vac 4-20mAdc, proportional control
		K	○ ○	100Vac 1-5Vdc, proportional control
		L	○ ○	110Vac 4-20mAdc, proportional control
		M	○ ○	110Vac 1-5Vdc, proportional control
		N	○ ○	20Vac 4-20mAdc, proportional control
		P	○ ○	200Vac 1-5Vdc, proportional control
		Q	○ ○	220Vac 4-20mAdc, proportional control
		R	○ ○	220Vac 1-5Vdc, proportional control
		S	○ ○	100Vac Two-position control
		T	○ ○	110Vac Two-position control
		U	○ ○	200Vac Two-position control
		W	○ ○	220Vac Two-position control
XI	Paint	1	○ ○	Standard: blue (M10B5/10)
		2	○ ○	Silver
		3	○ ○	Heat-resistant silver
		4	○ ○	Corrosion-resistant silver
		5	○ ○	Saline-resistant silver (recommended bolt and nut material: SUS304)
		9	○ ○	Other (body, diaphragm case and yoke—enter request)
XII	Handle	T	○ ○	Top handle (standard)
XIII	Positioner	X	○ ○	None
XIV	Pressure regulator with filter	X	○ ○	None
XV	Solenoid valve	X	○ ○	None
XVI	Travel transmission	X	○ ○	None
		A	○ ○	Open/close limit switch
		B	○ ○	Travel transmission (1-5Vdc)*2
		C	○ ○	Open/close limit switch*2
XVII	Options	X	○ ○	None
		B	○ ○	Exposed bolt and nut: SUS304*3
		D	○ ○	Water-free treatment
		E	○ ○	Copper-free treatment (wetted part)
		9	○ ○	Other

• A circle (○) denotes availability.

Notes:

*1. Plug and seat materials should be all stellite facing.

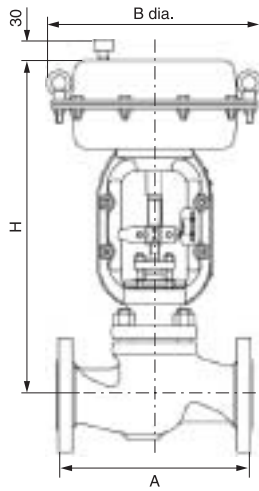
*2. Applicable to two-position control.

*3. Applicable to stud bolts for body.

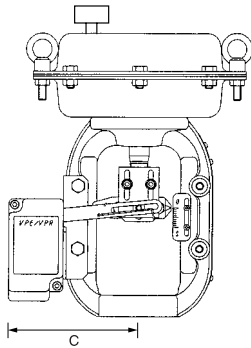
Dimensions

(Unit: mm)

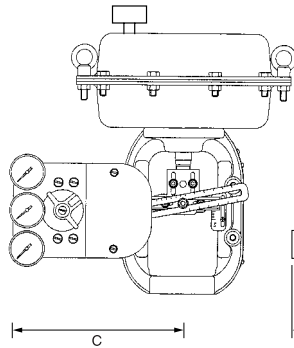
• Pneumatic model



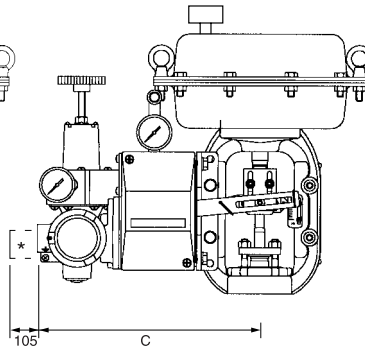
Valve size (in.)	Actuator	Dimensions (mm)											
		A			H			B	Classified by positioner C				
		JIS10K ANSI150J JPI150	JIS16K	ANSI300 JPI300	General use bonnet	Extension type I bonnet	Extension type II bonnet		VPE	HTP	HEP	AVP	
												With pressure regulator with filter	Without pressure regulator and filter
1/2, 3/4	PSA1D, R	184	190	194	420	545	945	218	145	225	290	312	221
	PSA2D, R				450	575	975	267	—				
1	PSA1D, R	184	193	197	420	545	945	218	145	225	290	312	221
	PSA2D, R				450	575	975	267	—				
1 1/2	PSA1D, R	222	231	235	420	605	945	218	145	225	290	312	221
	PSA2D, R				450	635	975	267	—				
	PSA3D, R				630	760	1160	350	—				
	PSA4D, R				680	815	1215	470	—				
2	PSA1D, R	254	263	267	420	605	945	218	145	225	290	312	221
	PSA2D, R				450	635	975	267	—				
	PSA3D, R				630	760	1160	350	—				
	PSA4D, R				680	815	1215	470	—				
2 1/2	PSA3D, R	276	288	292	675	800	1155	350	—	270	330	318	227
	PSA4D, R				725	855	1210	470	—				
	PSA6R				1145	1275	—	470	—				
	PSA3D, R				675	800	1155	350	—				
3	PSA4D, R	298	313	317	725	855	1210	470	—	270	330	318	227
	PSA6R				1145	1275	1710	470	—				
	PSA3D, R				680	800	1155	350	—				
	PSA4D, R				730	860	1210	470	—				
4	PSA6R	352	364	368	1150	1275	1710	470	—	270	330	318	227
	PSA6R				1150	1275	1710	470	—				



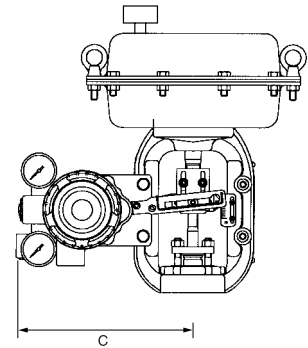
VPE positioner mounted



HTP positioner mounted



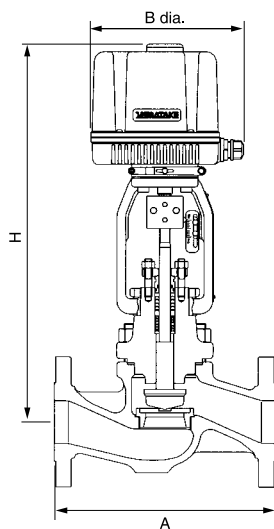
HEP positioner mounted



AVP positioner mounted

Note: * When applying a pressure proof packing, add 105 mm.

• Electric model



Valve size (in.)	Actuator	Dimensions (mm)					
		A			H		B
		JIS10K ANSI150J 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