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(주)오토마 종합 카다로그  
**AUTOMA**  
Automatic Valve & Accessories

Automatic Valves



주식회사 오토마  
경기도 부천시 원미구 평천로 862번길 21(도당동) 오토마빌딩  
T. 032-653-6477 / F. 032-653-6478 / www.automa.co.kr

Ver. 2016.12

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Automatic Valve & Accessory

# PNEUMATIC VALVE



# 1-PIECE SCREWED BALL VALVE - DOUBLE ACTING



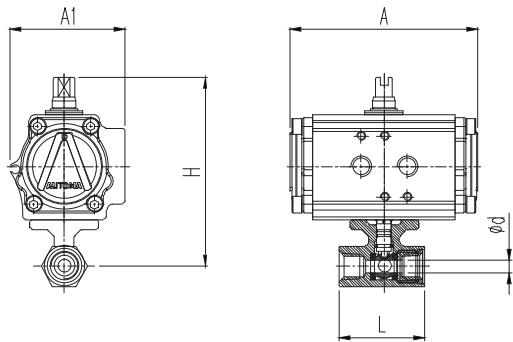
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing

## Specification

• This is subject to change.

Valve Size	10A (3/8")	15A (1/2")	20A (3/4")	25A (1")	32A (1-1/4")	40A (1-1/2")	50A (2")
Actuator Model	ADR40			ADR65			
Actuator Type	Double Acting						
Operating Media	Compressed Dry Air						
Operating Pressure	4 - 7kg/cm <sup>2</sup>						
Rotating Angle	90° ± 5°						
Fluid Temperature	-20°C ~ 80°C						
Rating	1000psi						
Body Material	A351-CF8 / Body		A351-CF8 / Ball			PTFE / Seat	
Accessory	Solenoid Valve, Limit Switch Box, Air Filter Regulator, E/P Positioner						



## Dimension

• END CONNECTION : PT SCREW (mm)

Model	Size		A	A1	H Approx.	L	Φd
	mm	Inch					
ADR40-10S1	10A	3/8"	96	63	110	45	7
ADR40-15S1	15A	1/2"	96	63	111	55	9.2
ADR40-20S1	20A	3/4"	96	63	117	60	12.5
ADR40-25S1	25A	1"	96	63	120	73	15
ADR40-32S1	32A	1-1/4"	96	63	123	78	20
ADR65-40S1	40A	1-1/2"	131	89	159	89	25
ADR65-50S1	50A	2"	131	89	167	100	32

# 1-PIECE SCREWED BALL VALVE - SINGLE ACTING



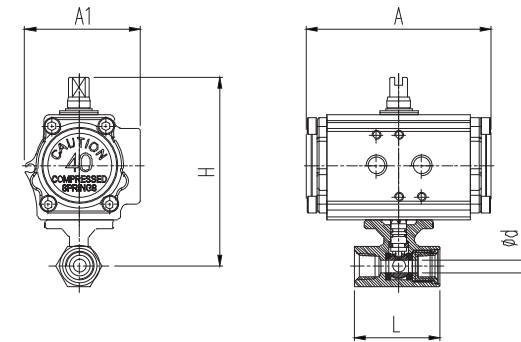
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing

## Specification

• This is subject to change.

Valve Size	10A (3/8")	15A (1/2")	20A (3/4")	25A (1")	32A (1-1/4")	40A (1-1/2")	50A (2")
Actuator Model	ASR40	ASR50			ASR65		ASR80
Actuator Type	Single Acting						
Operating Media	Compressed Dry Air						
Operating Pressure	4.5 - 7kg/cm <sup>2</sup>						
Rotating Angle	90° ± 5°						
Fluid Temperature	-20°C ~ 80°C						
Rating	1000psi						
Body Material	A351-CF8 / Body		A351-CF8 / Ball			PTFE / Seat	
Accessory	Solenoid Valve, Limit Switch Box, Air Filter Regulator, E/P Positioner						



## Dimension

• END CONNECTION : PT SCREW (mm)

Model	Size		A	A1	H Approx.	L	Φd
	mm	Inch					
ASR40-10S1	10A	3/8"	96	63	110	45	7
ASR50-15S1	15A	1/2"	133	75	126	55	9.2
ASR50-20S1	20A	3/4"	133	75	132	60	12.5
ASR50-25S1	25A	1"	133	75	135	73	15
ASR65-32S1	32A	1-1/4"	154	89	155	78	20
ASR65-40S1	40A	1-1/2"	154	89	159	89	25
ASR80-50S1	50A	2"	220	101	186	100	32

# 3-PIECE SCREWED BALL VALVE - DOUBLE ACTING



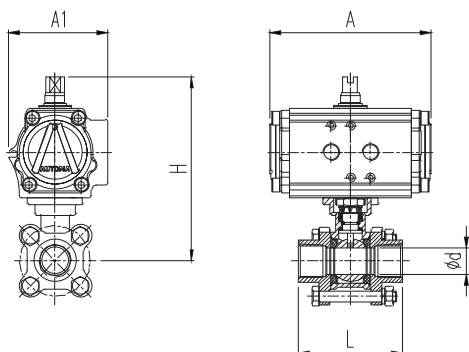
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing

## Specification

• This is subject to change.

Valve Size	8A(1/4")	10A (3/8")	15A (1/2")	20A (3/4")	25A (1")	32A (1-1/4")	40A (1-1/2")	50A (2")
Actuator Model	ADR40							
Actuator Type	Double Acting							
Operating Media	Compressed Dry Air							
Operating Pressure	4 - 7kg/cm <sup>2</sup>							
Rotating Angle	90° ± 5°							
Fluid Temperature	-20°C ~ 80°C							
Rating	1000psi							
Body Material	A351-CF8 / Body		A351-CF8 / Ball			PTFE / Seat		
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner							



## Dimension

• END CONNECTION : PT SCREW (mm)

Model	Size		A	A1	H Approx.	L	Φd
	mm	Inch					
ADR40-8S3	8A	1/4"	96	63	124	64	12.5
ADR40-10S3	10A	3/8"	96	63	124	64	12.5
ADR40-15S3	15A	1/2"	96	63	127	72	15
ADR40-20S3	20A	3/4"	96	63	133	80	20
ADR50-25S3	25A	1"	119	75	155	85	25
ADR65-32S3	32A	1-1/4"	131	89	177	105	32
ADR65-40S3	40A	1-1/2"	131	89	187	113	38
ADR80-50S3	50A	2"	189	101	221	132	50

# 3-PIECE SCREWED BALL VALVE - SINGLE ACTING



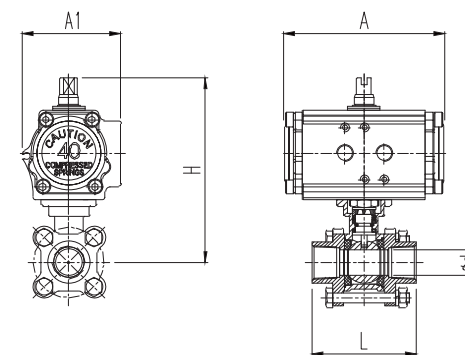
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing

## Specification

• This is subject to change.

Valve Size	8A(1/4")	10A (3/8")	15A (1/2")	20A (3/4")	25A (1")	32A (1-1/4")	40A (1-1/2")	50A (2")
Actuator Model	ASR40							
Actuator Type	Single Acting							
Operating Media	Compressed Dry Air							
Operating Pressure	4.5 - 7kg/cm <sup>2</sup>							
Rotating Angle	90° ± 5°							
Fluid Temperature	-20°C ~ 80°C							
Rating	1000psi							
Body Material	A351-CF8 / Body		A351-CF8 / Ball			PTFE / Seat		
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner							



## Dimension

• END CONNECTION : PT SCREW (mm)

Model	Size		A	A1	H Approx.	L	Φd
	mm	Inch					
ASR40-8S3	8A	1/4"	96	63	124	64	12.5
ASR50-10S3	10A	3/8"	133	75	139	64	12.5
ASR60-15S3	15A	1/2"	133	75	142	72	15
ASR50-20S3	20A	3/4"	133	75	148	80	20
ASR65-25S3	25A	1"	154	89	172	85	25
ASR65-32S3	32A	1-1/4"	154	89	177	105	32
ASR80-40S3	40A	1-1/2"	220	101	206	113	38
ASR80-50S3	50A	2"	220	101	221	132	50

# FLANGED BALL VALVE - DOUBLE ACTING



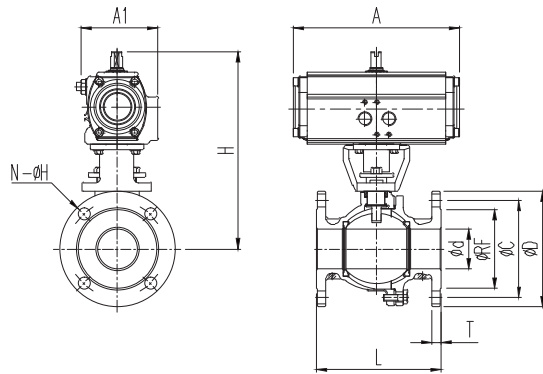
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing
- Food & Beverage lines
- Vacuum distribution pipes

## Specification

• This is subject to change.

<b>Valve Size</b>	<b>15A(1/2")-250A(10")</b>		
Actuator Model	AD50-AD200		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ±5°		
Fluid Temperature	-20°C ~ 150°C		
Rating	JIS 10K (20K) (40K)	ANSI 150# (300#) (600#)	
Body Material	SCS13 (SCS14, SCPH2)/Body	SCS13 (SCS14)/Ball	PTFE (RTFE, PEEK, METAL)/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner, Manual Handle		



## Dimension

Model	SIZE		A	A1	H	L	END CONNECTION (JIS 10K RF)					N-ØH
	mm	inch					Approx.	T	Ød	ØRF	ØC	
AD50-15F	15A	1/2"	162	75	188	108	12	15	51	70	95	4-15
AD50-20F	20A	3/4"	162	75	191	117	14	20	56	75	100	4-15
AD50-25F	25A	1"	162	75	200	127	14	25	67	90	125	4-19
AD65-32F	32A	1-1/4"	202	89	220	140	16	32	76	100	135	4-19
AD65-40F	40A	1-1/2"	202	89	242	165	16	40	81	105	140	4-19
AD65-50F	50A	2"	202	89	249	178	16	50	96	120	155	4-19
AD80-65F	65A	2-1/2"	253	101	279	190	18	65	116	140	175	4-19
AD80-80F	80A	3"	253	101	319	203	18	80	126	150	185	8-19
AD100-100F	100A	4"	311	129	357	229	18	100	151	175	210	8-19
AD125-125F	125A	5"	390	151	415	356	20	125	182	210	250	8-23
AD140-150F	150A	6"	431	164	480	394	22	150	212	240	280	8-23
AD160-200F	200A	8"	506	189	589	457	22	200	262	290	330	12-23
AD200-250F	250A	10"	605	231	720	533	24	250	324	355	400	12-25

# FLANGED BALL VALVE - SINGLE ACTING



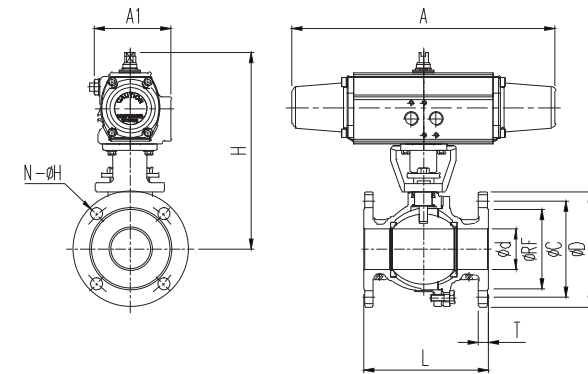
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing
- Food & Beverage lines
- Vacuum distribution pipes

## Specification

• This is subject to change.

<b>Valve Size</b>	<b>15A(1/2")-200A(8")</b>		
Actuator Model	AS50-AS200		
Actuator Type	Single Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4.5 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ±5°		
Fluid Temperature	-20°C ~ 150°C		
Rating	JIS 10K (20K) (40K)	ANSI 150# (300#) (600#)	
Body Material	SCS13 (SCS14, SCPH2)/Body	SCS13 (SCS14)/Ball	PTFE (RTFE, PEEK, METAL)/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner, Manual Handle		



## Dimension

Model	SIZE		A	A1	H	L	END CONNECTION (JIS 10K RF)					N-ØH
	mm	inch					Approx.	T	Ød	ØRF	ØC	
AS50-15F	15A	1/2"	257	75	188	108	12	15	51	70	95	4-15
AS50-20F	20A	3/4"	257	75	191	117	14	20	56	75	100	4-15
AS65-25F	25A	1"	314	89	217	127	14	25	67	90	125	4-19
AS65-32F	32A	1-1/4"	314	89	220	140	16	32	76	100	135	4-19
AS80-40F	40A	1-1/2"	421	101	246	165	16	40	81	105	140	4-19
AS80-50F	50A	2"	421	101	268	178	16	50	96	120	155	4-19
AS80-65F	65A	2-1/2"	421	101	279	190	18	65	116	140	175	4-19
AS100-80F	80A	3"	500	129	341	203	18	80	126	150	185	8-19
AS125-100F	100A	4"	606	151	383	229	18	100	151	175	210	8-19
AS140-125F	125A	5"	682	164	433	356	20	125	182	210	250	8-23
AS160-150F	150A	6"	781	189	504	394	22	150	212	240	280	8-23
AS200-200F	200A	8"	982	231	657	457	22	200	262	290	330	12-23

# 3-WAY SCREWED BALL VALE - DOUBLE ACTING



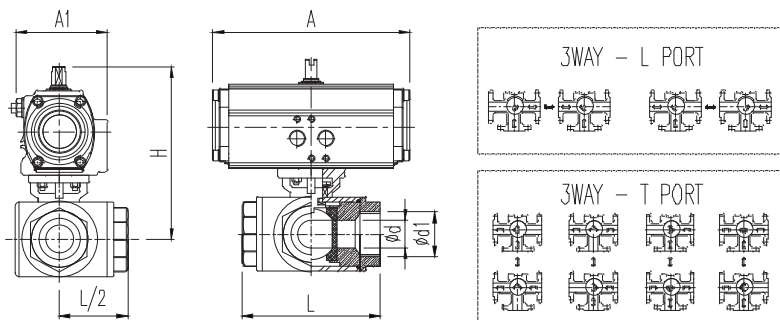
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing

## Specification

• This is subject to change.

