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GLOBE VALVE

AUTOMA
Automatic Valve & Accessories

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Contents

발급번호 : EE27-1CFD-4CE0-A994-837C

기자재 공급 유자격 등록증

등 록 번 호 : EASYU2018-05207
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유 효 기 간 : 2018-10-11 ~ 2021-10-10

비 고 :

2018. 10. 11

한국남부발전㈜ 한국동서발전㈜
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TÜV NORD

Certificate
of conformity with the following
European Directives

Registered No.:
K11666/M18

Machinery Directive 2006/42/EC

This is to certify that the following products comply to the essential requirements (Annex 1) of the above mentioned European Directive and the following standards, taking into account the German national deviations:

Product: GLOBE CONTROL VALVE

Type designation: ACV abc
[a=1 or 2; a stands for valve type;
b=1, 2, 3 or 4; b stands for valve material;
c=1, 2, 3, 4, 5, 7, 8, 9, 10 or 11; c stands for valve standard;)

Applicant: AUTOMA Co., Ltd.
21, Pyeongcheon-ro 862beon-gil, Bucheon-si, Gyeonggi-do 14487, Korea

Standard(s): EN ISO 12100:2010
EN ISO 4414:2010

This Certificate of conformity is based on the evaluation of samples of the product. It does not imply an assessment of the production and it does not permit the use of a mark of conformity or of a safety mark of the TÜV NORD CERT. The holder of this certificate may use this Certificate together with his EC-Declaration of Conformity.

Certification Body for Product Certification

CE The CE marking can be affixed on the product if all relevant and effective Directives are complied with. CE

AUTOMA GLOBE CONTROL VALVE
MODEL SELECTION GUIDE

1	2	3	4	5	6	7	8	*9	*10	*11	*12	*13	*14
A	C	V	1	1	1	R	- 25A	- S10	- E	N	P	G	N

- 25A
- REVERSE ACTION
- JIS 10K RF
- SCPH2
- CAGE GUIDE
- AUTOMA GLOBE CONTROL V/V MODEL

1	2	3	
A	C	V	**AUTOMA GLOBE CONTROL VALVE MODEL**

4

1 **BODY TYPE**
1: CAGE GUIDE (80A & Larger)
2: TOP GUIDE (65A & Lower)
3. 3-WAY GLOBE
4. TEFLON GLOBE

5

1 **BODY MATERIAL**
1 : SCPH2 (A216 WCB / DIN 1.0619)
2 : SCS13 (A351 CF8 / DIN 1.4308)
3 : SCS14 (A351 CF8M / DIN 1.4408
4 : SCS16 (A351 CF3M / DIN 1.4404)
5 : DUPLEX
6 : HASTELLOY-C
7 : TEFLON
8 : TITANIUM
9 : SCPH21 (A217 WC6)
10 : SCPH32 (A217 WC9)

6

1 **RATING & CONNECTION**
1 : KS (JIS) 10K RF
2 : KS (JIS) 20K RF
3 : ANSI CL 150 RF
4 : ANSI CL 300 RF
5 : PN 10 RF
6 : PN 16 RF
7 : PN 40 RF
8 : KS(JIS) 40K RF
9 : ANSI CL 600 RF
10 : KS(JIS) 63K RF
11 : ANSI CL 900 RF
12 : ANSI CL 1500 RF
13 : JIS 30K RF

7

R **ACTUATOR ACTION**
R : REVERSE ACTION
D : DIRECT ACTION

8

25A **BODY SIZE**
15A (1/2B)
20A (3/4B)
25A (1B)
32A (1-1/4B)
40A (1-1/2B)
50A (2B)
65A (2-1/2B)
80A (3B)
100A (4B)
125A (5B)
150A (6B)
200A (8B)
250A (10B)
300A (12B)
350A (14B)
400A (16B)

*9

S10 **Cv TRIM NO**
Refer to Cv TABLE

*10

E **PLUG OPTION**
Q : QUICK OPEN
E : EQ%
L : LINEAR
M : MODIFIED PARABOLIC
R : MICRO
C : ANTI CAVITATION TRIM
N : ANTI NOISE TRIM

*11

N **SEAT MATERIAL**
N : METAL SEAT (SUS316)
E : METAL SEAT (SUS304)
H : STELLITED TREAT. (SUS316+STL.)
41 : METAL SEAT (SUS410)
42 : METAL SEAT (SUS420+QT)
S1 : SOFT SEAT (SUS316+PTFE)
S2 : SOFT SEAT (SUS316+PEEK)

*12

P **BONNET TYPE**
P : PLAIN BONNET
B : BELLOWS BONNET
F : FIN BONNET
S : INSULATION FIN BONNET
E : EXTENTION BONNET
L : LONG EXTENTION BONNET

*13

G **GLAND PACKING MAT'L**
G : GRAFOIL (P6710+6610)
V : V-PACKING (PTFE)
P : PTFE PACKING

*14

N **HANDLE POSITION**
N : NONE
T : TOP
S : SIDE

2-WAY GLOBE VALVE

ACV series is our latest control valve designed using recent high technology. It is used to control a wide variety fluid like as water or liquids, steam, gas. ACV series trim is a quick change design to repair and to replace trim easily. It is available to use multi-hole trim or multi-stage trim for high differential pressure service as an option.

STANDARD SPECIFICATION

Body	Series		ACV
	Valve Size		15A ~ 400A (1/2" ~16")
	Trim Type		Top Guide Unbalance Trim, Cage Guide Balance Trim, Multi-Hole Balance Trim, Multi-Stage Balance Trim
	Pressure Rating		JIS 10K ~ 63K / ANSI CLASS 150 ~ 1500 / DIN PN16
	End Connections		Flanged(RF, FF, RTJ), Weld Ends (SW: 2" & Lower, BW: 2.5" & Larger), Screw(2" & Lower)
	Body Materials		Carbon Steel : SCPH2/WCB Stainless Steel : SCS13/CF8, SCS14/CF8M Chrome-moly Steel : SCPH21/WC6, SCPH32/WC9 Duplex Stainless Steel, Hastelloy, Teflon
	Trim Materials		SUS316 SUS316+STELLITE SUS410 SUS420 Duplex Stainless Steel, Hastelloy
	Bonnet Type		Standard : -20°C ~ 230°C Fin/Extension : -45°C ~ -20°C or over 230°C Long-Extension : -196°C ~ -45°C Bellows-Seal
	Gland Packing Type		V-PTFE(Standard), PTFE yarn, Graphite yarn
	Gasket Type		SUS316 + Graphite spiral wound, 316+TFE spiral wound or other composite Gasket
	Painting Color		Standard is Silver. In the case of stainless steel, Body is not painted.
	Plug Characteristics		EQ%, Linear, Modified Parabolic, On-Off
Actuator Type			Pneumatic Diaphragm, Pneumatic Cylinder, Electric Motor.
Performance	Valve Action		Reverse action, Direct action
	Rangeability		30:1, 50:1, 80:1, 100:1
	Action Accuracy	Hysteresis	≤ 1% of Full Stroke with positioner
		Linearity	≤ ±1% of Full Stroke with positioner
	Leakage		ANSI CLASS IV (Metal Seat), ANSI CLASS VI (Soft Seat)

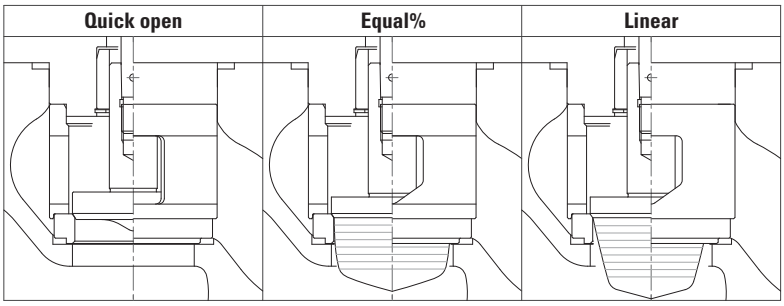
BODY & TRIM MATERIAL COMBINATION

BODY & TRIM MATERIAL COMBINATION

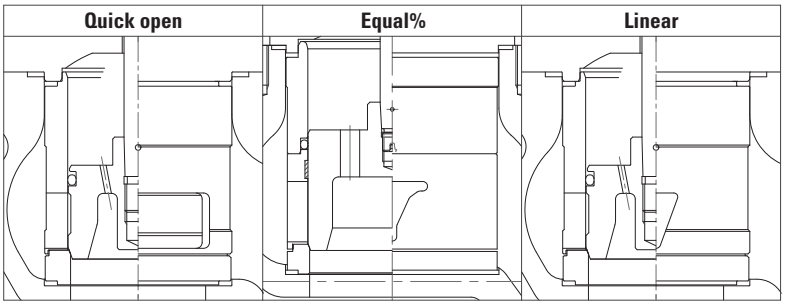
Body	SCPH2	SCS13	SCS14
Bonnet	SCPH2	SCS13	SCS14
Plug	SUS316	SUS316	SUS316
Plug treatment (Option)	STELLITE	STELLITE	STELLITE
Seat	SUS316	SUS316	SUS316
Seat treatment (Option)	STELLITE	STELLITE	STELLITE
	SOFT SEAT(PTFE)	SOFT SEAT(PTFE)	SOFT SEAT(PTFE)
Stem	SUS316	SUS316	SUS316
Cage	SCS14	SCS14	SCS14
Gland packing	V-PTFE or Graphite	V-PTFE or Graphite	V-PTFE or Graphite
Bonnet Gasket	316+GRAFOIL	316+GRAFOIL	316+GRAFOIL
Seat Gasket	316+GRAFOIL	316+GRAFOIL	316+GRAFOIL
Cage Gasket (80A over)	316+GRAFOIL	316+GRAFOIL	316+GRAFOIL
Guide Bushing (65A under)	SUS420J2	SUS420J2	SUS420J2
Balance Seal (80A over)	304+Teflon	304+Teflon	304+Teflon
	Graphite	Graphite	Graphite
Bonnet Bolt	Stainless Steel	Stainless Steel	Stainless Steel
Bonnet Nut	Stainless Steel	Stainless Steel	Stainless Steel

