

Pneumatically-Operated, Single-Seated Control Valve

Model ACT_ _ _

OVERVIEW

Model ACT control valve is a compact, lightweight, and economical simple-function control valve designed for JIS10K process line. It is highly reliable and best suited for process control of the line.

SPECIFICATIONS

Body

Type

Straight-through type, cast glove valve

Nominal size

1/2, 3/4, 1, 1-1/2, 2, 2-1/2, 3 inches

Pressure rating

JIS 10K

End connection

Flange end FF (SCPH 2) : JIS B2210-1984
 RF (SCPH2, SCS13A) : JIS B2210-1984

Material

Carbon steel (SCPH2), stainless steel (SCS13A)

Note: Refer to Table 3 for different configurations of the valve body and trim materials and for the operating temperature ranges.

Bonnet

Plain bonnet

Fluid temperature : -5 to +200 °C (SCPH2, SCS13A)

Gland type

Screw gland (with O-ring)

Packing / Grease

None asbestos: V shaped PTFE (without grease)

Gasket

Bonnet, Body: serrated type (SUS316 + PTFE coating)

Seat: Flat type (SUS316 + PTFE coating)

Note: 1. PTFE: polytetrafluoroethylene resin.

2. Seat: applicable to oil free specification only.

Trim

Valve plug

Single-seated contoured plug

Equal percentage metal seat (%C)

Equal percentage soft seat (%T)

Material

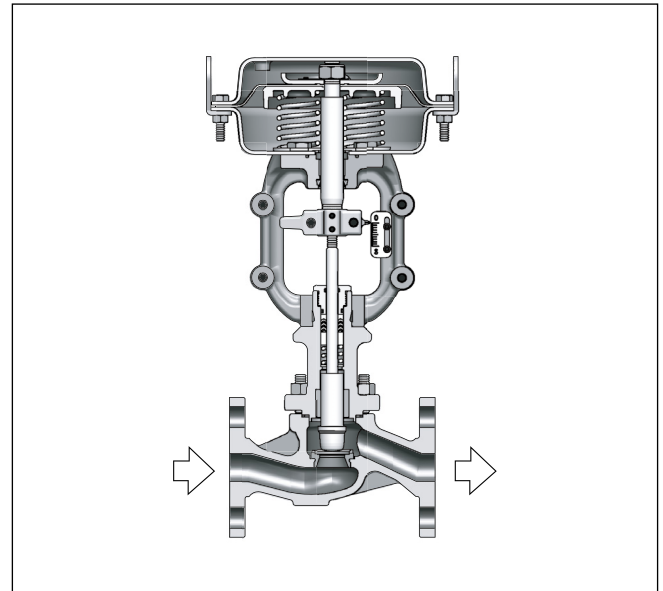
Metal seat

SUS316, SUS316 CoCr-A

Soft seat

SUS316 + PTFE combined with carbon fiber

(In the case of oil free specification, PTFE with glass fiber.)



Actuator

Type

Multispring-type diaphragm actuator (Model PSK1)

Action

Direct or reverse action

Diaphragm

Cloth-embedded, ethylene propylene rubber

Spring range

20 to 100 kPa {0.2 to 1.0 kgf/cm²}

40 to 120 kPa {0.4 to 1.2 kgf/cm²}

80 to 240 kPa {0.8 to 2.4 kgf/cm²}

120 to 290 kPa {1.2 to 3.0 kgf/cm²}

Supply pressure

120 to 340 kPa {1.2 to 3.5 kgf/cm²}

Note: Spring range and air supply pressure vary depending on allowable differential pressure.

Air connection

Rc1/4, 1/4NPT internal thread

External bolts and nuts

SUS304

Yoke material

A216WCB (SCPH2 equivalent)

Ambient temperature

-30 to +70 °C

Valve action

Direct action

Air-to-close : valve closes at signal increase

Reverse action

Air-to-open : valve opens at signal increase

Optional accessories

Positioner (model, AVP30_), pressure regulator with filter top-mounted hand wheel, limit switch

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

Additional specifications

- Oil/water free treatment
- Copper free specification
- Saline damage countermeasures
- Vacuum service

Performance

Rated Cv value

Refer to Table 4.