Valve Size	8A(1/4")	10A(3/8")	15A(1/2")	20A(3/4")	25A(1")	32A(1-1/4")	40A(1-1/2")	50A(2")
Actuator Model	AD40			AD50			AD65	
Actuator Type	Double Acting							
Operating Media	Compressed Dry Air							
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>							
Rotating Angle	90° ± 5°							
Fluid Temperature	-20°C ~ 80°C							
Rating	1000psi							
Body Material	A351-CF8/Body		A351-CF8/Ball			PTFE / Seat		
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner							



## Dimension

(mm)

Model	SIZE		A	A1	H	L	L/2	END CONNECTION (PT SCREW)	
	mm	inch			Approx.			Φd	Φd1
AD40-8S3W	8A	1/4"	96	63	130	72	36	12	1/4"
AD40-10S3W	10A	3/8"	96	63	130	72	36	12	3/8"
AD40-15S3W	15A	1/2"	96	63	130	72	36	12	1/2"
AD50-20S3W	20A	3/4"	162	75	149	83	41.5	15	3/4"
AD50-25S3W	25A	1"	162	75	157	99	49.5	20	1"
AD50-32S3W	32A	1-1/4"	162	75	163	112	56	25	1-1/4"
AD65-40S3W	40A	1-1/2"	202	89	186	125	62.5	32	1-1/2"
AD65-50S3W	50A	2"	202	89	197	149	74.5	38	2"

# 3-WAY FLANGED BALL VALVE - DOUBLE ACTING



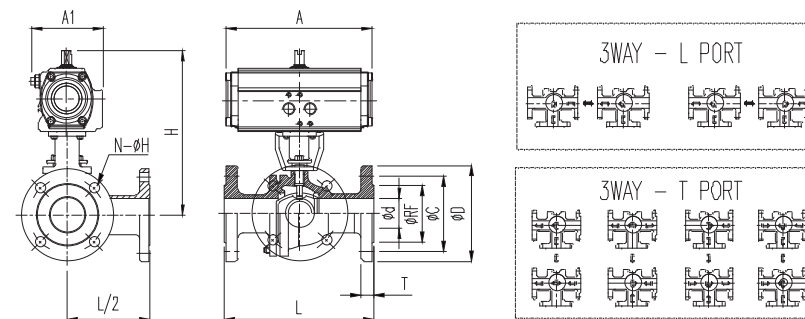
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Air conditioners, Water Filters
- Medical equipments, Vacuum packing
- Food & Beverage lines
- Vacuum distribution pipes

## Specification

• This is subject to change.

Valve Size	15A(1/2")-200A(8")		
Actuator Model	AD50-AD200		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ± 5°		
Fluid Temperature	-20°C ~ 150°C		
Rating	JIS 10K		ANSI 150#
Body Material	SCS13(SCS14)/Body	SCS13(SCS14)/Ball	PTFE/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner, Manual Handle		



## Dimension

(mm)

Model	SIZE		A	A1	H	L	L/2	END CONNECTION (JIS 10K RF)					
	mm	inch			Approx.			T	Φd	ΦRF	ΦC	ΦD	N-ΦH
AD50-15F3W	15A	1/2"	162	75	181	190	95	12	15	52	70	95	4-15
AD50-20F3W	20A	3/4"	162	75	184	190	95	14	20	58	75	100	4-15
AD65-25F3W	25A	1"	202	89	214	200	100	14	25	70	90	125	4-19
AD65-40F3W	40A	1-1/2"	202	89	217	240	120	16	40	85	105	140	4-19
AD80-50F3W	50A	2"	253	101	261	260	130	16	50	100	120	155	4-19
AD80-65F3W	65A	2-1/2"	253	101	270	320	160	18	65	120	140	175	4-19
AD100-80F3W	80A	3"	311	129	330	360	180	18	80	130	150	185	8-19
AD125-100F3W	100A	4"	390	151	368	430	215	18	100	155	175	210	8-19
AD140-125F3W	125A	5"	431	164	450	499	249.5	20	125	185	210	250	8-23
AD160-150F3W	150A	6"	506	189	500	560	280	22	150	215	240	280	8-23
AD200-200F3W	200A	8"	605	231	643	660	330	22	200	265	290	330	12-23

# BUTTERFLY VALVE - DOUBLE ACTING



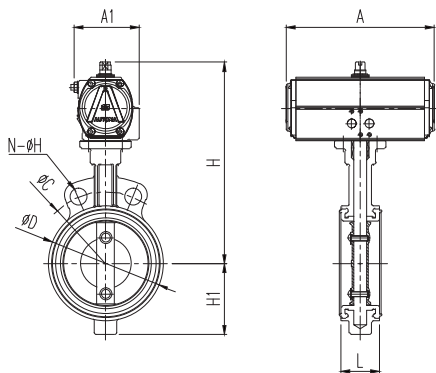
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Medical equipments, Vacuum packing
- Air ventilation systems

## Specification

• This is subject to change.

Valve Size	40A(1-1/2")-600A(24")		
Actuator Model	AD50-AD200		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ±5°		
Fluid Temperature	-15°C ~ 80°C		
Rating	JIS 10K		ANSI 150#
Body Material	FC (SCS13)/Body	SCS13 (SCS14)/Disc	EPDM (PTFE)/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner, Manual Handle		



## Dimension

Model	SIZE		A	A1	H Approx.	H1	L	END CONNECTION (JIS 10K WAFER)		
	mm	inch						ΦC	ΦD	N-ΦH
AD50-40BF	40A	1-1/2"	162	75	215	58	41	105	86	4-19
AD50-50BF	50A	2"	162	75	217	65	43	120	105	4-19
AD50-65BF	65A	2-1/2"	162	75	227	71	46	140	114	4-19
AD65-80BF	80A	3"	202	89	256	83	46	150	129	8-19
AD65-100BF	100A	4"	202	89	270	100	52	175	155	8-19
AD80-125BF	125A	5"	253	101	300	110	56	210	180	8-23
AD80-150BF	150A	6"	253	101	314	130	56	240	207	8-23
AD100-200BF	200A	8"	311	129	390	163	60	290	260	12-23
AD100-250BF	250A	10"	311	129	428	227	68	355	331	12-25
AD125-300BF	300A	12"	390	151	482	252	78	400	377	16-25
AD140-350BF	350A	14"	431	164	510	272	78	445	416	16-25
AD160-400BF	400A	16"	506	189	585	343	102	510	475	16-27
AD160-450BF	450A	18"	506	189	625	366	114	565	535	20-27
AD200-500BF	500A	20"	605	231	783	421	127	620	590	20-27
AD200-600BF	600A	24"	605	231	870	493	154	730	695	24-33

# BUTTERFLY VALVE - SINGLE ACTING



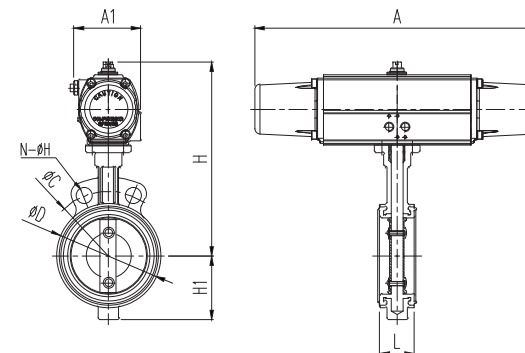
## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Sterilizers, Boilers
- Medical equipments, Vacuum packing
- Air ventilation systems

## Specification

• This is subject to change.

Valve Size	40A(1-1/2")-500A(20")		
Actuator Model	AS50-AS200		
Actuator Type	Single Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4.5 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ±5°		
Fluid Temperature	-15°C ~ 80°C		
Rating	JIS 10K		ANSI 150#
Body Material	FC (SCS13)/Body	SCS13 (SCS14)/Disc	EPDM (PTFE)/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner, Manual Handle		



## Dimension

Model	SIZE		A	A1	H Approx.	H1	L	END CONNECTION (JIS 10K WAFER)		
	mm	inch						ΦC	ΦD	N-ΦH
AS50-40BF	40A	1-1/2"	257	75	215	58	41	105	86	4-19
AS65-50BF	50A	2"	314	89	234	65	43	120	105	4-19
AS65-65BF	65A	2-1/2"	314	89	250	71	46	140	114	4-19
AS65-80BF	80A	3"	314	89	256	83	46	150	129	8-19
AS80-100BF	100A	4"	421	101	287	100	52	175	155	8-19
AS80-125BF	125A	5"	421	101	300	110	56	210	180	8-23
AS100-150BF	150A	6"	500	129	334	130	56	240	207	8-23
AS100-200BF	200A	8"	500	129	390	163	60	290	260	12-23
AS125-250BF	250A	10"	606	151	455	227	68	355	331	12-25
AS140-300BF	300A	12"	682	164	500	252	78	400	377	16-25
AS160-350BF	350A	14"	781	189	544	272	78	445	416	16-25
AS160-400BF	400A	16"	781	189	585	343	102	510	475	16-27
AS200-450BF	450A	18"	982	231	704	366	114	565	535	20-27
AS200-500BF	500A	20"	982	231	780	421	127	620	590	20-27

# HIGH PERFORMANCE BUTTERFLY VALVE - DOUBLE ACTING

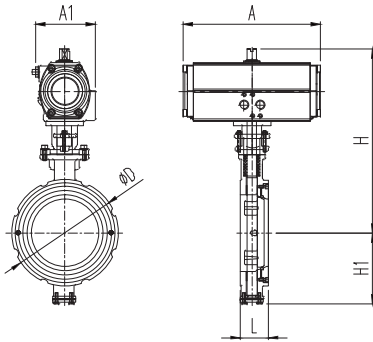


## Application

- Steam Header
- Textile Machine
- Gas and Steam Line
- Water Line

## Specification

Valve Size	15A(1-1/2")-150A(18")		
Actuator Type	Double Acting		Single acting
Actuator Model	AD50 - AD160		AS50 - AS200
Operating Media	Compressed Dry Air		
Operating Pressure	4 - 7kg/cm <sup>2</sup>		4.5 - 7kg/cm <sup>2</sup>
Fluid Temperature	PTFE (-20°C ~ 160°C)	RTFE (-20°C ~ 180°C)	MTFE (-30°C ~ 195°C) SS316 (-50°C ~ 300°C)
Rating	JIS 10K / 20K		ANSI 150# / 300#
Body Material	FCD450, SCPH2, SCS13, SCS14		
Disc Material	SCS13, SCS14		
Seat Material	MTFE, PTFE, RTFE, SS316		
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner, Manual Handle		



## Dimension

END CONNECTION JIS 10K WAFER (mm)

Model	SIZE		A	A1	H	H1	L	ØD
	mm	inch			Approx.			
AD50-40HBF	40A	1-1/2"	162	75	254	73	43	86
AD50-50HBF	50A	2"	162	75	261	81	44	100
AD65-65HBF	65A	2-1/2"	202	89	289	83	46	123
AD65-80HBF	80A	3"	202	89	303	87	46	132
AD65-100HBF	100A	4"	202	89	310	111	52	157
AD80-125HBF	125A	5"	253	101	369	121	57	185
AD80-150HBF	150A	6"	253	101	390	145	62	220
AD100-200HBF	200A	8"	311	129	467	180	83	277
AD125-250HBF	250A	10"	390	151	531	220	87	337
AD125-300HBF	300A	12"	390	151	579	279	98	380
AD140-350HBF	350A	14"	431	164	625	309	100	410
AD160-400HBF	400A	16"	506	189	680	340	115	475
AD160-450HBF	450A	18"	506	189	720	370	115	534