TRIM TYPE

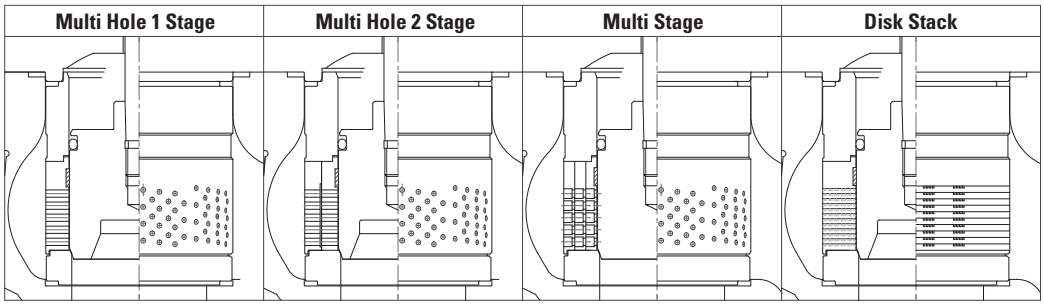
Single Seated Top Guide Type



Cage Guide Type

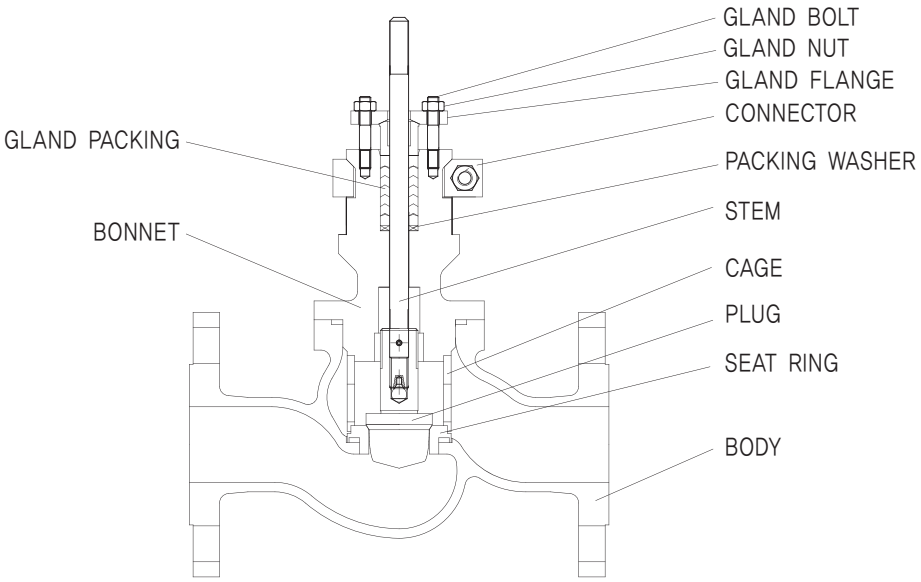


Multi Hole & Multi Stage Type (Anti - Cavitation & Low Noise)

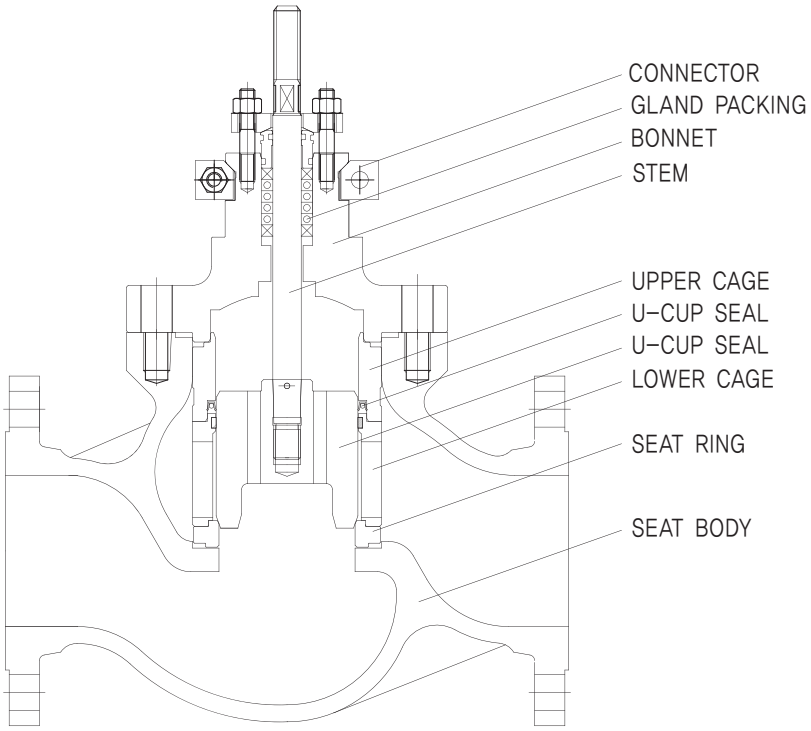


BODY INTERNAL STRUCTURE

BODY SIZE 2-1/2" (65A) AND LOWER



BODY SIZE 3" (80A) AND LARGER



Cv TABLE

Top Guide Single Seat Type - Micro Trim Type (Unbalance Type)

Valve Size		Travel	Trim No. (Trim Size)																	
(mm)	(inch)	(mm)	A24	A23	A22	A21	A20	A19	A17	A16	A15	A14	A13	S2.7	S3.3	S3.6	S4.1	4.5	S5.3	S6.3	S7.5
15A	1/2"	20	0.01	0.012	0.015	0.02	0.03	0.04	0.06	0.08	0.1	0.12	0.15	0.20	0.25	0.30	0.40	0.50	0.70	1.00	1.5
20A	3/4"	20												0.20	0.25	0.30	0.40	0.50	0.70	1.00	1.5
Characteristic			LINEAR											EQ%, LINEAR							

Top Guide Single Seat Type - P Port Type (Unbalance Type)

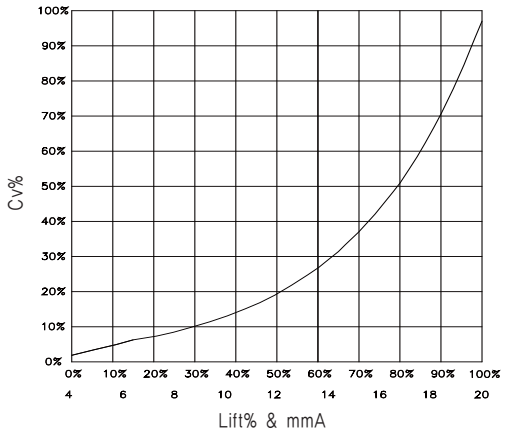
Valve Size		Travel	Trim No. (Trim Size)												
(mm)	(inch)	(mm)	S8.6	S10	S11	S11.5	S12.5	S14	S15	S20	S25	S32	S40	S40F	S50	S65
15A	1/2"	20	2.0	2.7	3.0	3.6	4	5	6							
20A	3/4"	20	2.0	2.7	3.0	3.6	4	5	6	9						
25A	1"	20						5	6	9	14					
32A	1-1/4"	25							6	9	14	25				
40A	1-1/2"	25								9	14	25	33	40		
50A	2"	25									14	25	33	40	50	
65A	2-1/2"	30										25	33	40	50	85
Characteristic			EQ%, LINEAR													

Cage Guide Type - Balance Type

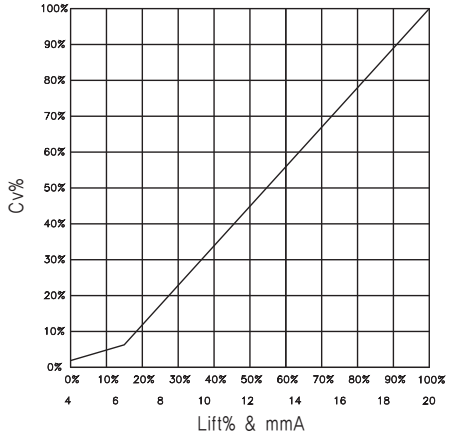
Valve Size		Travel	Trim No. (Trim Size)															
		(mm)	S80		S100		S125	S150			S200			S250		S300	S350	S400
(mm)	(inch)		4Port	3Port	4Port	3Port	6Port	5Port	4Port	3Port	8Port	6Port	4Port	8Port	6Port	8Port	8Port	8Port
80A	3"	40	106	90														
100A	4"	40			175	149												
125A	5"	50					266											
150A	6"	50						335	284	212								
200A	8"	75									660	580	388					
250A	10"	75												945	750			
300A	12"	100														1400		
350A	14"	100															2000	
400A	16"	130																3500
Characteristic			EQ%, LINEAR															

