

# NEW10-III (New Ten-Three)

## Pneumatically-Operated, Single-Seated Control Valve

### Model ACT

#### OVERVIEW

The NEW10-III valve is a compact, lightweight, and economical simple-function control valve. It is highly reliable and best suited for process control of the line.

The actuator of the model ACT Pneumatically-operated, Single-seated Control Valve is a diaphragm motor employing a simple multispring mechanism. It is compact and lightweight, yet very reliable. New 10-III valves are only available with a JIS 10K flange connection.

#### SPECIFICATIONS

##### Body

###### Type

Straight-through type, cast globe valve

###### Valve size

1/2, 3/4, 1, 1½, 2, 2½, 3 in.

###### Rating

JIS 10K

###### End connection

Flange end

FF: FCD450

RF: SCPH2, SCS13A

###### Material

Cast iron (FCD450), 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

0 to +200°C (FCD450)

-5 to +200°C (SCPH2, SCS13A)

###### Gland type

Screw gland (with O-ring)

###### Packing/grease

None asbestos: V shaped PTFE (without grease)

Asbestos: V133 + SM#636



###### Gasket

Bonnet, Body: Grooved metal gasket (SUS316 + PTFE coating)

Seat: Flat shaped metal gasket (SUS316 + PTFE coating)

*Note) 1. PTFE: polytetra fluoroethylene 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

SUS316, SUS316 stellite

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/cm<sup>2</sup>}
- 40 to 120 kPa {0.4 to 1.2 kgf/cm<sup>2</sup>}
- 80 to 240 kPa {0.8 to 2.4 kgf/cm<sup>2</sup>}
- 120 to 290 kPa {1.2 to 3.0 kgf/cm<sup>2</sup>}

**Supply pressure**

120 to 340 kPa {1.2 to 3.5 kgf/cm<sup>2</sup>}

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

**Air connection**

Rc1/4, 1/4NPT

**External bolts and nuts**

SUS304

**Yoke material**

A216WCB (SCPH2 equivalent)

**Ambient temperature**

-30 to 70°C

**Valve action**

**Direct action**

Air fail open: valve closes at signal increase

**Reverse action**

Air fail close: valve opens at signal increase

**Optional accessories**

Positioner (model VPE, AVP or HEP), pressure regulator with filter (model KZ03), top-mounted handwheel, limit switch (model VCX), skinner solenoid valve

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

**Additional specifications (by special order)**

- Oil/water free treatment
- Copper free specification
- Saline damage countermeasures
- Vacuum service
- High-pressure gas safety law

**Performance**

**Rated Cv value**

Refer to Table 4.

**Flow characteristics**

Refer to Figure 1 and Figure 2.

**Inherent rangeability**

Refer to Table 1 below.

**Table 1 Inherent rangeability**

Nominal size (in.)	Rated Cv value	Inherent rangeability
1/2	0.4	20 : 1
	0.63	30 : 1
	1.0, 2.5, 4.0	50 : 1
3/4	1.0, 2.5, 4.0, 8.0	
1	1.0, 2.5, 4.0, 8.0, 14	
1½	14, 30	
2	30, 50	
2½	70	
3	100	

**Allowable differential pressure**

Refer to Table 5 through Table 8.

**Seat leakage rate (percentage to rated Cv value)**

Select the performance at valve full close from the following two leakage classes in compliance with IEC60534-4-1999 and JIS B2007-1993

- Class IV (metal seat): 0.01% rated Cv
- Class VI (soft seat):  
3 × ΔP (MPa) × (following leakage factor) ml/min

**Table 2 Leakage factor**

Port size (in.)	~ 1	1¼	2	2¼	3
Leakage factor	0.15	0.17	0.23	0.51	0.62

**Hysteresis error**

Within 1% F.S. (With positioner)  
Within 10% F.S. (Without positioner)

**Linearity**

Within ± 2% (model AVP, HEP with positioner)  
Within ± 3% (model VPE with positioner)  
Within ± 10% (Without positioner)

**Travel time**

1.5 sec. (Full close ⇄ Full open)  
(Above data is reference valve with positioner)

**Face-to-face dimensions**

Refer to Figure 3 and Table 9.