Dimension will be vary according to it's body material

# V-NOTCH SEGMENTAL BALL VALVE (Fire Safety Design)

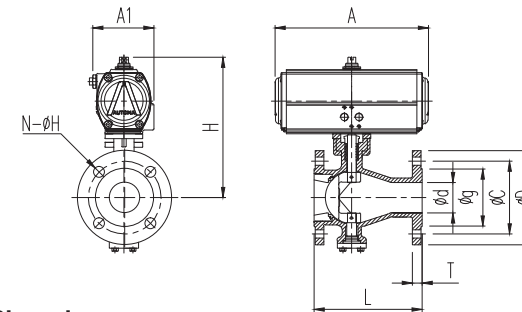


## Application

- Fiber and Slurry Service
- Pulp and Paper Industry
- Steel Industry

## Specification

Valve Size	15A(1/2") - 400A(16")	
Disc Form	Segmental ball disc with V-notch cut	
Characteristics	Inherent characteristic	
Body Rating	JIS 10K - 63K	ANSI 150# - 1500#
End Connection	RF(Flanged Type), Wafer(Flangeless Type), Butt Welding	
Body Material	SCPH2 (WCB), SCS13(CF8), SCS14(CF8M), SCS16(CF3M) and other alloy steels	
Seat Material	Soft Seat(PTFE, RTFE), Metal Seat(SUS316), Stellite Metal Seat	
Leakage Class	ANSI CLASS VI (Soft Seat), ANSI CLASS IV (Metal Seat)	
Bonnet Type	Plain, Extension, Long Extension(Cryogenic)	
Fluid Temp. Range	-196°C ~ 600°C	
Actuator Type	Single Acting / Double Acting Cylinder, Electric Motor	
Face To Face	ASME B16.34, API 6D	
Testing	API 598, MSS SP-61, BS 6755	



## • Cv Table

Size	Rated Cv	Size	Rated Cv
1/2" (15A)	7.5	4" (100A)	480
3/4" (20A)	17	5" (125A)	750
1" (25A)	30	6" (150A)	1080
1-1/2" (40A)	68	8" (200A)	1920
2" (50A)	120	10" (250A)	3000
2-1/2" (65A)	188	12" (300A)	4320
3" (80A)	270		

## Dimension

(mm)

Model	SIZE		A	A1	H	L	END CONNECTION (JIS 10K RF)					
	mm	inch			Approx.		T	Ød	Øg	ØC	ØD	N-ØH
AD50-15VF	15A	1/2"	162	75	199	108	12	15	51	70	95	4-15
AD50-20VF	20A	3/4"	162	75	221	117	14	20	56	75	100	4-15
AD65-25VF	25A	1"	202	89	221	127	14	25	67	90	125	4-19
AD65-40VF	40A	1-1/2"	202	89	229	165	16	40	81	105	140	4-19
AD80-50VF	50A	2"	253	101	255	178	16	50	96	120	155	4-19
AD80-65VF	65A	2-1/2"	253	101	263	190	18	65	116	140	175	4-19
AD100-80VF	80A	3"	311	126	308	203	18	80	126	150	185	8-19
AD100-100VF	100A	4"	311	126	324	229	18	100	151	175	210	8-19
AD125-125VF	125A	5"	390	151	383	356	20	125	182	210	250	8-23
AD140-150VF	150A	6"	431	164	478	394	22	150	212	240	280	8-23
AD160-200VF	200A	8"	506	189	517	457	22	200	262	290	330	12-23
AD200-250VF	250A	10"	605	231	584	533	24	250	324	355	400	12-25
AD250-300VF	300A	12"	755	301	660	610	24	300	368	400	445	16-25



# PLASTIC BALL VALVE - DOUBLE ACTING



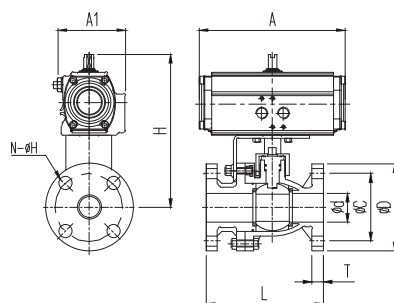
## Application

- Chemical Industry
- Sea Water Line
- Ultra Pure Water Line

## Specification

• This is subject to change.

Valve Size	15A(1/2")-150A(6")		
Actuator Model	AD50-AD125		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ±5°		
Fluid Temperature	-10°C ~90°C		
Rating	JIS 10K		ANSI 150#
Body Material	PP, C-PVPC, PVDF		
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner		



## Dimension

(mm)

Model	SIZE		A	A1	H Approx.	L	END CONNECTION (JIS 10K FF)				
	mm	inch					T	φd	φC	φD	N-φH
AD50-15F	15A	1/2"	162	75	168	145	14	15	70	95	4-15
AD50-20F	20A	3/4"	162	75	177	150	15	20	75	100	4-15
AD50-25F	25A	1"	162	75	190	170	15	25	90	125	4-19
AD65-30F	30A	1-1/4"	202	89	217	175	16	30	100	135	4-19
AD65-40F	40A	1-1/2"	202	89	217	190	18	40	105	140	4-19
AD65-50F	50A	2"	202	89	233	210	19	50	120	155	4-19
AD80-65F	65A	2-1/2"	253	101	301	260	20	65	140	175	4-19
AD80-80F	80A	3"	253	101	301	265	20	75	150	185	8-19
AD100-100F	100A	4"	311	129	337	300	22	100	175	210	8-19
AD125-125F	125A	5"	390	151	408	360	24	125	210	250	8-23
AD140-150F	150A	6"	431	164	451	360	24	150	240	280	8-23

# PLASTIC BUTTERFLY VALVE - DOUBLE ACTING



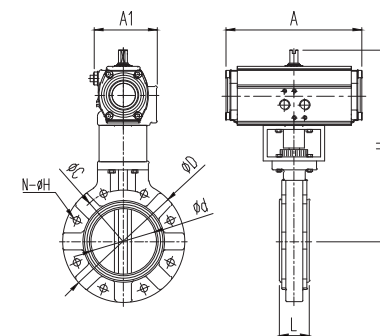
## Application

- Chemical Industry
- Sea Water Line
- Ultra Pure Water Line

## Specification

• This is subject to change.

Valve Size	50A(2")-400A(16")		
Actuator Model	AD50-AD160		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ±5°		
Fluid Temperature	-10°C ~90°C		
Rating	JIS 10K		ANSI 150#
Body Material	PP, C-PVC, PVDF		
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner		



## Dimension

(mm)

Model	SIZE		A	A1	H Approx.	L	END CONNECTION (JIS 10K WAFER)			
	mm	inch					φd	φD	φC	N-φH
AD50-50BF	50A	2"	162	75	284	42	59	165	120	4-19
AD50-65BF	65A	2-1/2"	162	75	298	46	70	185	140	4-19
AD65-80BF	80A	3"	202	89	338	46	79	200	150	8-19
AD65-100BF	100A	4"	202	89	363	56	103	229	175	8-19
AD80-125BF	125A	5"	253	101	411	66	130	254	210	8-23
AD80-150BF	150A	6"	253	101	438	73	151	285	240	8-23
AD100-200BF	200A	8"	311	129	558	94	203	340	290	12-23
AD100-250BF	250A	10"	311	129	660	111	255	406	355	12-25
AD125-300BF	300A	12"	390	151	747	131	311	484	400	16-25
AD140-350BF	350A	14"	431	164	771	134	348	520	445	16-25
AD160-400BF	400A	16"	506	189	932	174	398	600	510	16-27

# SANITARY BALL VALVE - DOUBLE ACTING

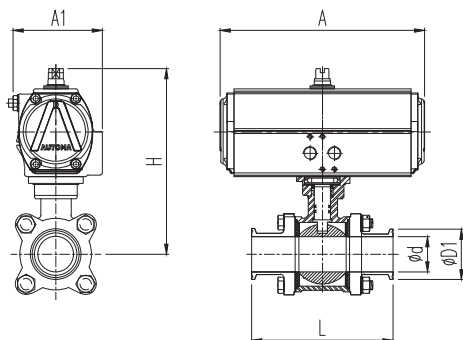


## Application

- Food
- Beverage
- Chemical Industry
- Pharmaceutical Industry
- Semiconductor Industry

## Specification

Valve Size	0.5S(1/2")	0.75S(3/4")	1.0S(1")	1.5S(1-1/2")	2.0S(2")	2.5S(2-1/2")	3.0S(3")	4.0S(4")
Actuator Model	AD40		AD50		AD65		AD80	AD100
Actuator Type	Double Acting							
Operating Media	Compressed Dry Air							
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>							
Rotating Angle	90° ±5°							
Fluid Temperature	-40°C ~ 180°C							
Rating	1000psi							
Body Material	A351-CF8M/Body		A351-CF8M/Ball			PTFE/Seat		
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner							



## Dimension

• END CONNECTION : CLAMP (mm)

Model	Size		A	A1	H Approx.	L	φd	φD1
	mm	Inch						
AD40-0.5S	15A	1/2"	96	63	122	89	9.5	25.4
AD40-0.75S	20A	3/4"	96	63	132	101	15.9	25.4
AD50-1.0S	25A	1"	162	75	158	114	22.2	50.5
AD65-1.5S	40A	1-1/2"	202	89	196	140	35	50.5
AD65-2.0S	50A	2"	202	89	204	156	47.6	64
AD80-2.5S	65A	2-1/2"	253	101	246	197	60.3	77.5
AD80-3.0S	80A	3"	253	101	254	229	73	91
AD100-4.0S	100A	4"	311	129	300	241	97.4	119

# FRP BALL VALVE - DOUBLE ACTING

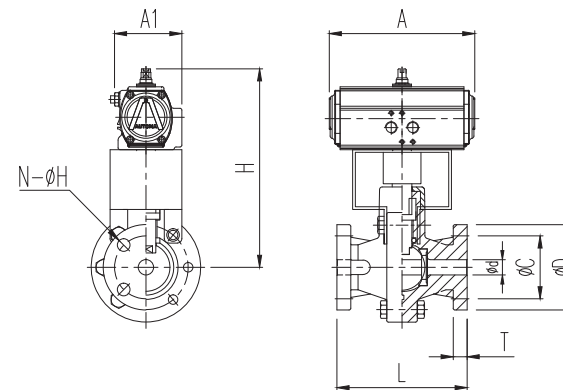


## Application

- Water Supply Facilities
- Waste Water Plant
- Sewage Treatment Plant
- Chemical Industry
- Sea Water Line

## Specification

Valve Size	15A(1/2")-300A(12")		
Actuator Model	AD50 -AD250		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ±5°		
Fluid Temperature	-29°C ~ 150°C		
Rating	JIS 10K / ANSI 150#		
Body Material	FRP/Body	FRP/Ball	PTFE/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner		



## Dimension

Model	SIZE		A	A1	H Approx.	L	END CONNECTION (JIS 10K FF)				
	mm	inch					T	φd	φC	φD	N-φH
AD50-15F	15A	1/2"	162	75	246	145	19	15	70	95	4-15
AD50-20F	20A	3/4"	162	75	246	150	20	20	75	100	4-15
AD50-25F	25A	1"	162	75	246	170	23	25	90	125	4-19
AD65-40F	40A	1-1/2"	202	89	307	190	23	40	105	140	4-19
AD65-50F	50A	2"	202	89	307	210	23	50	120	155	4-19
AD80-65F	65A	2-1/2"	253	101	326	260	26	65	140	175	4-19
AD80-80F	80A	3"	253	101	346	268	31	80	150	185	8-19
AD100-100F	100A	4"	311	126	403	300	30	100	175	210	8-19
AD125-125F	125A	5"	390	151	464	360	30	125	210	250	8-23
AD140-150F	150A	6"	431	164	502	360	35	150	240	280	8-23
AD160-200F	200A	8"	506	189	613	420	35	200	290	330	12-23
AD200-250F	250A	10"	605	231	736	515	38	250	355	400	12-25
AD250-300F	300A	12"	755	301	975	655	45	300	400	445	16-25

# DIAPHRAGM VALVE



Double Acting

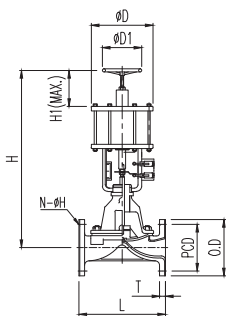
Single Acting

### Application

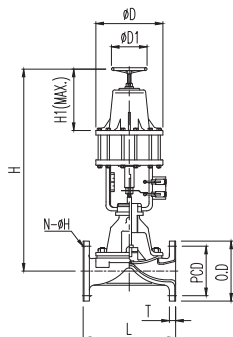
- Chemical Industry
- Pharmaceutical Industry
- Water Treatment
- Wastewater Treatment

### Specification

Valve Size	15A(1/2") - 150A(6")	
Actuator Type	Double Acting	Single Acting
Operating Media	Compressed Dry Air	
Operating Pressure	4.5 - 5.5kg/cm <sup>2</sup>	
Fluid Temperature	-20°C - 80°C	
Rating	JIS 10K	ANSI 150#
Body Material	FC(SCPH2, SCS13)/Body	EPDM/Diaphragm
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, Manual Handle	



Double Acting



Single Acting

### Dimension

Model	SIZE		D	D1	Double H(Approx.)	Single H1	Double H1	Single H1	L	END CONNECTION (ANSI 150# FF)		
	mm	inch								O.D.	PCD	N-ØH
ADV-15A	15A	1/2"	138	95	380	420	110	85	125	89	60.5	4-16
ADV-20A	20A	3/4"	138	95	385	430	110	85	135	98	70.0	4-16
ADV-25A	25A	1"	138	95	390	430	110	85	145	108	79.5	4-16
ADV-40A	40A	1-1/2"	192	125	440	495	130	100	165	127	98.5	4-16
ADV-50A	50A	2"	192	125	490	530	135	100	197	152	120.5	4-19
ADV-65A	65A	2-1/2"	250	155	695	785	170	125	222	178	139.5	4-19
ADV-80A	80A	3"	250	155	750	835	190	130	260	191	152.5	4-19
ADV-100A	100A	4"	265	195	805	870	205	135	313	229	190.5	8-19
ADV-125A	125A	5"	265	195	845	895	215	145	364	254	216	8-22
ADV-150A	150A	6"	330	225	885	985	220	150	414	191	152.5	8-22