Flow characteristics

Refer to Figure 1 through Figure 4.

Inherent rangeability

Refer to Table 1 below.

Table 1. Inherent rangeability

Nominal size (inches)	Rated Cv value	Inherent rangeability
1/2	0.4	20 : 1
	0.63	30 : 1
3/4 1 1-1/2 2 2-1/2 3	1.0, 2.5, 4.0	50 : 1
	1.0, 2.5, 4.0, 8.0	
	1.0, 2.5, 4.0, 8.0, 14	
	14, 30	
	30, 50	
	70	
	100	

Allowable differential pressure

Refer to Table 5 through Table 8.

Leakage specification

IEC 60534-4:2006 or JIS B 2005-4:2008

- Class IV (metal seat): 0.01% of maximum valve capacity
- Class VI (soft seat):
3 × ΔP (MPa) × (following leakage factor) ml/min

Table 2. Leakage factor

Port size (inches)	~ 1	1-1/2	2	2-1/2	3
Leakage factor	0.15	0.23	0.36	0.51	0.62

Hysteresis error

Within 1% F.S. (With positioner)

Within 10% F.S. (Without positioner)

Linearity

Within ± 2% (with positioner)

Within ± 10% (Without positioner)

Operatig time

1.5 sec. (With positioner)

Dimensions

Refer to Figure 5 and Table 9.

Weight

Refer to Table 9.

Actuator orientation

Refer to Figure 6

Finish

Finish specification

Normal coating: blue, silver, other

Heat-resistant coating: blue, silver

Salt-resistant coating: blue

Table 3. Body/trim material combinations and operating temperature range (°C)

Body material	SCPH2	SCS13A
Trim material		
SUS316	-5 to +200	-5 to +200
SUS316 CoCr-A	-5 to +200	-5 to +200
SUS316 soft seat	-5 to +200	-5 to +200

Table 4. Cv value and travel

Nominal size (inches)		1					1-1/2	2	2-1/2	3		
		3/4			1/2							
Port size (inches)		Cv value					1	1-1/2	1-1/2	2	2-1/2	3
		0.4 0.63	1.0	2.5 4.0	8.0	14						
Rated Cv value	Equal percentage • Metal seat • Soft seat	0.4 0.63	1.0	2.5 4.0	8.0	14	14	30	30	50	70	100
Travel value (mm)		20										

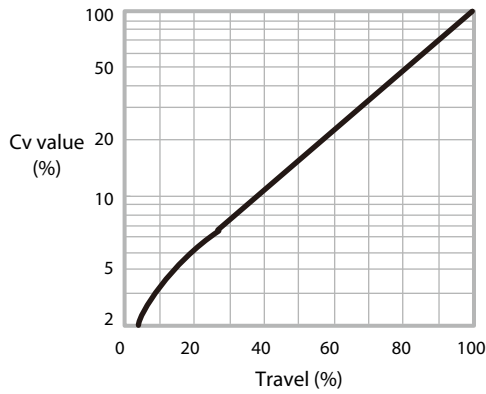


Figure 1. Equal percentage (size: 1/2 to 1 inches)

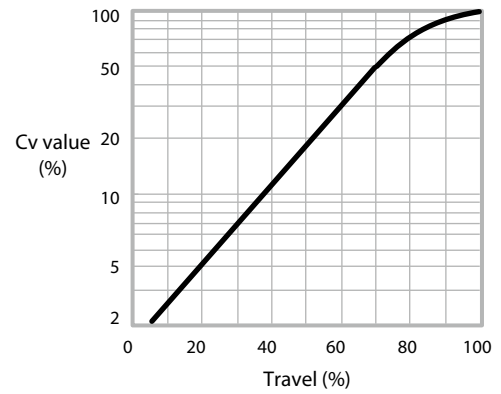


Figure 2. Equal percentage (size: 1-1/2 to 2 inches)