**External dimensions**

Refer to Figure 3 and Table 9.

**Weight**

Refer to Table 9.

**Finish**

Blue (Munsell 10B5/10 - standard) or silver, or another specified color

**Table 3 Trim material and temperature range (°C)**

Body material \ Trim material	FCD450	SCPH2	SCS13A
	SUS316	0 to +200	-5 to +200
SUS316 stellite	0 to +200	-5 to +200	-5 to +200
SUS316 soft seat	0 to +200	-5 to +200	-5 to +200

**Table 4 Cv value and travel**

Nominal size (in.)		1					1½	2	2½	3		
		¾			½							
Port size (in.)		Cv value					1	1½	1½	2	2½	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										

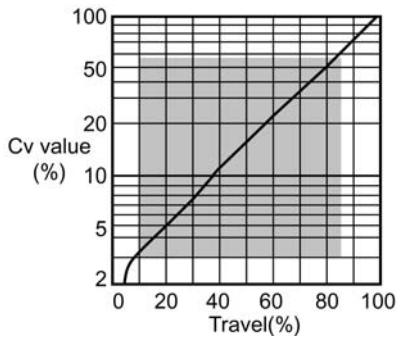


Figure 1 Equal percentage (size: 1/2 to 2 in.)

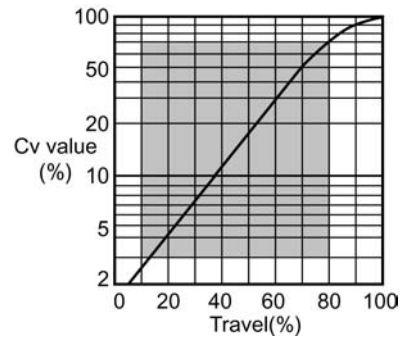


Figure 2 Equal percentage (size: 2½ to 3 in.)

**Allowable differential pressure**

**Metal seat**

**Table 5 Direct action (Air fail open)**

Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner *	Differential pressure (MPa)									
				Cv value					Port size (in.)				
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1½	2	2½	3
PSK1D	120	20 to 100	w/o	1.37	0.98	0.88	0.31	0.31	0.31	0.12	0.08	0.04	0.03
	140	20 to 100	w		0.69	0.69	0.69	0.37	0.24	0.14	0.09		
	200	20 to 100	w		1.37	1.37	1.37	1.18	0.65	0.39	0.25		
	270	20 to 100	w		1.37	1.37	1.37	1.37	1.37	0.39	0.25		

Note) \* If a positioner is required, set the air supply pressure with an air set regulator.

**Table 6 Reverse action (Air fail close)**

Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner *	Differential pressure (MPa)									
				Cv value					Port size (in.)				
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1½	2	2½	3
PSK1R	140	20 to 100	w/o or w	1.37	0.98	0.88	0.31	0.31	0.31	0.12	0.08	0.04	0.03
	140	40 to 120	w		0.69	0.69	0.69	0.14	-	-	-		
	270	80 to 240	w		1.37	1.37	1.37	0.69	0.56	0.31	0.22		
	340	120 to 290	w		1.37	1.37	1.37	1.37	0.88	0.59	0.34		

Note) \* If a positioner is required, set the air supply pressure with an air set regulator.

**Soft seat**

**Table 7 Direct action (Air fail open)**

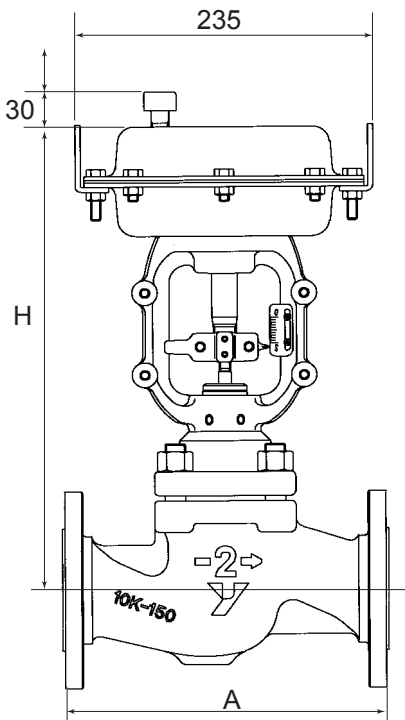
Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner *	Differential pressure (MPa)										
				Cv value					Port size (in.)					
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1½	2	2½	3	
PSK1D	200	20 to 100	w/o or w	1.37	1.37	1.37	1.37	1.37	1.37	1.37	0.78	0.37	0.22	0.12
	270	20 to 100	w/o or w								1.37	0.59	0.29	0.19
	340	20 to 100	w								0.98	0.40	0.29	0.19
	340	80 to 240	w											