(mm)

# PNEUMATIC CYLINDER ON-OFF GLOBE VALVE

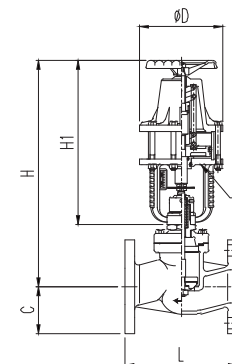


### Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Dyeing Machine Temperature Control
- Middle And Low Stem Equipments Control
- Wastewater Disposal Plant

### Specification

Valve Size	25A(1")	32A(1-1/4")	40A(1-1/2")	50A(2")	65A(2-1/2")	80A(3")
Actuator Model	Cylinder Type					
Actuator Type	Single Acting					
Operating Media	Compressed Dry Air					
Operating Pressure	4.5 - 7kg/cm <sup>2</sup>					
Manual Operation	Manual Handle(Optional)					
Fluid Temperature	-30°C - 220°C					
Rating	JIS 10K					
Body Material	SCS13					
Leakage Allowance	ANSI Class V					
Accessory	Solenoid valve, Limit Switch, Air filter Regulator					



### Dimension

Model	Size		ØD	H Approx.	H1	C	L	PT
	mm	Inch						
AGV-25A	25A	1"	138	355	271	63	140	1/4"
AGV-32A	32A	1-1/4"	138	361	271	68	156	1/4"
AGV-40A	40A	1-1/2"	138	361	271	70	180	1/4"
AGV-50A	50A	2"	138	373	271	78	186	1/4"
AGV-65A	65A	2-1/2"	192	422	300	88	196	1/4"
AGV-80A	80A	3"	192	422	300	93	250	1/4"

END CONNECTION : JIS 10K FF (mm)

# TANK BOTTOM BALL VALVE - DOUBLE ACTING

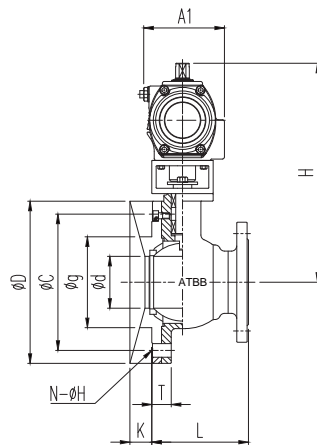


## Application

- Application For Tank Draining
- Fit For Tank Flange

## Specification

Valve Size	25A(2")-150A(6")		
Actuator Model	ATBB - Series		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Fluid Temperature	-10°C ~ 110°C		
Rating	JIS 10K	ANSI 150#	
Material	SCS13(SCS14)/Body	SCS13(SCS14)/Ball	PTFE/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, Speed Controller, E/P Positioner, Manual Handle		



## Dimension

Model	A1	H Approx.	L	K	TANK PAD CONNECTION (MAKER STANDARD)					
					T	Φd	Φg	ΦC	ΦD	N-ΦH
ATBB50-25F	75	235	93	28.5	25	25	49	105	140	4-15
ATBB65-40F	89	289	109	29	25	40	61	120	155	4-15
ATBB65-50F	89	302	124	32	28	50	77	140	175	4-15
ATBB80-65F	101	331	131	37	30	65	102	160	195	6-15
ATBB80-80F	101	351	153	45	32	80	140	210	250	6-19
ATBB100-100F	129	383	170	62.5	35	100	166	240	280	8-19
ATBB125-125F	151	450	254	62.5	43	125	192	265	305	8-19
ATBB140-150F	164	516	277	62.5	45	150	243	310	350	8-23

# TANK BOTTOM FLUSH VALVE

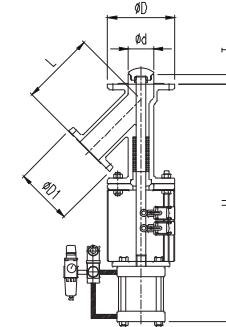


## Application

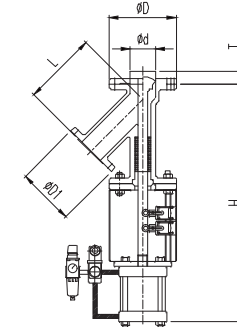
- Application For Tank Draining
- Minimize remains By Insertion nozzle Inro Tank
- Customizable suitable draining speed according to customer's demand.
- There are two types ; Upper Type And Lower Type

## Specification

Valve Size	25A(1")-250A(10")	
Actuator Model	ATFV - Series	
Actuator Type	Double Acting Cylinder	
Operating Media	Compressed Dry Air	
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>	
Fluid Temperature	-40°C ~ 120°C	
Rating	JIS 10K	ANSI 150#
Body Material	SCS13, SCPHZ	
Packing Material	TEFLON	
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, Speed Controller, E/P Positioner, Manual Handle, Jacket	



UPPER TYPE



LOWER TYPE

## Dimension

Class	A X B	TANK PAD CONNECTION (MAKER STANDARD)										
		1" X 1-1/2"	1-1/2" X 2"	2" X 2-1/2"	2" X 3"	2-1/2" X 3"	3" X 4"	4" X 5"	5" X 6"	6" X 8"	8" X 10"	10" X 12"
JIS 10K ANSI 150#	H	570	600	800	700	700	780	780	780	800	920	1150
	T	30	30	65	65	65	64	70	90	100	115	120
	L	125	140	190	190	190	215	255	290	300	350	400
	Ød	48	60	76	89	89	114	140	165	216	267	318
	ØD	JIS 10K & ANSI 150# & For Approval										
ØD1	JIS 10K & ANSI 150# & For Approval											

# PNEUMATIC CYLINDER Y - TYPE VALVE

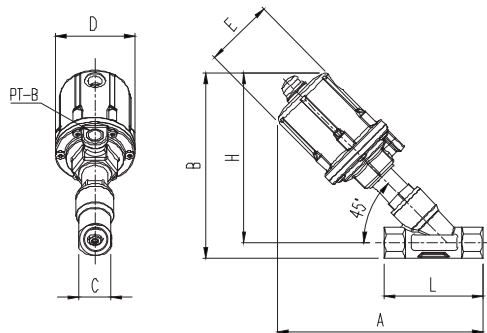


## Application

- Water Distribution Pipes
- Industrial Cleaning Machines
- Dyeing Machine Temperature Control
- Middle And Low Stem Equipments Control

## Specification

Valve Size	15A(1/2")-50A(2")	
Actuator Model	Cylinder Type	
Actuator Type	Single Acting	
Operating Media	Compressed Dry Air	
Operating Pressure	4.5 ~ 7kg/cm <sup>2</sup>	
Liner Adjust	None Manual Handle	
Fluid Temperature	Valve : -10°C ~ 180°C	
End Connection	Female Thread, Soket Welding	Flange Type (Option)
Body Material	SCS14	
Leakage Allowance	ANSI Class VI	
Accessory	Limit Switch, Air filter Regulator	



## Dimension

END CONNECTION : PT SCREW (mm)

Model	SIZE		E	A	B	C	D	H	L	PT-B
	mm	inch								
AGV-25Y	25A	1/2"	φ50	174.5	158	27	φ68	84	144.5	1/4"
AGV-20Y	20A	3/4"	φ50	182	163.5	34	φ68	94	146.5	1/4"
AGV-25Y	25A	1"	φ63	211	192.5	40	φ84	104	172.5	1/4"
AGV-32Y	32A	1-1/4"	φ63	225	211.5	49	φ84	120	187	1/4"
AGV-40Y	40A	1-1/2"	φ80	252	238.5	55	φ105	130	211	1/4"
AGV-50Y	50A	2"	φ80	275	267	70	φ105	150	232	1/4"

# KNIFE GATE VALVE - DOUBLE ACTING

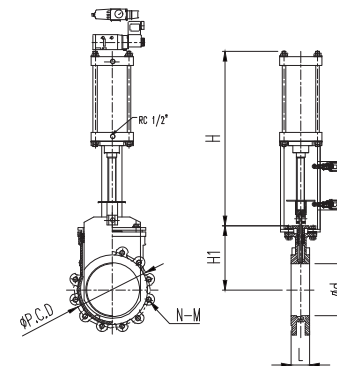


## Application

- Design Features
- Less Torque Pneumatic Cylinder
- Durable Internal Thread
- Leakage - Proof Gland
- Tow Pawls For Tight Seal

## Specification

Valve Size	50A(2")-500A(20")	
Actuator Model	AKGV - Series	
Actuator Type	Double Acting Cylinder	
Operating Media	Compressed Dry Air	
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>	
Fluid Temperature	-40°C ~ 120°C	
Rating	JIS 10K	ANSI 150#
Body Material	SCS13, FCD45	
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator, E/P Positioner, Manual Handle	



## Dimension

END CONNECTION : JIS 10K LUG (mm)

Model	SIZE		H1	H	L	φd	φP.C.D	N-M
	mm	inch		Approx.				
AKGV-50A	50A	2"	100	409	48	48	120	4-M16
AKGV-65A	65A	2-1/2"	109	447	51	58	140	4-M16
AKGV-80A	80A	3"	102	464	51	79	150	8-M16
AKGV-100A	100A	4"	145	526	51	100	175	8-M16
AKGV-125A	125A	5"	169	571	57	125	210	8-M20
AKGV-150A	150A	6"	180	668	57	150	240	8-M20
AKGV-200A	200A	8"	219	770	70	200	290	12-M20
AKGV-250A	250A	10"	276	902	70	252	355	12-M22
AKGV-300A	300A	12"	314	1031	76	303	400	12-M22
AKGV-350A	350A	14"	340	1153	76	337	445	16-M22
AKGV-400A	400A	16"	400	1338	89	387	510	16-M24
AKGV-450A	450A	18"	413	1472	89	438	565	16-M24
AKGV-500A	500A	20"	495	1573	114	540	620	20-M24

# 2-STAGE FLANGED BALL VALVE - DOUBLE ACTING

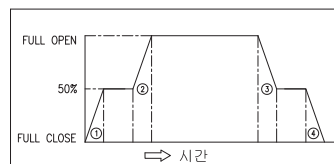
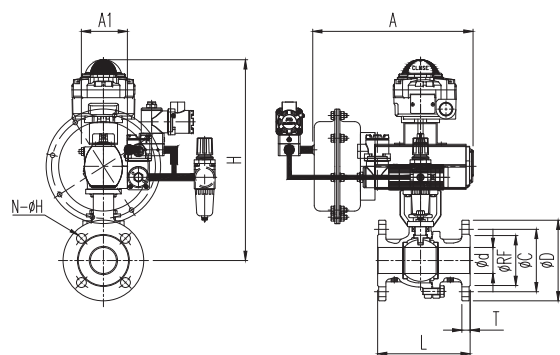


## Application

- Fixed flow control
- Water hammer protection
- Food & Beverage lines
- Vacuum distribution pipes
- Oil Tank Storage system

## Specification

Valve Size	15A ~ 80A		
Actuator Model	AD65, AD80 + Diaphragm		
Actuator Type	Double Acting		
Operating Media	Compressed Dry Air		
Operating Pressure	4 ~ 7kg/cm <sup>2</sup>		
Rotating Angle	90° ± 5°		
Fluid Temperature	-10°C ~ 90°C (-10°C ~ 150°C)		
Rating	JIS 10K	ANSI 150#	
Body Material	SCS13(SCS14, SCPH2)/Body	SCS13(SCS14)/Ball	PTFE(RTFE)/Seat
Accessory	Solenoid valve, Limit Switch Box, Air filter Regulator		



	Sol V/V operate		Air direction of flow		No.
	Sol-1	Sol-2	Sol-1	Sol-2	
1 Step	ON	ON	→	→	1
Full Open	OFF	ON	→	→	2
1 Step	ON	ON	→	→	3
Full Close	ON	OFF	→	→	4

## Dimension

Model	SIZE		A	A1	H Approx.	L	END CONNECTION (JIS 10K RF)					N-ØH
	mm	inch					T	Φd	ΦRF	ΦC	ΦD	
AD65-15F-2ST	15A	1/2"	315	89	351	108	12	15	52	70	95	4-15
AD65-20F-2ST	20A	3/4"	315	89	354	117	14	20	58	75	100	4-15
AD65-25F-2ST	25A	1"	315	89	363	127	14	25	70	90	125	4-19
AD65-32F-2ST	32A	1-1/4"	315	89	366	140	16	32	80	100	135	4-19
AD65-40F-2ST	40A	1-1/2"	315	89	388	165	16	40	85	105	140	4-19
AD65-50F-2ST	50A	2"	315	89	395	178	16	50	100	120	155	4-19
AD80-65F-2ST	65A	2-1/2"	361	101	423	190	18	65	120	140	175	4-19
AD80-80F-2ST	80A	3"	361	101	465	203	18	80	130	150	185	8-19
AD100-100F-ST	100A	4"	478	137	488	229	18	100	151	175	210	8-19

# DAMPERS

## Application

- Low Pressure Air and Gas Line
- High Temperature Air and Gas Line

## Specification

Valve Size	80A ~ 1500A (3" ~ 60")
Body Type	Round Type, Square Type
Body Rating	Maker Standard Thickness / JIS 2K, 5K, 10K / ANSI 125#, 150#
End Connection	FF(Flanged Type)
Body Material	SS400, SUS304, SUS316 and etc.
Seat Material	Non Seat Type, Soft Seat(Teflon, Graphite), Metal Seat
Leakage Class	Under 5% of Full Opening Cv
Fluid Temp. Range	-5°C ~ 600°C
Actuator Type	Single Acting / Double Acting Cylinder, Electric Motor
Accessory	Air set, E/P positioner, Solenoid Valve, Limit Switch, Manual Handle and etc.