Characteristic Curve

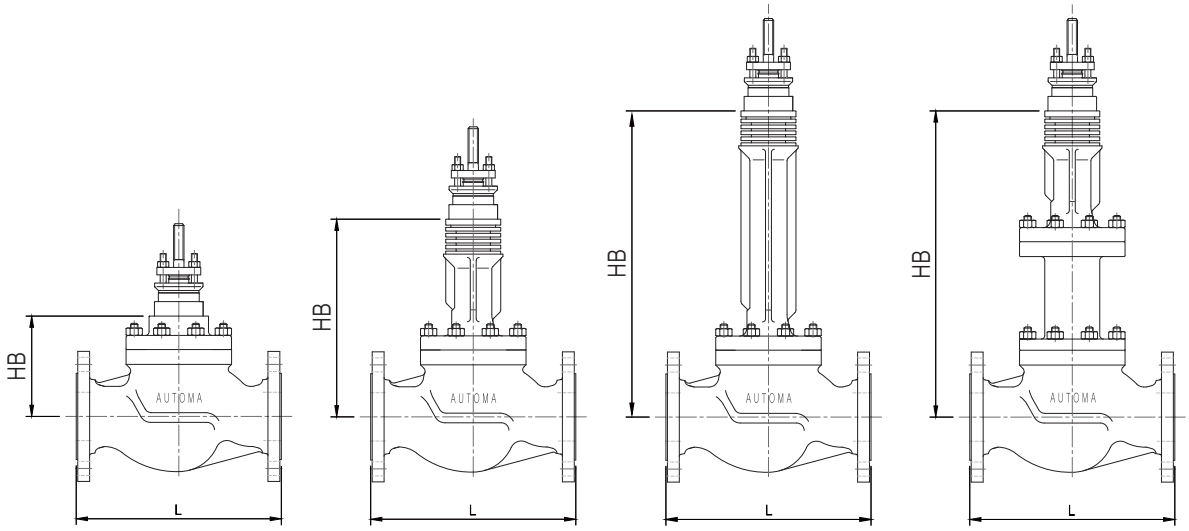
Cv CURVE (EQ%)



Cv CURVE (LINEAR)



BONNET TYPE



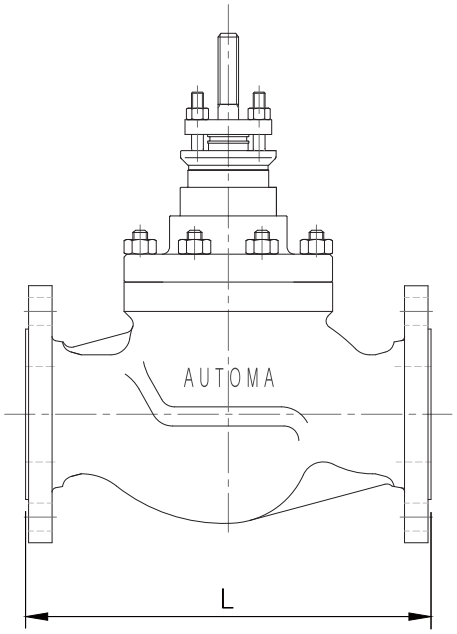
STANDARD BONNET | FIN/EXTENSION BONNET | LONG EXTENSION BONNET | BELLOWS SEAL BONNET

Dimension

Unit: mm

Size		STANDARD BONNET		FIN BONNET		LONG EXTENSION	BELLOWS BONNET
		HB	HB	HB	HB	HB	HB
mm(A)	Inch(B)	150#,300#	600#	150#,300#	600#	150#,300#	150#,300#
15	1/2	110	150	216	350	460	220
20	3/4	110	150	216	350	460	220
25	1	110	185	223	385	460	235
32	1-1/4	115	197	237	397	465	240
40	1-1/2	115	197	237	397	465	240
50	2	125	197	255	397	475	255
65	2-1/2	140	263	270	463	490	325
80	3	170	300	351	500	520	355
100	4	190	316	403	516	540	375
125	5	280	409	470	609	630	556
150	6	285	409	480	609	635	562
200	8	355	420	580	650	705	730
250	10	420	460	620	660	775	770
300	12	497	-	-	-	-	-
350	14	580	-	-	-	-	-
400	16	653	-	-	-	-	-

FACE TO FACE DIMENSION (면간거리)

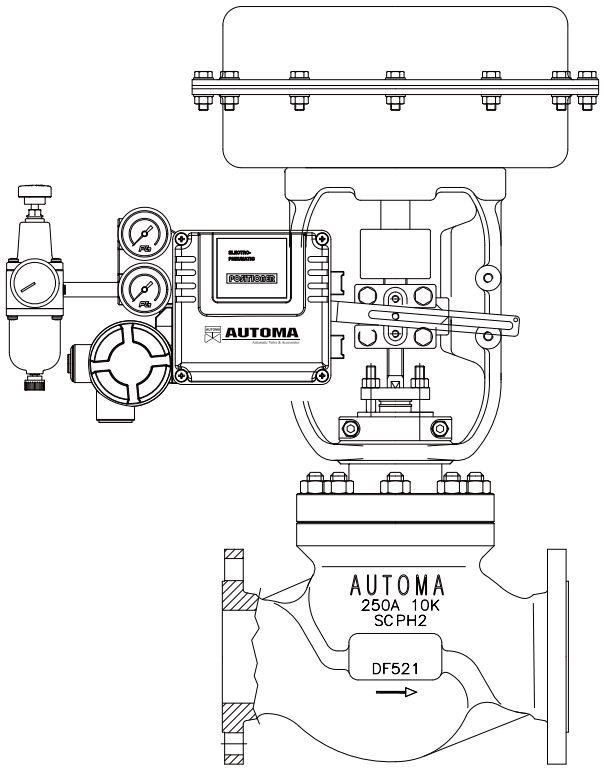


FACE TO FACE DIMENSION (면간거리)

Unit: mm

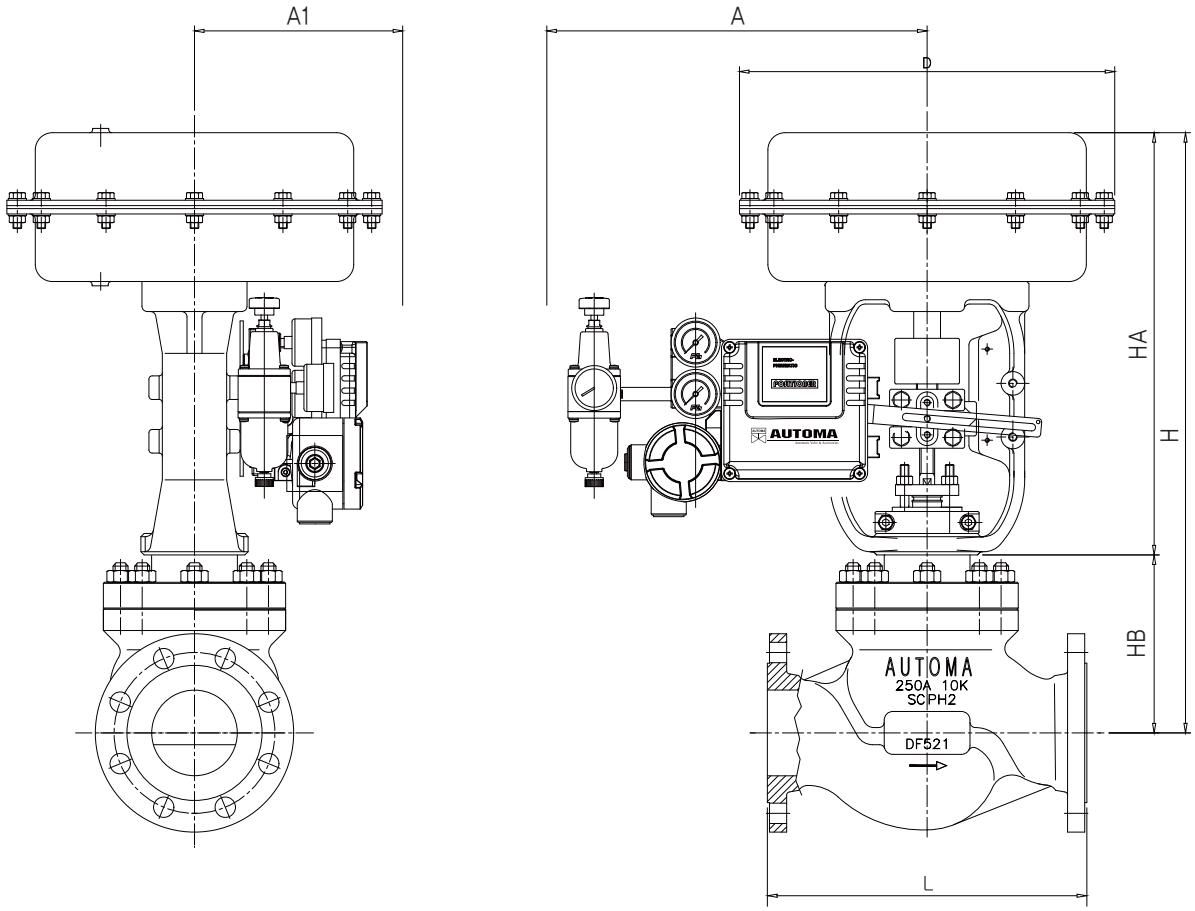
SIZE		FACE TO FACE DIMENSION (L)							
		FLANGE TYPE					WELDING TYPE (SW or BW)		DIN
		JIS 10K RF	JIS 20K/30K RF	JIS 40K RF	ANSI 900# RF	ANSI 1500# RF	ANSI 300#	ANSI 600#	PN16
mm	Inch	ANSI 150# RF	ANSI 300# RF	ANSI 600# RF					
15	1/2	184	194	206			206	206	130
20	3/4	184	194	206			206	206	150
25	1	184	197	210	292	292	210	210	160
32	1-1/4	222	235	251			251	251	180
40	1-1/2	222	235	251	333	333	251	251	200
50	2	254	267	286	375	375	286	286	230
65	2-1/2	276	292	311			311	311	290
80	3	298	318	337	440	460	317	337	310
100	4	352	368	394	510	530	368	394	350
125	5	403	425	460			425	460	400
150	6	451	473	508	715	770	473	508	480
200	8	543	568	610	854	911	568	610	
250	10	673	708	752	1251	1327	708	752	
300	12	737	775	819	1311	1400	775	819	
350	14	889	927	972			927	972	
400	16	1016	1057	1108			1057	1108	