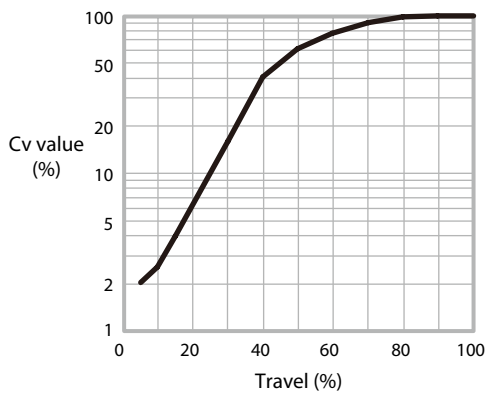


Figure 3. Equal percentage (size: 2-1/2 inches)

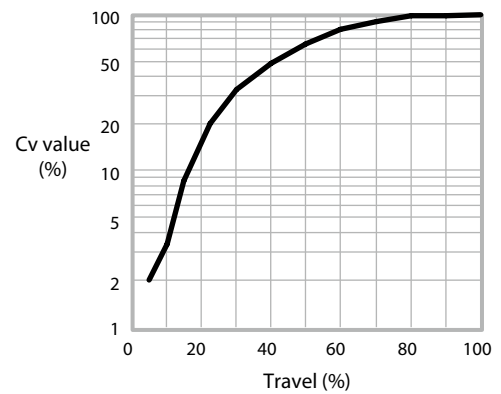


Figure 4. Equal percentage (size: 3 inches)

Note: The above graphs indicate typical flow characteristics.

Allowable differential pressure**Metal seat****Table 5. Air-to-close**

Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner	Differential pressure (MPa)										
				Cv value					Port size (inches)					
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1-1/2	2	2-1/2	3	
PSK1D	120	20 to 100	△	1.37	0.98	0.88	0.31	0.31	0.31	0.12	0.08	0.04	0.03	
	140	20 to 100	✓		1.37	1.37	1.37	0.69	0.69	0.69	0.37	0.24	0.14	0.09
	200	20 to 100	✓					1.37	1.37	1.37	1.18	0.65	0.39	0.25
	270	20 to 100	✓		1.37	1.37	1.37				1.37	1.37	0.39	0.25

Note: ✓; Positioner is necessary, △; Can be operated either with or without positioner.

Table 6. Air-to-open

Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner	Differential pressure (MPa)										
				Cv value					Port size (inches)					
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1-1/2	2	2-1/2	3	
PSK1R	140	20 to 100	△	1.37	0.98	0.88	0.31	0.31	0.31	0.12	0.08	0.04	0.03	
	140	40 to 120	△		1.37	1.37	1.37	0.69	0.69	0.69	0.14	-	-	-
	270	80 to 240	✓					1.37	1.37	1.37	0.69	0.56	0.31	0.22
	340	120 to 290	✓		1.37	1.37	1.37				1.37	0.88	0.59	0.34

Note: ✓; Positioner is necessary, △; Can be operated either with or without positioner.

Soft seat**Table 7. Air-to-close**

Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner	Differential pressure (MPa)									
				Cv value					Port size (inches)				
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1-1/2	2	2-1/2	3
PSK1D	200	20 to 100	△	1.37	1.37	1.37	1.37	1.37	1.37	0.78	0.37	0.22	0.12
	270	20 to 100	△							1.37	0.59	0.29	0.19
	340	20 to 100	✓							0.98	0.40	0.29	0.19
	340	80 to 240	✓										

Note: ✓; Positioner is necessary, △; Can be operated either with or without positioner.

Table 8. Air-to-open

Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner	Differential pressure (MPa)									
				Cv value					Port size (inches)				
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1-1/2	2	2-1/2	3
PSK1R	140	20 to 100	△	1.37	-	-	-	-	-	-	-	-	-
	140	40 to 120	△		1.27	1.27	0.49	0.49	0.49	0.06	-	-	-
	270	80 to 240	✓		1.37	1.37	1.37	1.37	1.37	0.49	0.24	0.08	0.02
	340	120 to 290	✓		1.37	1.37	1.37	1.37	1.37	1.18	0.40	0.31	0.20

Note: ✓; Positioner is necessary, △; Can be operated either with or without positioner.