## The Methods of Calculation To Fit Damper

### 1) Round Type Damper

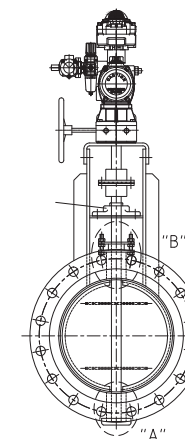
$$T = \frac{d^3 \times \Delta P}{12 \times n} \times 10^{-9} \times 1.8 = [\text{Kg} \cdot \text{m}]$$

↳ Bearing Mounting  
(None Mounting = 2.5)

### 2) Square type Damper

$$T = \frac{a2 \times b \times \Delta P}{8 \times n} \times 10^{-9} \times 1.8 = [\text{Kg} \cdot \text{m}]$$

a : Height  
b : Horizontal  
d : Diameter  
ΔP : Pressure (mmAq)  
n : Blade Q'ty



# SOLENOID VALVE - ESV Series



ESV-S(Single Coil)

ESV-D(Dual Coil)

**Explosion proof solenoid valve for a confident control under rough working environments**

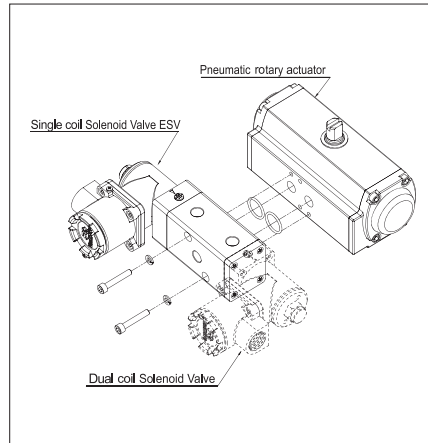
### Features

- Rugged aluminum die-cast housing
- Convertible from 5/2 way to 3/2 way
- Rotatable valve head for optimal mounting
- Direct NAMUR or SCREW mounting
- Optional dual coil

### Specification

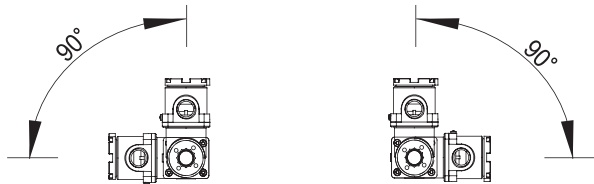
Model	ESV
Operating Air Pressure	1.5 - 10 kgf/cm <sup>2</sup>
Air Supply (Max.)	15 kgf/cm <sup>2</sup>
Operating Voltage / Power	AC 110V : 6.1 VA AC 220V : 3.8 VA DC 24V : 3.4 W
Voltage Tolerance	±10%
Frequency	50Hz / 60Hz
Explosion proof Class	Exd II C T6
Operating Ambient Temperature	-20°C ~ +60°C
Flow Capacity (Cv)	0.9
Mounting Configuration	NAMUR or SCREW interface
Pneumatic Connections	PT 1/4" or NPT 1/4"
Electrical Connection	PT 1/2" or NPT 1/2"
Coil Insulation Grade	Class F
Duty Cycle	100%
Weight	0.9kg (Dual : 1.4kg)
Silencers	2 pcs included as standard

### Mounting



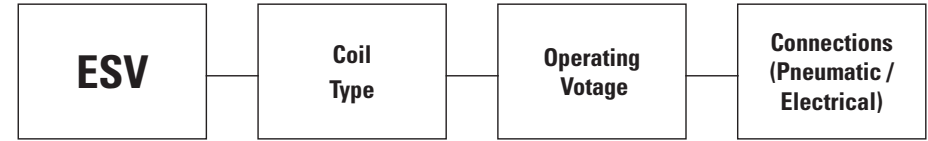
### Rotatable valve Head

The ESV valve head can be rotated by 90° to the right or the left for left for an optimal mounting as shown below



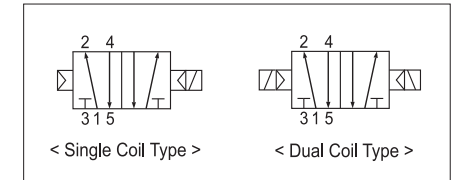
# SOLENOID VALVE - ESV Series

### How to order



Description	ESV
Coil	S : Single Coil D : Dual Coil
Operating Voltage	A220 : AC220V A110 : AC110V D24 : DC 24V
Connections (pneumatic-electrical)	P : PT1/4-PF1/2 N : NPT 1/4-NPT 1/2

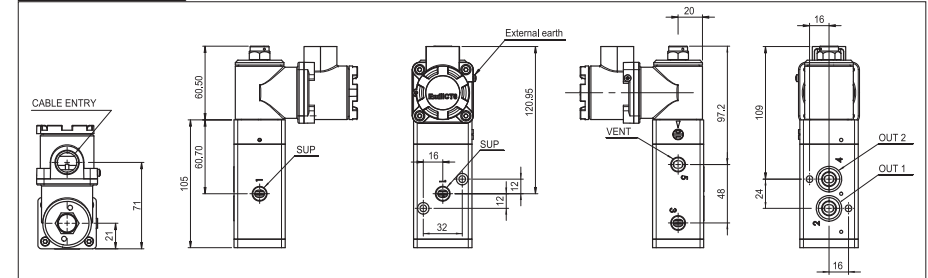
### Symbol of Operation



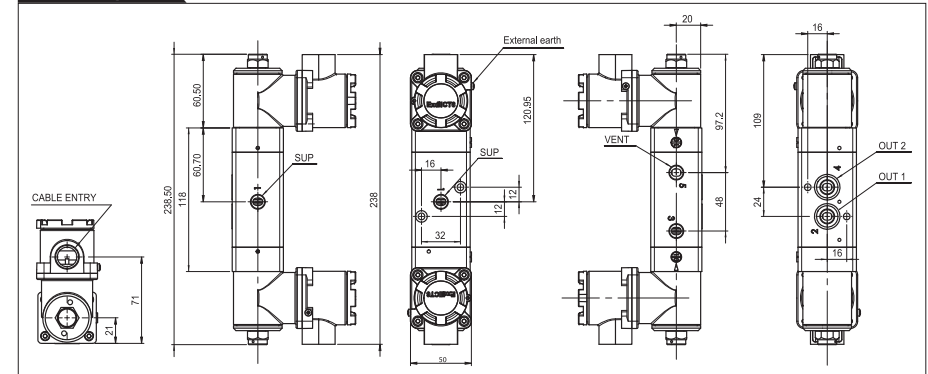
Ex) ESV-S-D24P (Single Coil, 24VDC, PT1/4-PF1/2)

### Dimension

#### Single Coil Type



#### Dual Coil Type



# SOLENOID VALVE - ANS Series

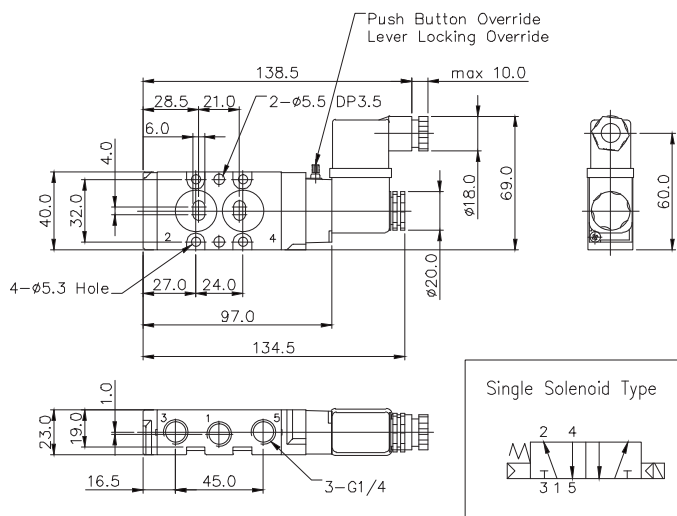


## Features

- 5 Port pilot type
- NAMUR interface
- Compact - light weight
- Mass flow -CV1.0
- Excellent endurance

## Specification

Model	ANS (single coil)	ANS-D (Dual coil)
Fluid	Air & Inert Gas	
Pressure (Bar)	1.5 ~10.0	2.0 ~ 10.0
Ambient Temperature	5°C ~ 60°C	
Response Time(at 5 Bar)	below 25ms	35ms
Lubrication	Not required	
Rated Voltage	AC110V, 220V (50/60HZ), DC24V	
Coil Insulation Grade	Class F	
Coil Enclosure	IP65	
Electric Connection	DIN connector (Standard), 1/2" PF Metal Connector (Option), Lamp Type (Option)	



# LIMIT SWITCH BOX - ALS Series



ALS 1X Series  
(Weather Proof, IP68)



ALS 3X Series  
(Explosion Proof, Exd II C T6, IP68)

## 1. Valve position Indicator

Limit switch box indicator offers clear location of the current valve position by 2 mechanical switches

## 2. "Quick-Set" Cam

The operating position of the switches can be easily changed by adjusting the high resolution spline cams manually and independently without the need for additional tools (cam closed-up, cam open-down)

## 3. Easy Wiring

ALS series are equipped with 2 standard conduit entries and 1 terminal strip with 8 point

## 4. Dual Wire Conduit

ALS10 : Dual 1/2" conduit entries  
ALS30 : Dual 3/4" conduit entries

## 5. Captive Cover Bolts

Designed to be captured into the cover

## 6. Easy Mounting Bracket

Any actuator for rotary motion can be easily mounted.  
NAMUR bracket supplied for easy mounting onto the actuator

## Ordering Number

Series	Area Classification	Switch Type
ALS	1 : Weather proof	0 : 2 SPDT
	3 : Explosion proof	1 : Proximity Sensor (PNP/NPN)
		2 : 3 SPDT
		3 : 4 SPDT
		4 : 2 DPDT (ALS 3X Series Only)

## Standard Materials of Construction

Name	No.	Specification
Outer position indicator	1	PE
Inner Position indicator	1	ABS
Housing(Body, Cover)	2	Die-Casting Aluminum
Shaft(Stem)	1	303 Stainless Steel
Mechanical Switch	2	Used in UL CSA approved
Inserts(ALS3X)	1	Bronze
O-Ring	4	Nitrile (Rubber)
Cam	2	ABS
Spring	1	304 Stainless Steel
Cover Screws	4	304 Stainless Steel
Terminal Strip	1	Polyethylene



# LIMIT SWITCH BOX - ALS Series

## Specification

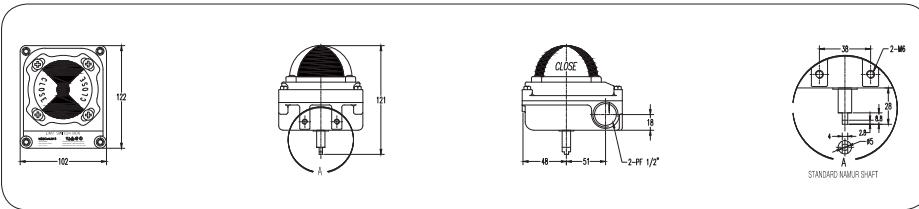
Description	Series	
Model	ALS 1X Series	ALS 3X Series
Ambient Temperature	-20°C - 85°C (-4°F - 185°F)	
Cable Entry Standard	2 x 1/2" PF/PT	2 x 3/4" PF/PT
Cable Entry Option	2 x 1/2" NPT/M20/PG13.5	2 x 3/4" NPT/M20/M25/PG13.5/PG16
Terminal Block Standard	8 Points	
Terminal Block Option	12 & 14 Points / Solenoid Valve Connection 14 Points	
Position indicator	0° to 90° (Red for Close / Yellow for Open)	
Painting	Polyester Powder Coating With Black Color	
Bracket	Steel / SUS	

## Certificate

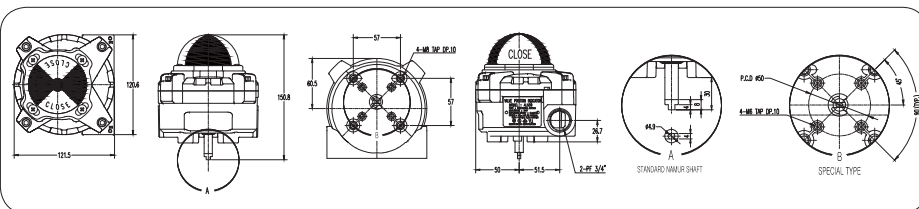
MARK	ALS 1X Series		ALS 3X Series	
	Ratings	Reg No.	Ratings	Reg No.
KTL	IP68	13-040252-01	IP68	13-054947-01
KOSHA			Exd II CT6	13-AV2B0-0752X
CE (TUV NORD)	Low-Voltage Directive 2006/95/EC	K3441/L10	Low-Voltage Directive 2006/95/EC	K3441 / L10
FM Approvals			XP/II/1/ABCD/T5Ta=+85°C, I/1/AEx d II C/T5 Ta=+85°C, DIP/II, III/1/EFG/T5 Ta=+85°C; IP67	3041064