VALVE WEIGHT (밸브 중량)



Size		Weight (Kg)									
		STANDARD BONNET			FIN BONNET			LONG EXTENSION BONNET		BELLOWS BONNET	
mm(A)	Inch(B)	150# RF	300# RF	600# RF	150# RF	300# RF	600# RF	150# RF	300# RF	150# RF	300# RF
15	1/2	13	13	15	15.6	15.6	18	20.8	20.8	22.1	22.1
20	3/4	13	13	15	15.6	15.6	18	20.8	20.8	22.1	22.1
25	1	16	16	18.5	19.2	19.2	22.2	25.6	25.6	27.2	27.2
32	1-1/4	22	24	26	26.4	28.8	31.2	35.2	38.4	37.4	40.8
40	1-1/2	22	25	27	26.4	30	32.4	35.2	40	37.4	42.5
50	2	28	30	34	33.6	36	40.8	44.8	48	47.6	51
65	2-1/2	48	52	58	57.6	62.4	69.6	76.8	83.2	81.6	88.4
80	3	61	66	72	73.2	79.2	86.4	97.6	105.6	103.7	112.2
100	4	69	72	78	82.8	86.4	93.6	110.4	115.2	117.3	122.4
125	5	155	165	185	186	198	222	248	264	263.5	280.5
150	6	175	182	210	210	218.4	252	280	291.2	297.5	309.4
200	8	280	305	325	336	366	390	448	488	476	518.5
250	10	350	365	405	420	438	486	560	584	595	620.5

GLOBE VALVE ASSEMBLY DIMENSION (STANDARD BONNET TYPE)



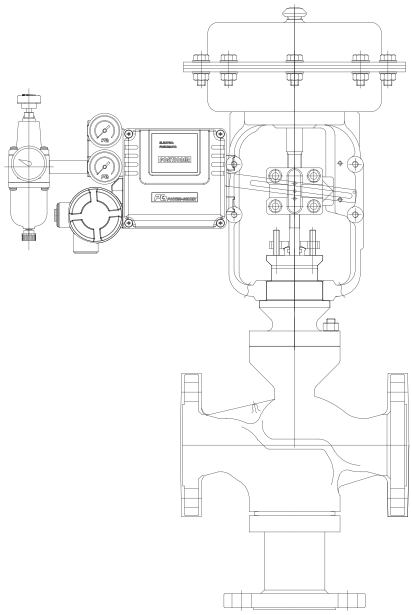
Dimension

Unit: mm

SIZE		FACE TO FACE DIMENSION (L)		H	HA	HB	D	A	A1	Weight (Kg)	
		JIS 10K RF	JIS 20K RF							JIS 10K RF	JIS 20K RF
mm	Inch	ANSI 150# RF	ANSI 300# RF							ANSI 150# RF	ANSI 300# RF
15	1/2	184	194	390	280	110	220	250	140	13	13
20	3/4	184	194							13	13
25	1	184	197							16	16
32	1-1/4	222	235	435	320	115	270	260		22	24
40	1-1/2	222	235							22	25
50	2	254	267	445	320	125				28	30
65	2-1/2	276	292	535	395	140	350	270	160	48	52
80	3	298	318	565	395	170				61	66
100	4	352	368	585	395	190				69	72
125	5	403	425	780	500	280	470	300	250	155	165
150	6	451	473	785	500	285				175	182
200	8	543	568	890	535	355				280	305
250	10	673	708	960	535	420				350	365
300	12	737	775	1177	680	497	560	-	-	-	-

3-WAY GLOBE VALVE

This valve is three way control valve suitable to the mixing service or diverting service.
Mixing type is the type mixing two flows into one and diverting type is the type diverting one flow into two.
Multi-spring Diaphragm actuator is standard for this valve.

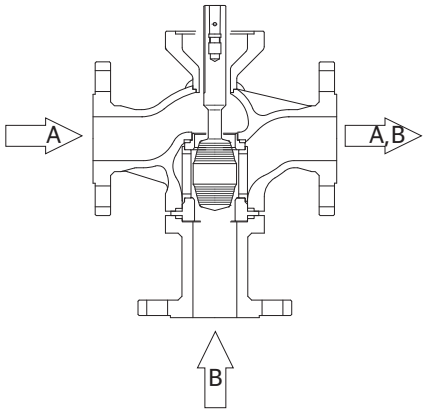
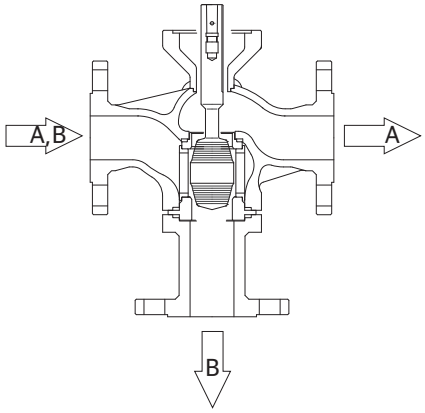


STANDARD SPECIFICATION

Body	Series	ACV
	Service	Mixing / Diverting
	Valve Size	15A ~ 400A (1/2" ~16")
	Trim Type	Top Guide Unbalance Trim
	Pressure Rating	JIS 10K ~ 20K / ANSI CLASS 150# ~ 300# / DIN PN16
	End Connections	Flanged(RF, FF)
	Body Materials	Carbon Steel : SCPH2/WCB Stainless Steel : SCS13/CF8, SCS14/CF8M Chrome-moly Steel : SCPH21/WC6, SCPH32/WC9 Duplex Stainless Steel, Hastelloy
	Trim Materials	SUS316 SUS316+STELLITE SUS410 SUS420 Duplex Stainless Steel
	Bonnet Type	Standard : -20°C ~ 230°C Fin/Extension : -45°C ~ -20°C or over 230°C Long-Extension : -196°C ~ -45°C Bellows-Seal
	Gland Packing Type	V-PTFE(Standard), PTFE yarn, Graphite yarn
	Gasket Type	SUS316 + Graphite spiral wound, 316+TFE spiral wound or other composite Gasket
	Painting Color	Standard is Silver. In the case of stainless steel, Body is not painted.
	Plug Characteristics	Linear
	Leakage	ANSI CLASS III (CLASS IV is available on request.)
Actuator Type		Pneumatic Diaphragm, Pneumatic Cylinder, Electric Motor.