Table 9. Dimensions and weight

Nominal size (inches)	Dimensions (mm)		Weight (kg)
	A	H	
1/2	184	365	13
3/4	184	365	14
1	184	365	15
1-1/2	222	365	22
2	254	365	25
2-1/2	276	385	38
3	298	385	39

Note: * : Face-to-face dimensions conform to following standards.
 -IEC 60534-3-1:2001
 -JIS B 2005-3-1:2005

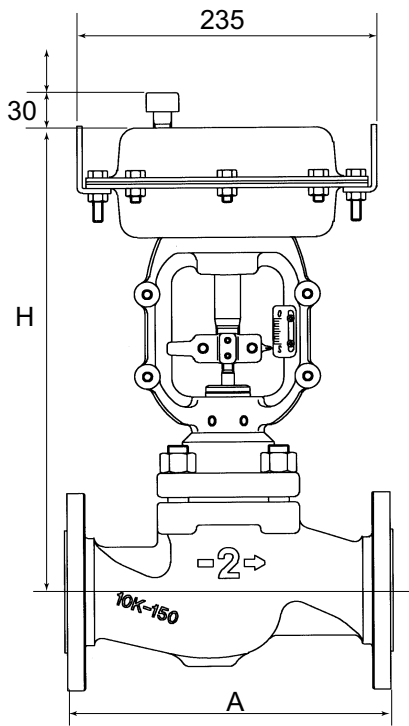


Figure 5. Face-to-face and dimension drawing

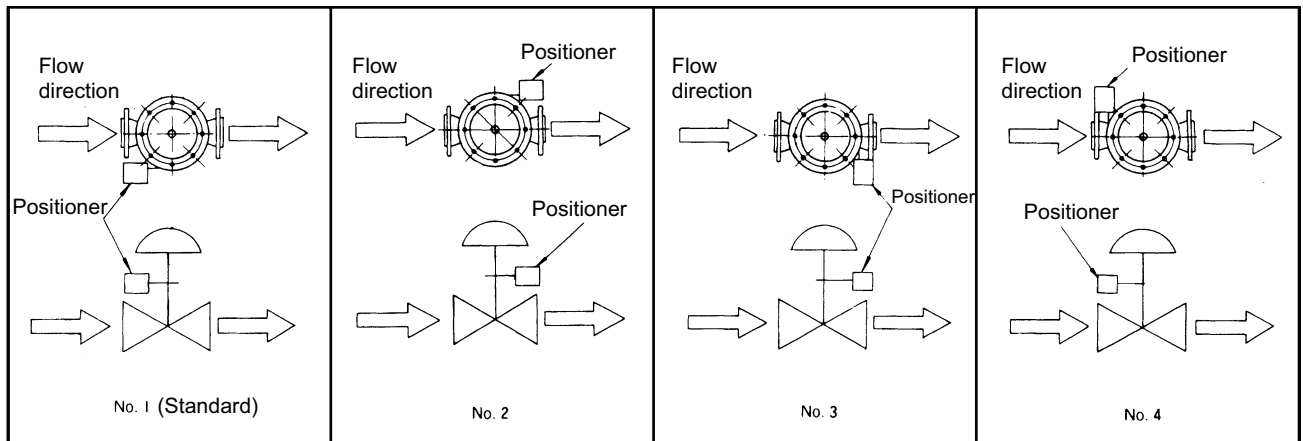


Figure 6. Actuator orientation

Note: 1) Indicate by position number when installation other than the standard type is required.

2) In the case of the model PSK1 actuator, a top mounted hand wheel shall be attached.

Please read "Terms and Conditions" from the following URL
before ordering and use.

<https://www.azbil.com/products/factory/order.html>

Specifications are subject to change without notice.

azbil

Azbil Corporation

Advanced Automation Company

1-12-2 Kawana, Fujisawa
Kanagawa 251-8522 Japan
URL: <https://www.azbil.com/>

1st edition: Nov. 2002
6th edition: June 2020

*No part of this publication may be reproduced or duplicated
without the prior written permission of Azbil Corporation.*