## Dimension

### ALS10 (Weather Proof)







### ALS30 (Explosion Proof)



# LIMIT SWITCH BOX - ALS Series

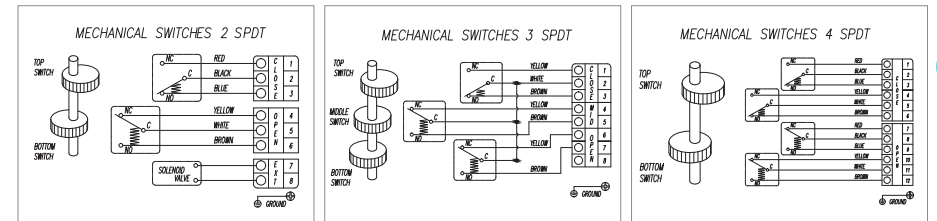
## Mounting bracket

1 NAMUR standard bracket is spplied together with 1 limit switch box as standard

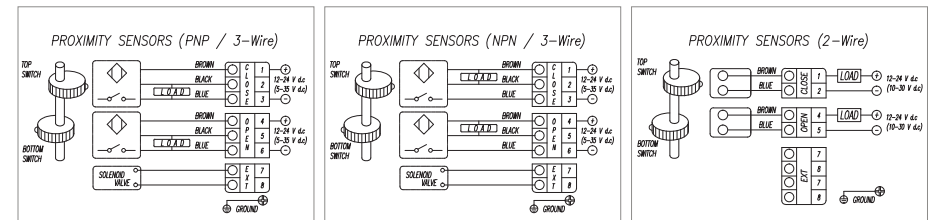
MODEL	BRACKET	Material	Actuator size	Model	Bracket	Material	Actuator size
	AB1 ALS 1X,3X Series	SUS	30 X80 H:20		AB3 ALS 1X,3X Series (For A40)	Steel	25 X 50 H:20
	AB2 ALS 1X,3X Series (For A200, 250)	SUS	30 X130 H:30		S1 ALS 1X Series	Steel	30 X 80 H:20-30

## Wiring Diagram

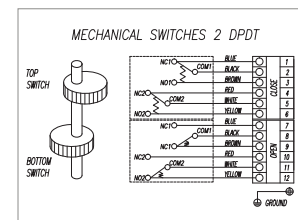
### Mechanical Switch Type (UL CSA VDE Approved)



### Proximity Sensor Type (UL CE Approved)



### Mechanical Switch Type (UL CSA VDE Approved)



## AIR FILTER REGULATOR - AFR Series



### Features

- Compact design
- Pressure adjustment without a tool

### Specification

Model	AFR-10	AFR-20
Max. Pressure	15 bar	
Fluids	Air	
Filtration	5micron	
Ambient Temperature	-20°C ~ 70°C	
Set Pressure Range	0 ~ 8 Bar	0.5 ~ 8.5 Bar
Drain Capacity (cm <sup>3</sup> )	12	
Port Size	PT 1/4" or NPT 1/4"	PT 1/4"
Material	Aluminum die-cast	PC Bowl
Weight	0.5kg	

## ELECTRO-PNEUMATIC POSITIONER - EP Series



### Features

- Easy maintenance
- Simple SPAN and ZERO adjustments
- NAMUR mounting
- Simple structure for feedback connection
- Simple conversion direct acting and reverse acting

### Specification

Model	E P R (Rotary type)	E P L (Linear type)
Enclosure	Ex dmb II B+H <sub>2</sub> T6, Ex dmb II C T6/T5, Ex ia II T6/IP66	
Fluids	Air	
Input Signal	4 ~ 20 mA DC	
Split range Application	4 ~ 12 or 12 ~ 20 mA DC	
Voltage Supply Min/ Max	8 Vdc / 30 Vdc	
Linearity	Within ± 1.0 % FS	
Hysteresis	Within 1.0 % FS	
Sensitivity	Within ± 0.5 % FS	
Operating Temperature	-20 ~ +70°C	
Pneumatic Connections	1/4" PT(NPT)	
Electrical Connections	1/2" PF(NPT)	
Material	Aluminum die-cast	
Weight	3.5kg(with terminal box)	3.3kg(with terminal box)

## SPEED CONTROLLER - FC Series



### Features

The speed controller is installed on actuators such as cylinders and air motors and controls to adjust the flow through the actuator.

### Specification

Model	FC1-8	FC3-8	FC3G-8
Operating Pressure	0.5-15.3 kgf/cm <sup>2</sup>		
Fluids Temperature	5°C ~ 60°C		
Ambient Temperature	-10°C ~ 60°C		
No. of Needle Rotations	14	10	
Port Size	PT 1/4"		

## MUFFLER - AS Series



### Features

Mufflers are designed to attenuate the exhaust noise caused by control of pneumatic lines. In general, mufflers are mounted on the exhaust ports of solenoid valve, directional control valves and so on, to reduce exhaust noise when direction is changed. This contributes to overall noise reduction in plants.

### Specification

Model	ASC-8A	ASL-8A
Operating Pressure	0-10 kgf/cm <sup>2</sup>	
Fluids Temperature	5°C ~ 60°C	
Ambient Temperature	-10°C ~ 60°C	
Noise	20dB	
Port Size	PT 1/4"	
Material	Metal	
Function	Speed control + Suppression	Sound Suppression

# MANUAL HANDLE - ADG Series

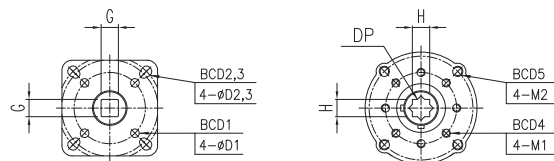
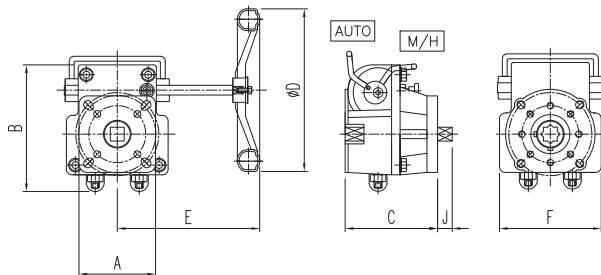


## Features

- Direct Mounting
- High Power

## Specification

Model	ADG050N	ADG070N	ADG102N	ADG140N
MAX Output Torque	270 Nm	360 Nm	780 Nm	1300 Nm
Pneumatic Actuator Mounting Flange (ISO 5211)	F05 / F07	F07 / F10	F10 / F12	F10 / F12 / F14
Valve Mounting Flange (ISO 5211)	F05 / F07	F07 / F10	F10 / F12	F10 / F12
Reduction Ratio	40 : 1	38 : 1	36 : 1	50 : 1
Number Of Turns 90°	10 TURN	9.5 TURN	9 TURN	12.5 TURN
Handwheel Diameter	Ø200	Ø200	Ø280	Ø400
Weight	3.1 Kg	4.5 Kg	7.0 Kg	14.7 Kg
Application For Pneumatic Actuator	AS50/65 AD50/65/80	AS80 AD100/125	AS100 -	AS125 AD140/160



PNEUMATIC ACTUATOR MOUNTING

VALVE MOUNTING

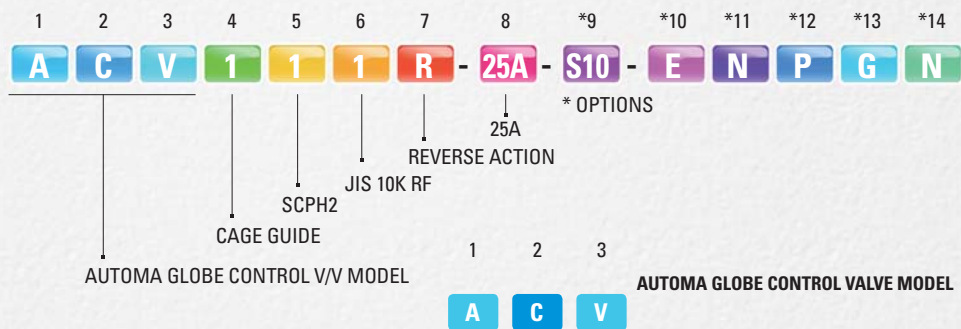
## Dimension

Model	DIM										Pneumatic Actuator				Valve Mounting	
	A	B	C	ΦD	E	F	G (TOP)	J	H (BOTTOM)	DP	BCD1/2/3	4-ØD1/2	BCD4/5	4-ØM1/2		
ADG050N	70	131	103	200	151	88	14X14	16	17X17	20	Ø50/70	4-Ø6.5/8.5	Ø50/70	4-M6/M8		
ADG070N	95	161	114	200	178	125	17X17	18	17X17	20	Ø70/102	4-Ø8.5/10.5	Ø70/102	4-M8/M10		
ADG102N	114	182	130	280	220	140	22X22	24	22X22	30	Ø102/125	4-Ø10.5/12.5	Ø102/125	4-M10/M12		
ADG140N	129	231	167	400	290	187	22X22	24	27X27	30	Ø102/125/140	4-Ø11/12.5/16.6	Ø102/125	4-M10/M12		

# GLOBE VALVE



# MODEL SELECTION GUIDE



- 1 VALVE TYPE**  
1: CAGE GUIDE  
2: TOP GUIDE
- 4 VALVE TYPE**  
1: CAGE GUIDE  
2: TOP GUIDE
- 5 VALVE MATERIAL**  
1: SCPH2 (A216 WCB / DIN GS-52)  
2: SCS13 (A351 CF8 / DIN 1.4308)  
3: SCS14 (A351 CF8M / DIN 1.4408)  
4: SCS16 (A351 CF3M / DIN 1.4404)
- 6 VALVE RATING & CONNECTION**  
1: KS (JIS) 10K RF  
2: KS (JIS) 20K RF  
3: ANSI CL 150 RF  
4: ANSI CL 300 RF  
5: 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
- 7 ACTUATOR ACTION**  
R: REVERSE ACTION  
D: DIRECT ACTION
- 8 VALVE SIZE**  
25A  
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)
- \*9 Cv TRIM NO**  
Cv TABLE
- \*10 PLUG OPTION**  
Q: QUICK OPEN  
E: EQ%  
L: LINEAR  
M: MODIFIED PARABOLIC  
R: MICRO  
C: ANTI CABITATION TRIM  
N: ANTI NOISE TRIM
- \*11 SEAT MATERIAL OPTION**  
N: METAL SEAT (SUS316L)  
E: METAL SEAT (SUS304)  
H: STELLITED TREAT. (SUS316L+STL)  
41: METAL SEAT (SUS410)  
42: METAL SEAT (SUS420+QT)  
S1: SOFT SEAT (SUS316L+PTFE)  
S2: SOFT SEAT (SUS316L+PEEK)
- \*12 BONNET OPTION**  
P: PLAIN BONNET  
B: BELLOWS BONNET  
F: FIN BONNET  
S: INSULATION FIN BONNET  
E: EXTENTION BONNET  
L: LONG EXTENTION BONNET
- \*13 PACKING OPTION**  
G: GRAFOIL (FILLER 6710+6610)  
V: V-PACKING(PTFE)  
P: PTFE PACKING
- \*14 HANDLE POSITION**  
N: NONE  
T: TOP  
S: SIDE

## STANDARD SPECIFICATION

### • Standard Type Of Automa Control Globe valve

<b>Actuator Type</b>	Pneumatic Diaphragm, Pneumatic Cylinder, Electric Motor Other.
<b>Bonnet Type</b>	Plain(Standard) Type, Fin & Extension Type, Bellows Seal Type, Long Bonnet Type
<b>Valve Type</b>	Globe Valve (2-Way, 3-Way)
<b>Valve Size</b>	15A ~ 300A (1/2B ~12B)
<b>Pressure Rating</b>	JIS 10K~100K / ANSI CLASS 150~1500
<b>End Connections</b>	Flanged(RF, FF, RTJ), Weld Ends (SW: until 2", BW: 2.5" over), Screw(until 2')
<b>Body Materials</b>	Carbon Steel(WCB, WCC, SCPH2) Chrome-moly Steel(WC6, WC9) Stainless Steel(CF8, CF8M, SCS13, SCS14), Duplex Stainless Steel, Hastelloy
<b>Trim Materials</b>	SUS316, SUS316L+ (STL), SUS410, SUS420, Duplex Stainless Steel, Hastelloy
<b>Operating Temperature</b>	Standard : -20°C ~ 230°C Fin/Extension : -45°C ~ -20°C or 230°C ~ 380°C Long-Extension : -196°C ~ -45°C or 380°C ~ 500°C
<b>Guide Type</b>	Top(Unbalance) Guide & Cage(Balance) Guide
<b>Gland Packing Type</b>	V-PTFE(Standard), PTFE yarn, Graphite yarn
<b>Gasket Type</b>	SUS316 + Graphite spiral wound, 316+TFE spiral wound or other composite Gasket
<b>Painting Color</b>	Standard is Silver. In the case of stainless steel, Body is not painted.
<b>Plug Characteristics</b>	Equal percentage, Linear, Modified Parabolic
<b>Valve Action</b>	Reverse action, Direct action
<b>Rangeability</b>	30:1, 50:1, 80:1, 100:1
<b>Action</b>	<b>Hysteresis</b> (Without positioner) max. 4% F.S., (With positioner) max. 1% F.S.
<b>Accuracy</b>	<b>Linearity</b> (Without positioner) max. ±5% F.S., (With positioner) max. ±1% F.S.
<b>Leakage</b>	See the "ALLOWABLE SEAT LEAKAGE" page.