FLOW DIRECTION & Cv TABLE (3-WAY GLOBE VALVE)

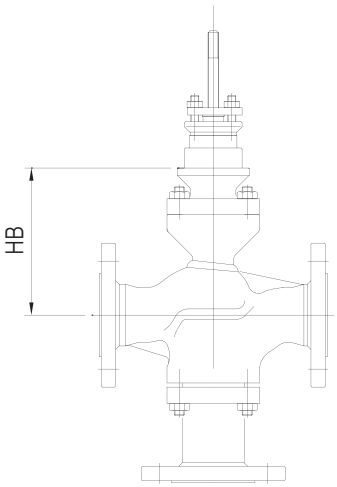
Flow direction

		Mixing type	Diverting type
Direct Action Actuator	Air To	A → A,B	A,B → A
	Air Fail	B → A,B	A,B → B
Reverse Action Actuator	Air To	B → A,B	A,B → B
	Air Fail	A → A,B	A,B → A
Flow direction			

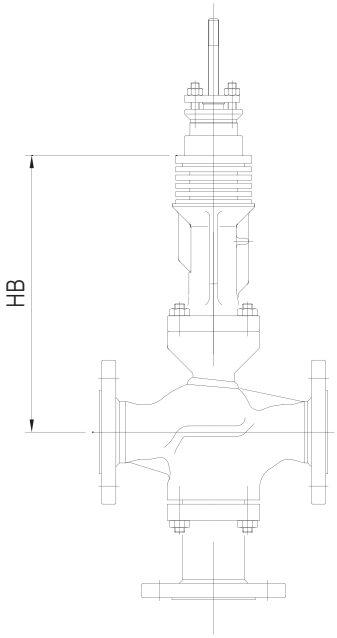
Cv Table

Valve Size		Travel (mm)	Cv Value
(mm)	(inch)		
15A	1/2"	20	6
20A	3/4"		9
25A	1"		14
32A	1-1/4"	25	25
40A	1-1/2"		33
50A	2"		50
65A	2-1/2"	30	85
80A	3"	40	106
100A	4"		175
125A	5"	50	266
150A	6"		335
200A	8"	75	660
250A	10"		945
300A	12"	100	1400

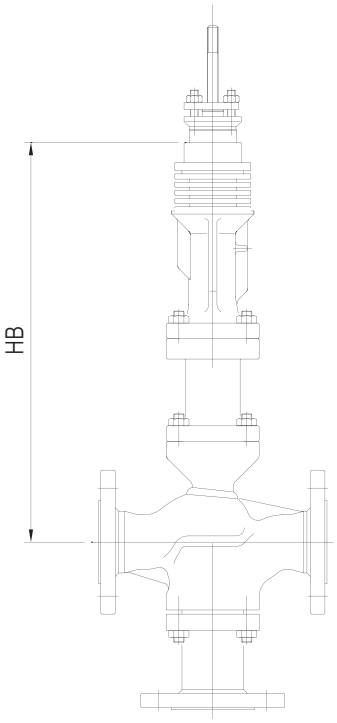
BONNET TYPE (3-WAY GLOBE VALVE)



STANDARD BONNET



FIN/EXTENSION BONNET



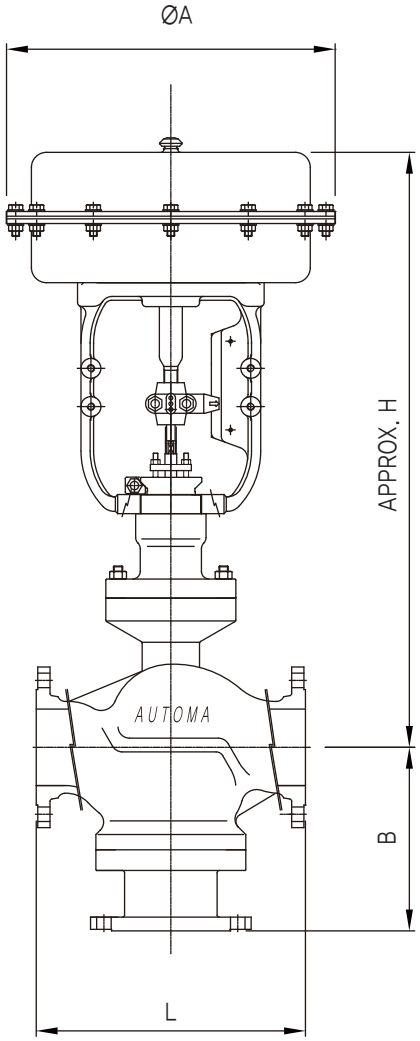
BELLOWS SEAL BONNET

DIMENSION

Unit: mm

SIZE		HB		
mm	Inch	STANDARD BONNET	FIN BONNET	BELLOWS BONNET
15	1/2	110	216	220
20	3/4	110	216	220
25	1	110	223	235
32	1-1/4	115	237	240
40	1-1/2	115	237	240
50	2	125	255	255
65	2-1/2	140	270	325
80	3	170	351	355
100	4	190	403	375
125	5	280	470	556
150	6	285	480	562
200	8	355	580	730
250	10	425	620	770
300	12	497	-	-

3-WAY GLOBE VALVE ASSEMBLY DIMENSION (STANDARD BONNET TYPE)



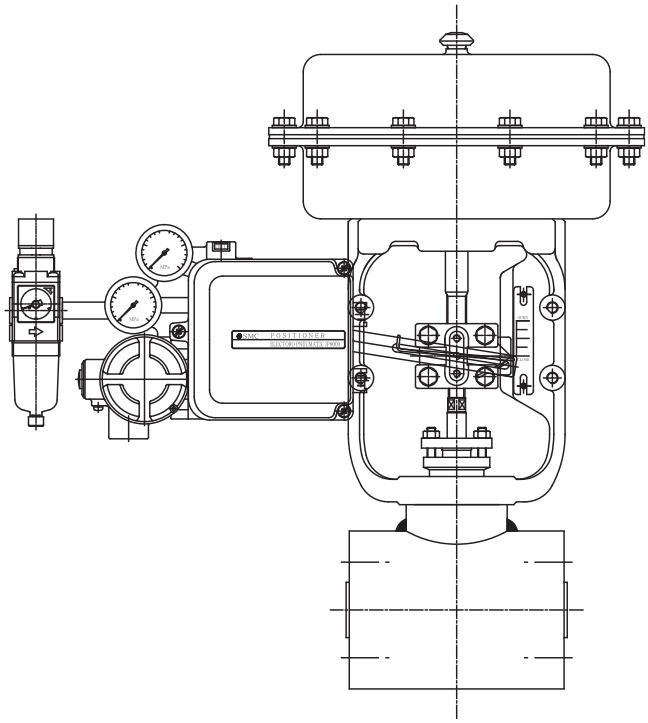
DIMENSION

Unit: mm

SIZE		FACE TO FACE DIMENSION (L)			B	H (Aprox.)	A	Weight (Kg)	
mm	Inch	JIS 10K ANSI 150#	JIS 20K ANSI 300#	PN16				JIS 10K	JIS 20K
15	1/2	184	194	130	144	396	220	16.9	16.9
20	3/4	184	194	150	144	396	220	16.9	16.9
25	1	184	197	160	144	430	220	20.8	20.8
32	1-1/4	222	235	180	163	465	270	28.6	31.2
40	1-1/2	222	235	200	163	465	270	28.6	32.5
50	2	254	267	230	178	475	270	36.4	39
65	2-1/2	276	292	290	197	580	350	62.4	67.6
80	3	298	318	310	215	600	350	79.3	85.8
100	4	352	368	350	240	645	350	89.7	93.6
125	5	403	425		340	895	470	201.5	214.5
150	6	451	473		350	900	470	227.5	236.6
200	8	543	568		380	960	560	364	396.5

TEFLON GLOBE VALVE

This valve is used for controlling corrosive fluids.
Body wetted parts are made of PTFE and body is covered by stainless body.

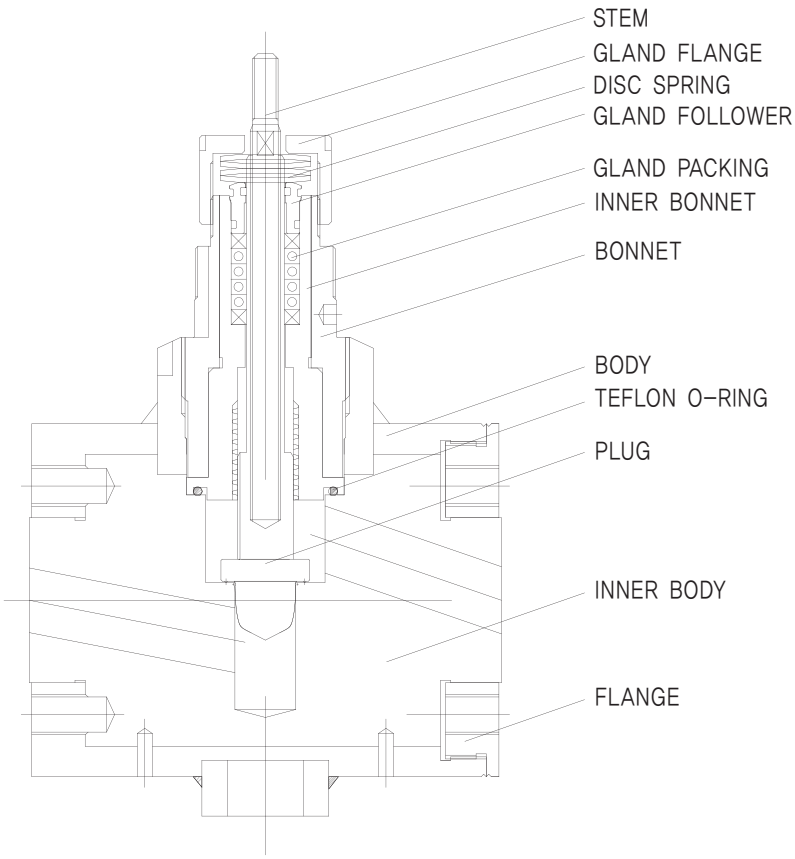


STANDARD SPECIFICATION

Body	Series	ACV
	Valve Size	15A ~ 50A (1/2" ~ 2")
	Trim Type	Unbalance plug type (P port)
	Pressure Rating	JIS 10K / ANSI 150#
	End Connections	Flanged Tap Bolting (FF Type)
	Body Materials	COVER : SUS304 (SUS316 is available on request) BODY : PTFE
	Trim Materials	PTFE
	Bonnet Type	Standard : 0°C ~ 150°C
	Gland Packing Type	V-PTFE
	Painting Color	Body is not painted.
	Plug Characteristics	EQ%, Linear
	Leakage	ANSI CLASS VI
Actuator Type		Pneumatic Diaphragm, Pneumatic Cylinder, Electric Motor.