Note) \* If a positioner is required, set the air supply pressure with an air set regulator.

**Table 8 Reverse action (Air fail close)**

Actuator	Supply pressure (kPa)	Spring range (kPa)	Positioner *	Differential pressure (MPa)										
				Cv value					Port size (in.)					
				0.4 0.63	1.0	2.5 4.0	8.0	14	1	1½	2	2½	3	
PSK1R	140	20 to 100	w/o	-	-	-	-	-	-	-	-	-	-	-
	140	40 to 120	w/o or w	1.37	1.27	1.27	0.49	0.49	0.49	0.06	-	-	-	
	270	80 to 240	w		1.37	1.37	1.37	1.37	1.37	0.49	0.24	0.08	0.02	
	340	120 to 290	w		1.18	0.40	0.31	0.20						

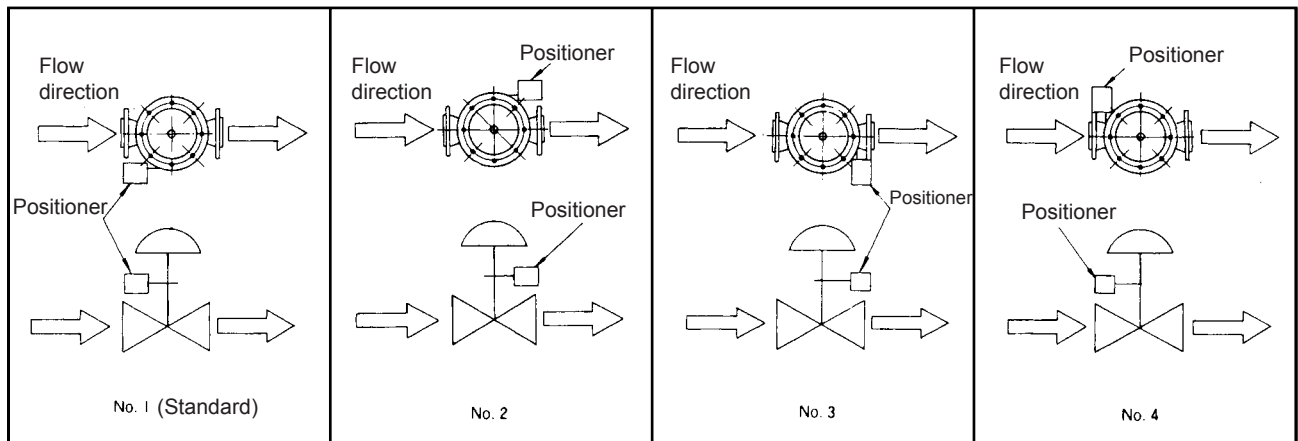
Note) \* If a positioner is required, set the air supply pressure with an air set regulator.



**Table 9 Dimensions and weight**

Nominal size (in.)	Dimensions (mm)		Weight (kg)
	A	H	
1/2	184	395	13
3/4	184	395	14
1	184	395	15
1½	222	395	22
2	254	395	25
2½	276	415	38
3	298	415	39

**Figure 3 Face-to-face and dimension drawing**



**Figure 4 Orientation for installing the positioner and handwheel on the pipe**

- Note) 1) If installing a positioner and handwheel other than the type (No.1), please specify the number.  
 2) In the case of the model PSK1 actuator, a top mounted handwheel shall be attached.

# Note



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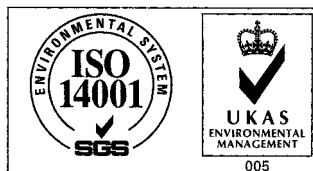
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