### • Piping Class Ratings - Classes and Pressure Numbers (PN)

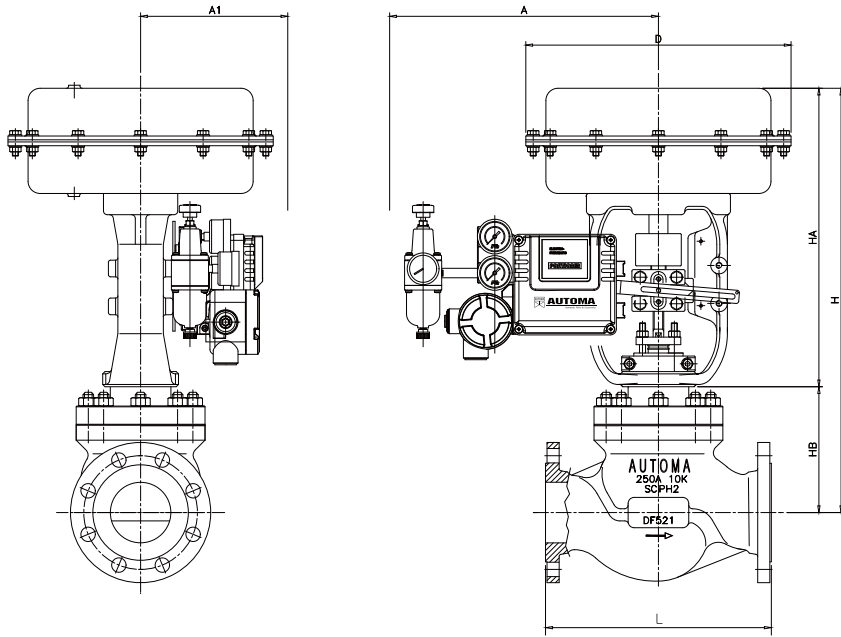
Piping Class Ratings based on ASME B16.5 and corresponding PN (Pression Nominal/Pressure Nominal):

<b>Flange Class</b>	150	300	400	600	900	1500	2500
<b>Flange Pressure Nominal, PN</b>	20	50	68	100	150	250	420
<b>Jis Ks flange code</b>	5,10,15	20,30		40	63	100	

# GLOBE VALVE ASSEMBLY DIMENSIONS

KS/ JIS 10K RF , ANSI CL150LB RF

MODEL : ACV



- Actuator Acting : Reverse, Direct
- Operating Media : Compressed Dry Air
- IN-PUT Signal : DC 4~20mA

- Fluid Temp : -20°C ~ 230°C
- End Connection : KS 10K(JIS 10K) ANSI CL 150LB
- Accessories : E/P Positioner, Air Set

## Dimension

• Face To Face : ISA S75.03-1992 (Unit: mm)

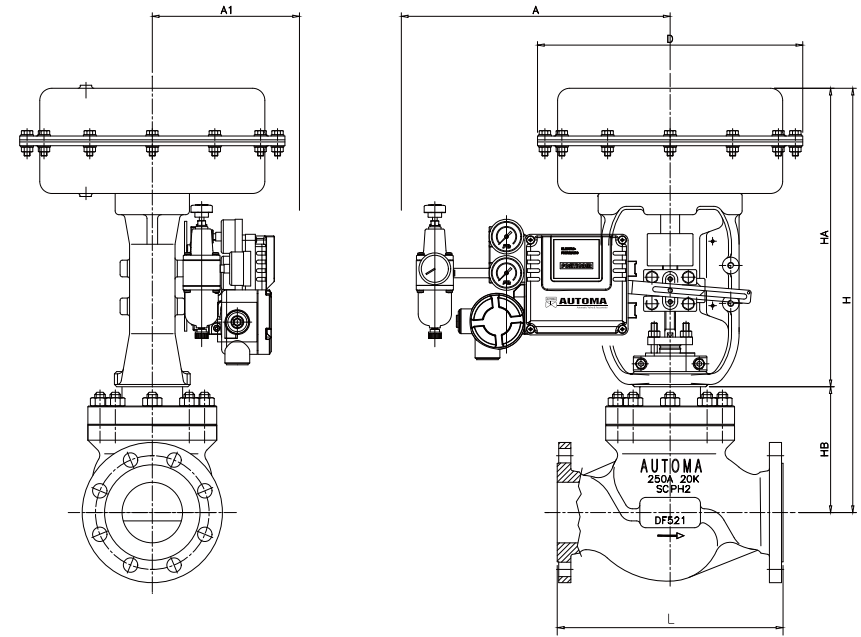
Size		Stroke	L	Approx.						Weight (Kg)
mm	Inch			H	HA	HB	D	A	A1	
15	1/2	20	184	390	280	110	220	250	140	13
20	3/4	20	184	390	280	110	220	250	140	13
25	1	20	184	390	280	110	220	250	140	16
32	1-1/4	25	222	435	320	115	270	260	140	22
40	1-1/2	25	222	435	320	115	270	260	140	22
50	2	25	254	445	320	125	270	260	140	28
65	2-1/2	30	276	535	395	140	350	270	160	48
80	3	40	298	565	395	170	350	270	160	61
100	4	40	352	585	395	190	350	270	160	69
125	5	50	403	780	500	280	470	300	250	155
150	6	50	451	785	500	285	470	300	250	175
200	8	75	543	890	535	355	470	300	250	280
250	10	75	673	960	535	425	470	300	250	350
300	12	120	737	1425	928	497	470	-	-	-

• The actuator type for 300A Globe is spring return cylinder.

# GLOBE VALVE ASSEMBLY DIMENSIONS

KS/ JIS 20K RF , ANSI CL300LB RF

MODEL : ACV



- Actuator Acting : Reverse, Direct
- Operating Media : Compressed Dry Air
- IN-PUT Signal : DC 4~20mA

- Fluid Temp : -20°C ~ 230°C
- End Connection : KS 20K(JIS 20K) ANSI CL 300LB
- Accessories : E/P Positioner, Air Set

## Dimension

• Face To Face : ISA S75.03-1992 (Unit: mm)

Size		Stroke	L	Approx.						Weight (Kg)
mm	Inch			H	HA	HB	D	A	A1	
15	1/2	20	194	390	280	110	220	250	140	13
20	3/4	20	194	390	280	110	220	250	140	13
25	1	20	197	390	280	110	220	250	140	16
32	1-1/4	25	235	435	320	115	270	260	140	25
40	1-1/2	25	235	435	320	115	270	260	140	25
50	2	25	267	445	320	125	270	260	140	31
65	2-1/2	30	292	535	395	140	350	270	160	51
80	3	40	318	565	395	170	350	270	160	62
100	4	40	368	585	395	190	350	270	160	75
125	5	50	425	780	500	280	470	300	250	162
150	6	50	473	785	500	285	470	300	250	180
200	8	75	568	890	535	355	470	300	250	290
250	10	75	708	960	535	425	470	300	250	360
300	12	120	775	1425	928	497	470	-	-	-

• The actuator type for 300A Globe is spring return cylinder.

# GENERAL CONTROL GLOBE VALVE SERIES

## MODEL : ACV 1005W (CASTING PLAIN BONNET TYPE)

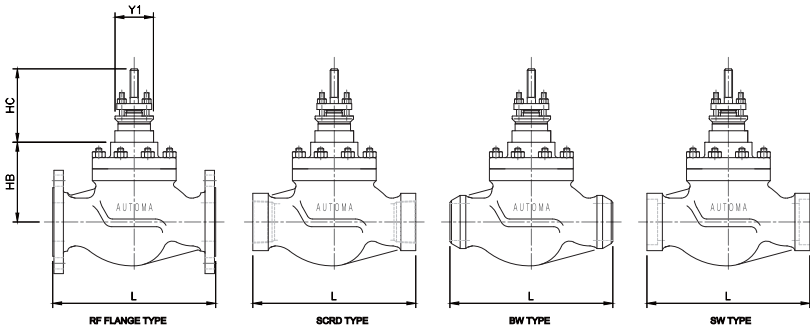
### Constructions

- Single Seated Top Guide Type: 15A ~ 65A(#150, #300, #600)
- Single Seated CAGE Guide Type: 25A ~ 300A(#600, #900)

The ACV 1005W Series Valve is applied for various fluids control of Water, Steam, and Gas etc, of which production and maintenance efficiency is excellent with the application of standardized parts.

In general, the Cage Guide product is not suitable for the dust containing fluids, but the ACV 1005W Series Valve Cage Guide is manufactured as a model which minimized the influence of dust.

\* Full Port & Reduced Port may be equipped, and it is designed to be suitable for various fluids control of Fluid, Steam, Gas etc. Various Trims such as Quick Open, Equal%, Linear, Modified% etc. may be equipped, which are necessary for the control of Custom-engineered Cavitation, Noise, and Flushing.



## Dimension

Size		L							
		RF			SCR D			BW	SW
mm(A)	Inch(B)	#150	#300	#600	#150	#300	#600	#150,300,600	#150,300,600
15	1/2	184	194	206	184	194	206	206	206
20	3/4	184	194	206	184	194	206	206	206
25	1	184	197	210	184	197	210	210	210
32	1-1/4	222	235	251	222	235	251	251	251
40	1-1/2	222	235	251	222	235	251	251	251
50	2	254	267	286	254	267	286	286	286
65	2-1/2	276	292	311	-	-	-	311	311
80	3	298	318	337	-	-	-	317	317
100	4	352	368	394	-	-	-	368	368
125	5	403	425	457	-	-	-	460	460
150	6	451	473	508	-	-	-	508	508
200	8	543	568	610	-	-	-	610	610
250	10	673	708	752	-	-	-	752	752
300*	12	737	775	819	-	-	-	920	920

\* The actuator type for 300A Globe is spring return cylinder.

Valve Size	:	15A ~ 300A
Body Type	:	Globe Valve
Bonnet Type	:	Plain Bolted Bonnet Design
End Connection	:	RF, BW, SW, SCR D
Pressure Rating	:	KS(JIS)10K-63K, ANSI 150#~1500#
Flow Direction	:	Under The Web(#150, #300) Over The Web(#600)
Fluid Temp	:	-20°C ~ 230°C
Characteristic	:	Equal%, Linear, Modified%, Custom-engineered
Velocity Control Trim	:	Micro Port, P-Port, C-Port, Multi-Hole(1,2,3) Others
Flow Coefficient Cv	:	Refer to Cv TABLE
Actuator Type	:	Diaphragm, Diaphragm Cylinder, Cylinder, Motor, Hydraulic
Actuator Acting	:	Reverse, Direct
Face to Face	:	#150, #300 ISA S75.03-1992 #600 ISA S75.15-1992

HB	HC	Y1	HB	HC	Y1	Weight (Kg)			Size	
						#150 RF	#300 RF	#600 RF	Inch(B)	mm(A)
Approx.						Approx.				
#150, 300			#600							
110	105	50	150	115	50	13	13	15	1/2	15
110	105	50	150	115	50	13	13	15	3/4	20
110	105	50	185	115	50	16	16	18.5	1	25
115	105	50	197	115	50	22	24	26	1-1/4	32
115	105	50	197	115	50	22	25	27	1-1/2	40
125	105	50	197	115	50	28	30	34	2	50
140	125	65.5	263	141	65.5	48	52	58	2-1/2	65
170	125	65.5	300	141	65.5	61	66	72	3	80
190	125	65.5	316	141	65.5	69	72	78	4	100
280	145	82	409	141	82	155	165	185	5	125
285	145	82	409	141	82	175	182	210	6	150
355	145	82	420	141	100	280	305	325	8	200
425	145	82	460	141	100	350	365	405	10	250
497	-	-	-	-	-	-	-	-	12	300*

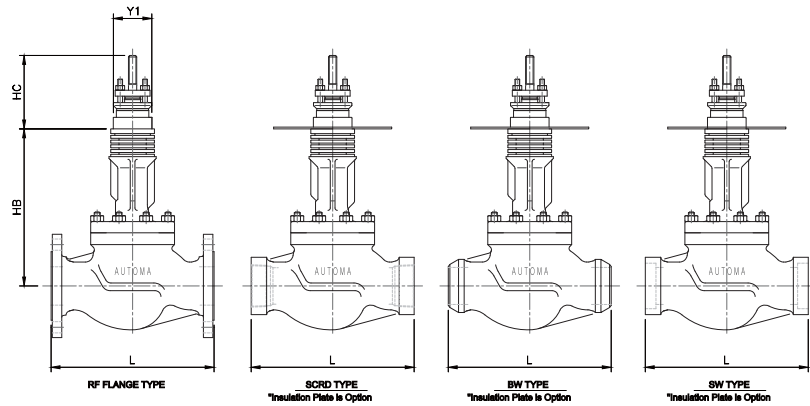
(Unit: mm)

# FIN BONNET TYPE GLOBE VALVE SERIES

## MODEL : ACV 1006W (FIN BONNET TYPE)

- Fluid Temp : 230°C ~ 380°C, -20°C ~ -45°C

The ACV 1006W Series is designed to be suitable for the characteristics of high temperature and low temperature, with minimized damage of the packing part, of which Insulation Plate is an option, and the maintenance efficiency is excellent with the application of standardized parts. The kind and quality of materials of the Grand Packing and Balance Seal are changed according to the temperature and fluid used.