BODY INTERNAL STRUCTURE & Cv VALUE (TEFLON GLOBE)

Body Internal Structure

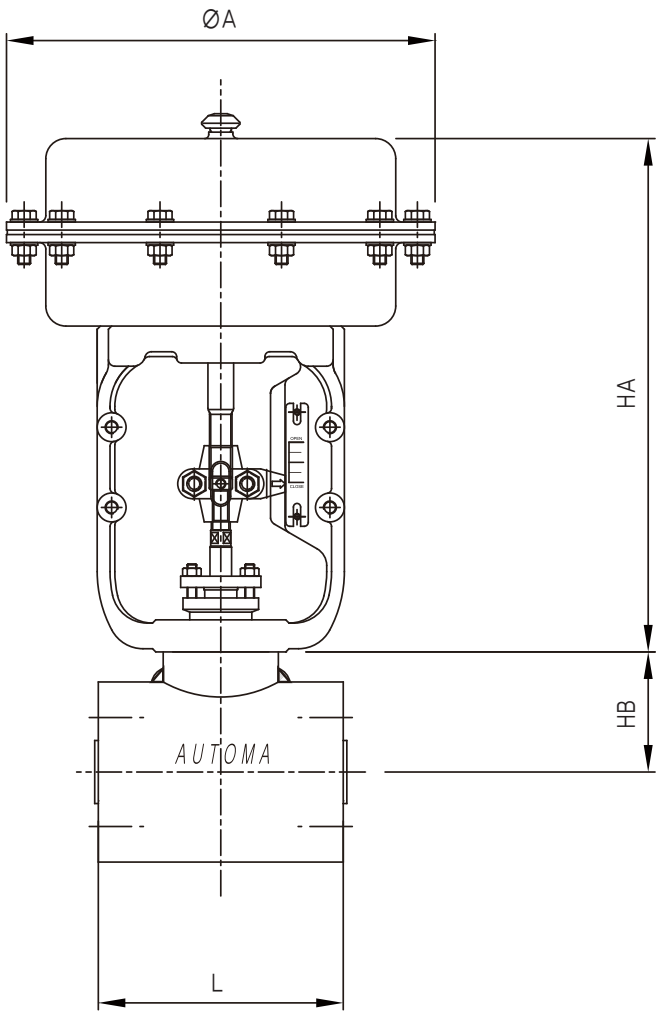


Body	SUS304+TEFLON
Bonnet	SUS304+TEFLON
Plug	TEFLON
Seat	Integral Seat type
Stem	SUS316+TEFLON
Gland packing	V-PTFE
Bonnet Bolt	Stainless Steel
Bonnet Nut	Stainless Steel

Cv Table

Valve Size		Travel (mm)	Cv Value
(mm)	(inch)		
15A	1/2"	20	6
20A	3/4"		9
25A	1"		14
32A	1-1/4"	25	25
40A	1-1/2"		33
50A	2"		50

TEFLON GLOBE VALVE ASSEMBLY DIMENSION



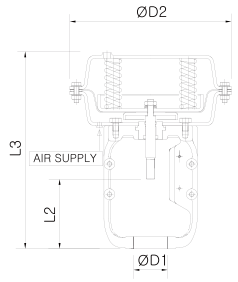
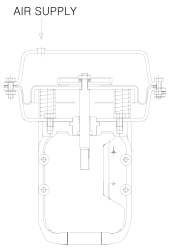
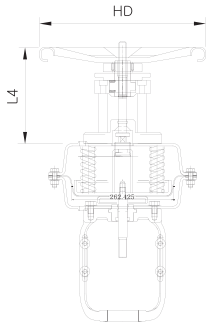
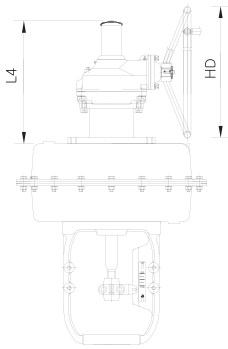
DIMENSION

Unit: mm

Size		FACE TO FACE : L	HB	HA	A	Weight (Kg)
mm(A)	Inch(B)					
15	1/2	140	88	280	220	6.5
20	3/4	140	90	280	220	6.5
25	1	184	105	280	220	8
32	1-1/4	222	111	320	270	11
40	1-1/2	222	111	320	270	11
50	2	254	(125)	320	270	14

JIS 10K / ANSI 150# ONLY

PNEUMATIC DIAPHRAGM ACTUATOR

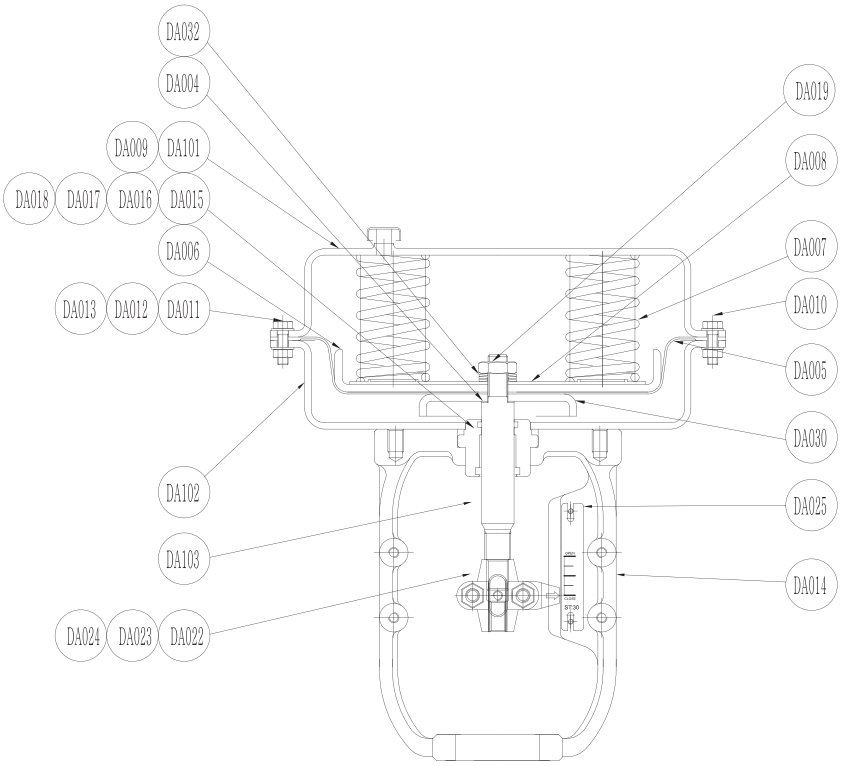
REVERSE ACTING	DIRECT ACTING	HANDLE OPTION	
		(Size : Φ350 & Lower)	(Size : Φ470 & Larger)
			

Size	Stroke (mm)	Dimension (mm)				Actuator Rod diameter	Air conn.	Effective Area (cm^2)	Actuator Volume (Liter)	Weight (Kg)	Handle Dimension (mm)	
		ΦD1	ΦD2	L2	L3						L4	HD
220	20	56	220	115	280	Φ16	1/4"PT	188	0.8	6.4	163	160
270	25	56	270	115	320	Φ16	1/4"PT	308	1.5	11.7	174	300
350	30, 40	65.5	350	135	395	Φ25	1/4"PT	563	3.3	22.7	209	300
470	50	80	470	155	500	Φ30	1/4"PT	961	8	55.7	-	-
	75				535				10	71	-	-
560	100	101	560	168	680	Φ35	3/8"PT	1632	20	-	-	-

SPECIFICATION

Type	Multi-spring type
Size	220, 270, 350, 470, 560
Function	Direct Acting (DA) : Air to output shaft down
	Reverse Acting (RA) : Air to output shaft up
Air Supply	3.5 bar
Operating Spring Range	0.8bar ~ 2.4bar
Ambient Temperature	-40°C ~ +93°C
Materials	Diaphragm casing : Carbon steel plate
	Diaphragm : EPDM
	Yoke : FCD45
	Diaphragm Rod : SUS304
	Spring : SWOCS-V
	Handle Case : Carbon steel
Color	HJ BLUE

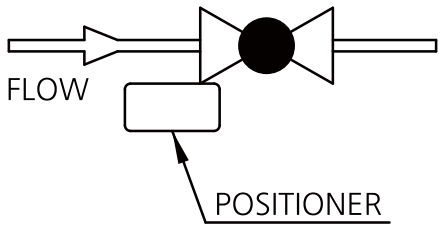
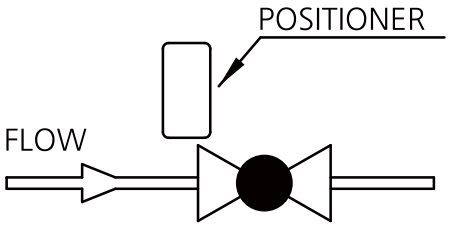
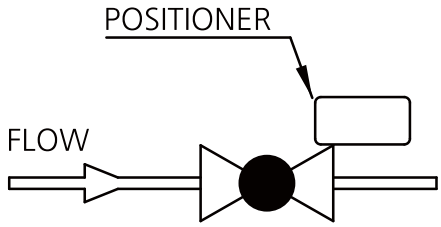
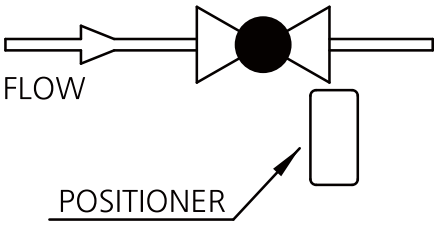
PNEUMATIC DIAPHRAGM ACTUATOR (INTERNAL STRUCTURE)



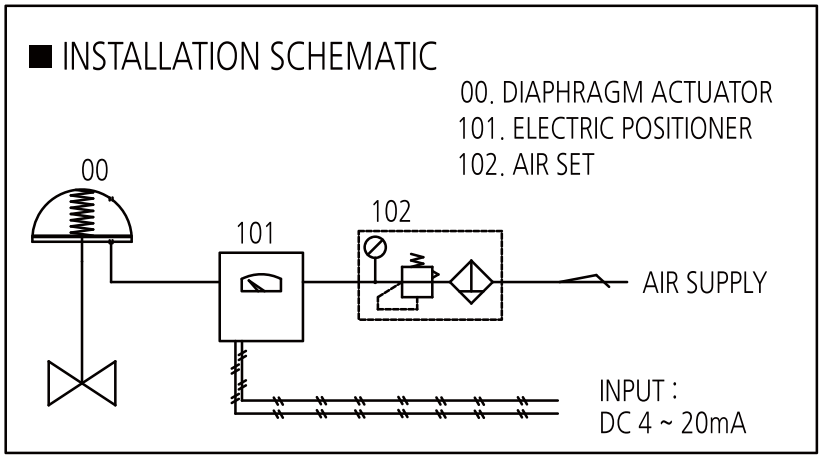
DIAPHRAGM ACTUATOR PART					
NO.	PART NAME		Q'TY	MATERIAL	REMARK
DA101	UPPER CASE		1	CARBON STEEL PLATE	
DA102	LOWER CASE		1	CARBON STEEL PLATE	
*DA103	DIAPHRAGM ROD		1	STAINLESS STEEL	
	DA004	ROD BASE WASHER	1	BRASS	
	DA005	DIAPHRAGM	1	EPDM	
	DA032	DISK SPRING	1	SPRING MATERIAL	SET
	DA006	DIAPHRAGM PLATE	1	CARBON STEEL PLATE	
	DA019	NYLON NUT	1	CARBON STEEL	
	DA030	CENTER PLATE	1	CARBON STEEL PLATE	
DA007	SPRING		SET	SWOCS-V	
DA008	SPRING BASE PLATE		1	CARBON STEEL PLATE	
DA009	AIR VENT CAP		1	BRASS PLATE	
DA010	CASE I-NUT		SET	STAINLESS STEEL	
DA011	CASE BOLT		SET	STAINLESS STEEL	
DA012	CASE NUT		SET	STAINLESS STEEL	
DA013	CASE PLATE WASHER		SET	STAINLESS STEEL	
DA014	YOKE		1	FCD450	
*DA015	SEAL BOX		1	CARBON STEEL	
	DA016	SEAL BOX O-RING	1	NBR	SET
	DA017	SEAL BOX DUST SEAL	1	NBR	
	DA018	SEAL BAX & YOKE O-RING	1	NBR	
DA022	STEM CLAMP		SET	CF8	
	DA023	STEM CLAMP BOLT	SET	STAINLESS STEEL	SET
	DA024	STEM CLAMP BOLT	SET	STAINLESS STEEL	
DA025	INDICATOR		1	STAINLESS STEEL	

ACTUATOR MOUNTING FORM & SCHEMATIC DIAGRAM

ACTUATOR MOUNTING FORM

STANDARD	90도 회전
	
180도 회전	**270도 회전**
	

SCHEMATIC DIAGRAM



PRESSURE - TEMPERATURE RATING TABLE

PRESSURE-TEMPERATURE RATING TABLE

Unit : Kg/cm2G

ANSI	Class 150			Class 300			Class 600			Class 900			Class 1500		
Temp. (°C)	SCPH2 WCB	SCS13A CF8	SCS14A CF8M	SCPH2 WCB	SCS13A CF8	SCS14A CF8M	SCPH2 WCB	SCS13A CF8	SCS14A CF8M	SCPH2 WCB	SCS13A CF8	SCS14A CF8M	SCPH2 WCB	SCS13A CF8	SCS14A CF8M
-5~38	20	19	19	52	51	51	104	101	101	156	152	152	260	253	253
93	18	16	17	48	42	44	96	84	87	143	127	131	239	211	218
149	16	14	15	46	38	39	92	76	79	138	114	118	230	189	197
204	14	13	14	45	35	36	89	70	72	134	105	108	223	175	181
260	12	12	12	43	33	34	85	65	67	127	98	101	212	164	168
316	10	10	10	40	31	32	80	62	63	120	93	95	200	155	159
343	9	9	9	39	30	31	77	61	62	116	91	93	193	152	155
371	8	8	8	37	30	31	75	59	61	112	89	92	187	148	153
399	7	7	7	36	29	30	71	58	60	107	87	90	178	145	150
427	6	6	6	29	28	30	58	57	59	87	85	89	144	143	148
454	5	5	5	22	28	30	45	56	59	67	84	88	112	139	147
482	4	4	4	16	27	29	32	55	58	49	82	88	81	137	146
510	2	2	2	9	27	27	19	54	54	29	81	82	48	134	136
538	1	1	1	6	25	26	12	50	51	18	75	77	30	124	128
566		1	1		23	11		46	51		69	76		115	127
593		1	1		18	21		36	43		54	64		90	107
621		1	1		14	17		29	33		43	50		72	83
649		1	1		12	13		23	26		35	39		58	65
677		1	1		9	10		19	21		28	31		47	52
704		1	1		8	8		16	17		24	25		40	41
732		1	1		7	7		13	13		20	20		33	34
760		1	1		5	5		11	11		16	16		27	27
788		1	1		4	4		8	8		12	12		20	20
816		1	1		3	3		6	6		9	9		14	14

ALLOWABLE TEMPERATURE RANGE OF BODY MATERIAL

MATERIAL					
MATERIAL GROUP	MAT'L TYPE	JIS	ASTM	LOWER (°C)	UPPER (°C)
CAST IRON (FC)		FC	A126 CLASS B	-29	210
DUCTILE IRON (FCD)		FCD	A395	-29	343
CARBON STEEL	C-Mn-Fe	SCPH2	A216 WCB	-29	475
		SCPL1	A352 LCB	-45	350
ALLOY STEEL (Chrome Moly)	1-1/4Cr, 1/2Mo	SCPH21	A217 WC6	-29	593
	2-1/4Cr, 1Mo	SCPH32	A217 WC9	-29	593
	5Cr, 1/2Mo	SCPH61	A217 C5	-29	593
	9Cr, 1Mo		A217 C12	-29	593
STAINLESS STEEL	18Cr-8Ni	SCS13A	A351 CF8	-29	800
	16Cr-12Ni-2Mo	SCS14A	A351 CF8M	-29	800

ALLOWABLE SEAT LEAKAGE & SHELL TEST PRESSURE

ALLOWABLE SEAT LEAKAGE

Applicable Code : ANSI B 16.104 - 1976

CLASS	TEST FLUID	ALLOWABLE SEAT LEAKAGE
CLASS I	-	Not specified
CLASS II	3.5 bar Water or Air	Rated Cv × 0.5%
CLASS III	3.5 bar Water or Air	Rated Cv × 0.1%
CLASS IV	3.5 bar Water or Air	Rated Cv × 0.01%
CLASS V	Actual Differential Pressure by Water	5 × 10-4 × D × △P cc/min
CLASS VI	3.5 bar Air	See below Table (in case of soft seat)

* D : SEAT RING DIA(inch), △P : psi

Allowable Seat leakage Calculation Formula (ANSI CLASS IV)

Q = 14.6 x P1 x Cv x $\sqrt{}$G x 1000/60 x 0.0001	Q = Volumetric Flow (Nl/min) G = Gas Weight (Air = 1) P1 = Valve inlet Pressure (Kg/cm2A)

Class VI Allowable Seat leakage

Port Size (inch)	cc/min	Bubbles per minute
1	0.15	1
1-1/2	0.30	2
2	0.45	3
2-1/2	0.60	4
3	0.90	6
4	1.70	11
6	4.00	27
8	6.75	45

Class IV Allowable Seat leakage

(AUTOMA GLOBE VALVE)

Port Size (inch)	cc/min
1/2	735
3/4	1,103
1	1,715
1-1/4	3,062
1-1/2	4,042
2	6,124
2-1/2	10,410
3	12,980
4	21,430
5	32,580
6	41,030
8	80,840
10	115,740

Test Fluid : Air (Test Pressure : 4kg/㎠ G)

HYDROSTATIC TEST PRESSURE TABLE (ANSI/ISA 75.19)

(Unit : barG)

Body Material	150#	300#	600#	900#	1500#
A216 WCB	30	77	154	230	383
A216 WCC	30	78	156	233	388
A352 LCB	28	72	144	216	360
A217 WC6	30	78	156	233	388
A217 WC9					
A217 C5					
A217 C12					
A351 CF8 / CF3	29	75	149	224	373
A351 CF8M / CF3M					

DURATION TIME OF HYDROSTATIC TEST (ANSI/ISA 75.19 5.2 phase)

(Unit : min)

Valve Size (inch)	CLASS			
	150	300~600	900~1500	2500 over
2" & Smaller	1	1	2	3
2-1/2"~4"	2	2	4	5
5"~8"	2	3	5	8
10" & Larger	3	5	8	10

APPLICABLE STANDARDS FOR CONTROL VALVE

• CONTROL VALVE RELATED STANDARDS

1. CONTROL VALVE SELECTION FOR THE TERMS & CONDITIONS

ANSI B 16. 104-1976	American National Standard for Control valve seat Leakage FIC 70-2
IEC PUB 534-1	Industrial Process Valve Part 1 : General Considerations
JPI-7B-56-77	Instrumentation Design Data for Air System
PART 1: PROCESS	Instrumentation and Control Section 6 : Control Valve and Port

2. SIZING

FCI 62-1	Recommend Volume Tray Standard Formulas for Sizing Control Valves
ANSI/ISA S75.01	Control Valve Sizing Equations
ISA	Hand Book of Control Valves, 2ND Edition

3. VALVE BODY

ANSI B16.34	Steel Valve
ISA	Hand Book of Control Valves, 2ND Edition

4. TRIM

JIS B 2003	General of Valve Inspection
ISA	Hand Book of Control Valves, 2ND Edition

5. MATERIAL

JPI-7S-15-81	Steel Flange for Petroleum Industry
ANSI B16.34	Steel Valve
JIS G 4303	Stainless Steel Bar
JIS G 5101	Carbon Steel, Cast Steel
JIS G 5121	Stainless Cast Steel
JIS G 5151	High Temperature High pressure Cast Steel
JIS G 5152	Low Temperature High pressure Cast Steel
JIS G 5501	Gray Cast Iron
JIS G 5502	Ductile Cast Iron
JIS B 8243	Structure of Pressure Vessel

6. NOISE

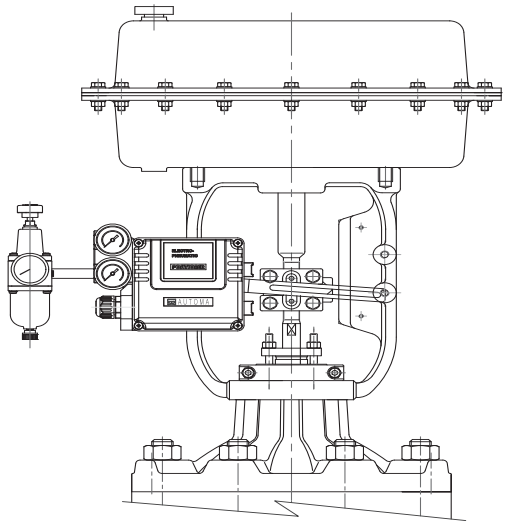
ISA RP 59.2	Field Measurements of Air Borne Sound Level Generated by Control valve
OSHA 1910 95	Occupational Noise Exposure, 1971
VDMA 24422	Control and Shut-Off Valves Guidelines for Computation

7. TEST

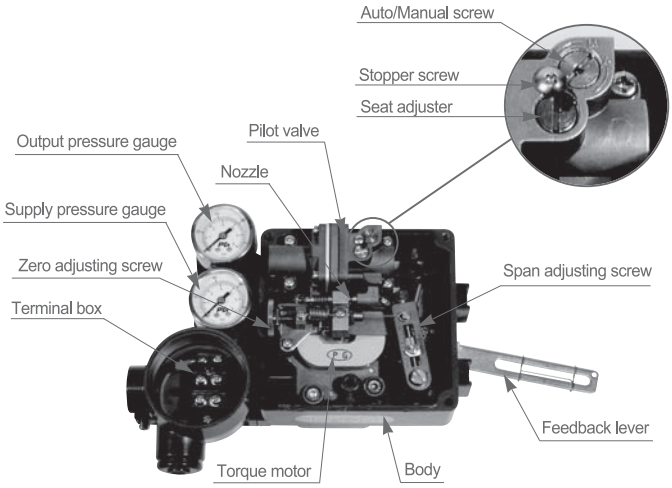
HYDROSTATIC SHELL TEST : ISA 75.19
SEAT LEAK TEST : ANSI/FCI 70-2

POSITIONER INSTALLATION

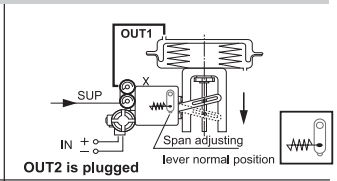
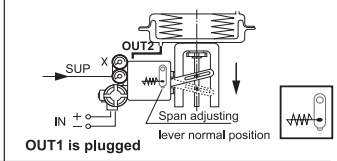
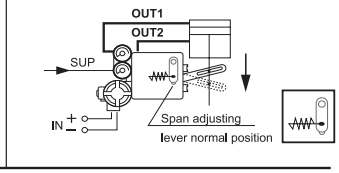
• POSITIONER INSTALLATION SAMPLE

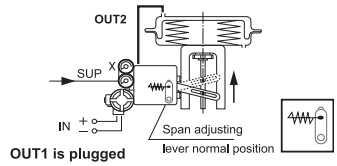
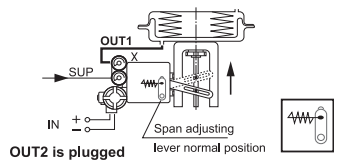
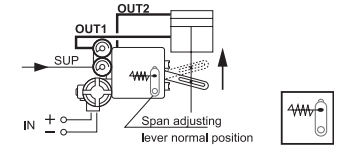


• POSITIONER INTERNAL VIEW

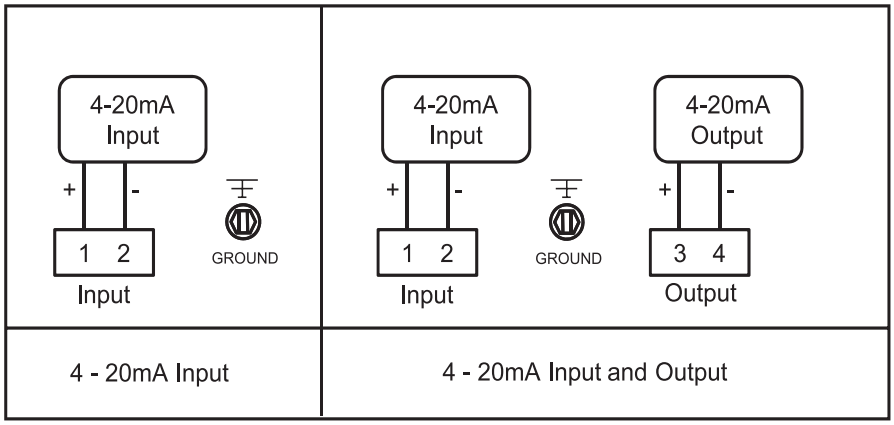


• AIR CONNECTIONS

Direct Acting (DA)	
As the input signal increases, Valve stem moves downwards Actuator : **DA** Connection : out 1	
As the input signal increases, Valve stem moves downwards Actuator : **DA** Connection : out 2	
As the input signal increases, Valve stem moves downwards	

Reverse Acting (RA)	
As the input signal increases, Valve stem moves upwards Actuator : **RA** Connection : out 2	
As the input signal increases, Valve stem moves upwards Actuator : **RA** Connection : out 1	
As the input signal increases, Valve stem moves upwards	

• WIRING DIAGRAM



VALVE PHOTOS

VALVE PHOTOS

AUTOMA

Automatic Valve & Accessories

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Ver. 2019.4