### Dimension

(Unit: mm)

HB	HC	Y1	HB	HC	Y1	Weight (Kg)			Size	
						Approx.			Inch(B)	mm(A)
						#150, 300	#600	#150 RF		
216	105	50	350	115	50	15.6	15.6	18	1/2	15
216	105	50	350	115	50	15.6	15.6	18	3/4	20
223	105	50	385	115	50	19.2	19.2	22.2	1	25
237	105	50	397	115	50	26.4	28.8	31.2	1-1/4	32
237	105	50	397	115	50	26.4	30	32.4	1-1/2	40
255	105	50	397	115	50	33.6	36	40.8	2	50
270	125	65.5	463	141	65.5	57.6	62.4	69.6	2-1/2	65
351	125	65.5	500	141	65.5	73.2	79.2	86.4	3	80
403	125	65.5	516	141	65.5	82.8	86.4	93.6	4	100
470	145	82	609	141	82	186	198	222	5	125
480	145	82	609	141	82	210	218.4	252	6	150
580	145	82	620	141	100	336	366	390	8	200
620	145	82	660	141	100	420	438	486	10	250
-	-	-	-	-	-	0	0	0	12	300*

\* The actuator type for 300A Globe is spring return cylinder.

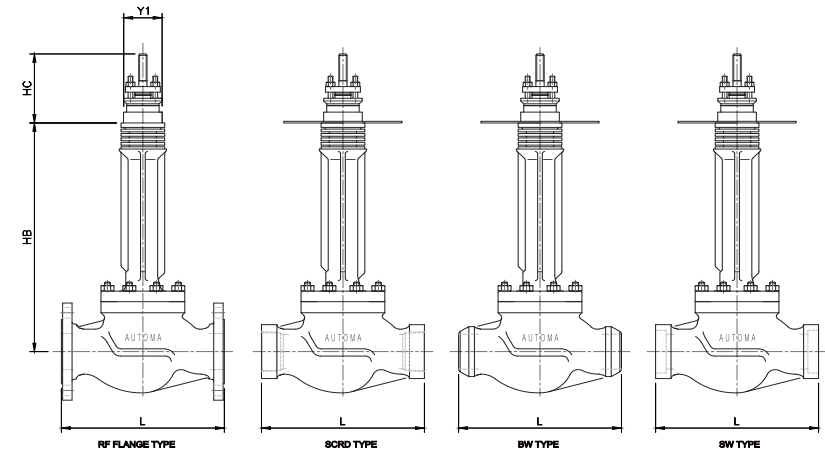
# LONG EXTENSION BONNET TYPE GLOBE VALVE SERIES

## MODEL : ACV 1007W (CASTING LONG EXTENSION BONNET TYPE)

- Fluid Temp : 380°C ~ 500°C, -45°C ~ -196°C

The ACV 1007W Series is a product of Long Extension Bonnet suitably designed for the ultrahigh temperature, and ultralow temperature fluids. Choosing the proper material is important. Internal & external abrasion resistance and thermal expansion coefficient should be considered carefully.

It is designed to diminish the mechanical vibration and to have stable feature by minimizing the required gap between Plug and Case.



### Dimension

(Unit: mm)

HB	HC	Y1	HB	HC	Y1	Weight (Kg)			Size	
						Approx.			Inch(B)	mm(A)
						#150, 300	#600	#150 RF		
460	105	50	500	115	50	20.8	20.8	24	1/2	15
460	105	50	500	115	50	20.8	20.8	24	3/4	20
460	105	50	535	115	50	25.6	25.6	29.6	1	25
465	105	50	547	115	50	35.2	38.4	41.6	1-1/4	32
465	105	50	547	115	50	35.2	40	43.2	1-1/2	40
475	105	50	547	115	50	44.8	48	54.4	2	50
490	125	65.5	613	141	65.5	76.8	83.2	92.8	2-1/2	65
520	125	65.5	650	141	65.5	97.6	105.6	115.2	3	80
540	125	65.5	666	141	65.5	110.4	115.2	124.8	4	100
630	145	82	759	141	82	248	264	296	5	125
635	145	82	759	141	82	280	291.2	336	6	150
705	145	82	770	141	100	448	488	520	8	200
775	145	82	810	141	100	560	584	648	10	250
-	-	-	-	-	-	0	0	0	12	300*

\* The actuator type for 300A Globe is spring return cylinder.

# BELLOWS-SEAL GLOBE VALVE SERIES

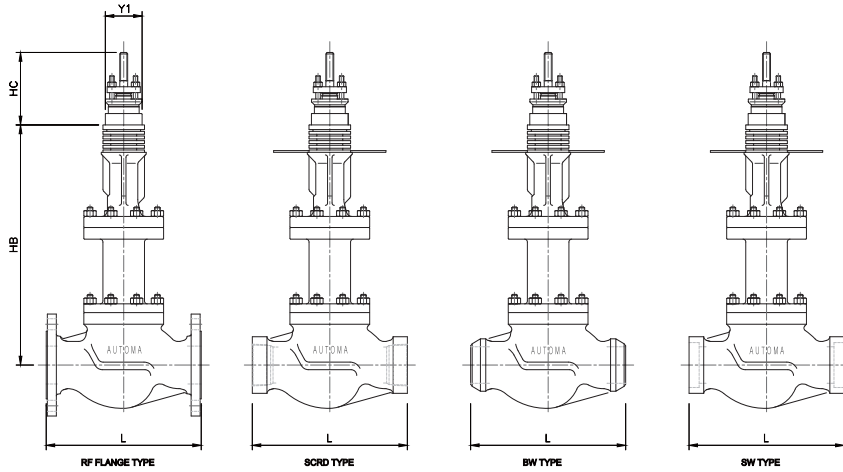
## MODEL : ACV 3000W (CASTING BELLOWS BONNET TYPE)

### Constructions

- Single Seated Top Guide Type: 15A ~ 65A(#150, #300, #600)
- Single Seated CAGE Guide Type: 25A ~ 300A(#600, #900)

The ACV 3000W Series is developed for complete confidentiality, and is excellent in fast maintenance and confidentiality with the BELLOWS equipped for the STEM of TRIM PART in Cartridge type.

\* Full Port & Reduced Port may be equipped, and it is suitably designed for various fluids control of Heating Medium Oil, Hydrothermal, Toxic Gas etc. Various Trims such as Quick Open, Equal%, Linear, Modified% etc. may be equipped, which are necessary for the control of Custom-engineered Cavitation, Noise, and Flushing.



### Dimension

Size		L							
		RF			SCRD			BW	SW
mm(A)	Inch(B)	#150	#300	#600	#150	#300	#600	#150,300,600	#150,300,600
15	1/2	184	194	206	184	194	206	206	206
20	3/4	184	194	206	184	194	206	206	206
25	1	184	197	210	184	197	210	210	210
32	1-1/4	222	235	251	222	235	251	251	251
40	1-1/2	222	235	251	222	235	251	251	251
50	2	254	267	286	254	267	286	286	286
65	2-1/2	276	292	311	-	-	-	311	311
80	3	298	318	337	-	-	-	317	317
100	4	352	368	394	-	-	-	368	368
125	5	403	425	457	-	-	-	460	460
150	6	451	473	508	-	-	-	508	508
200	8	543	568	610	-	-	-	610	610
250	10	673	708	752	-	-	-	752	752
300*	12	737	775	819	-	-	-	920	920

\* The actuator type for 300A Globe is spring return cylinder.

Valve Size	:	15A ~ 300A
Body Type	:	Globe Valve
Bonnet Type	:	Bellows Bonnet Design
End Connection	:	RF, BW, SW
Pressure Rating	:	KS(JIS) 10K, 20K, 30K, ANSI 150, 300, 600
Flow Direction	:	Under The Web(#150, #300) Over The Web(#600)
Fluid Temp	:	-100°C ~ 380°C
Characteristic	:	Equal%, Linear, Modified%, Custom-engineered
Velocity Control Trim	:	Micro Port, P-Port, C-Port, Multi-Hole(1,2,3) Others
Flow Coefficient Cv	:	Refer to Cv TABLE
Actuator Type	:	Diaphragm, Diaphragm Cylinder, Cylinder, Motor, Hydraulic
Actuator Acting	:	Reverse, Direct
Face to Face	:	#150, #300 ISA S75.03-1992 #600 ISA S75.15-1992

(Unit: mm)

HB	HC	Y1	HB	HC	Y1	Weight (Kg)			Size	
						#150 RF	#300 RF	#600 RF	Inch(B)	mm(A)
Approx.						Approx.				
#150, 300						#600				
366	105	50	500	115	50	22.1	22.1	25.5	1/2	15
366	105	50	500	115	50	22.1	22.1	25.5	3/4	20
373	105	50	535	115	50	27.2	27.2	31.45	1	25
387	105	50	547	115	50	37.4	40.8	44.2	1-1/4	32
387	105	50	547	115	50	37.4	42.5	45.9	1-1/2	40
405	105	50	547	115	50	47.6	51	57.8	2	50
420	125	65.5	613	141	65.5	81.6	88.4	98.6	2-1/2	65
501	125	65.5	650	141	65.5	103.7	112.2	122.4	3	80
553	125	65.5	666	141	65.5	117.3	122.4	132.6	4	100
620	145	82	759	141	82	263.5	280.5	314.5	5	125
630	145	82	759	141	82	297.5	309.4	357	6	150
730	145	82	770	141	100	476	518.5	552.5	8	200
770	145	82	810	141	100	595	620.5	688.5	10	250
-	-	-	-	-	-	0	0	0	12	300*



# 3-WAY GLOBE VALVE SERIES (DIVIDING & MIXING)

## MODEL : ACV 1305W (CASTING 3WAY PLAIN BONNET TYPE)

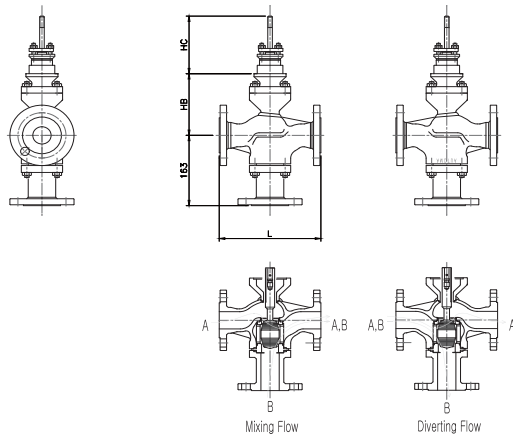
### Constructions

- Single Seated Top Guide Type : 15A ~ 65A(#150, #300, #600)
- Single Seated CAGE Guide Type : 25A ~ 300A(#600, #900)

The ACV 1305W Series is a model for which Precise Flow Control TRIM is applied, and the ACV 1305W SERIES VALVE is applied for various fluids control of Water, Steam & Gas etc., and is suitably designed for the Mixing, and Diverting of Fluids. The production and maintenance efficiency of this product is excellent with the application of the standardized parts.

The damage of the Packing Parts is minimized for this product. The production and maintenance efficiency of this product is excellent with the application of the standardized parts.

\* Full Port & Reduced Port may be equipped, and it is suitably designed for various fluids control of Fluid, Steam, Gas etc. Various Trims such as Quick Open, Equal%, Linear, Modified% etc. may be equipped, which are necessary for the control of Custom-engineered Cavitation, Noise, and Flushing.



## Dimension

Size		L							
		RF		SCRD			BW	SW	
mm(A)	Inch(B)	#150	#300	#600	#150	#300	#600	#150,300,600	#150,300,600
15	1/2	184	194	206	184	194	206	206	206
20	3/4	184	194	206	184	194	206	206	206
25	1	184	197	210	184	197	210	210	210
32	1-1/4	222	235	251	222	235	251	251	251
40	1-1/2	222	235	251	222	235	251	251	251
50	2	254	267	286	254	267	286	286	286
65	2-1/2	276	292	311	-	-	-	311	311
80	3	298	318	337	-	-	-	317	317
100	4	352	368	394	-	-	-	368	368
125	5	403	425	457	-	-	-	460	460
150	6	451	473	508	-	-	-	508	508
200	8	543	568	610	-	-	-	610	610
250	10	673	708	752	-	-	-	752	752
300*	12	737	775	819	-	-	-	920	920

\* The actuator type for 300A Globe is spring return cylinder.

Valve Size	:	15A ~ 300A
Body Type	:	Globe Valve
Bonnet Type	:	Plain Bonnet Design
End Connection	:	RF, BW, SW, SCRCD
Pressure Rating	:	KS(JIS) 10K, 20K, 30K, ANSI 150, 300, 600
Flow Direction	:	Under The Web(#150, #300) Over The Web(#600)
Fluid Temp	:	-20°C ~ 230°C
Characteristic	:	Quick open, Linear Custom-engineered
Velocity Control Trim	:	Micro Port, P-Port, C-Port, Multi-Hole(1,2,3) Others
Flow Coefficient Cv	:	Refer to Cv TABLE
Actuator Type	:	Diaphragm, Diaphragm Cylinder, Cylinder, Motor, Hydraulic
Actuator Acting	:	Reverse, Direct
Face to Face	:	#150, #300 ISA S75.03-1992 #600 ISA S75.15-1992

HA	HB	HC	Y1	HA	HB	HC	Y1	Weight (Kg)			Size	
Approx.				Approx.				#150 RF	#300 RF	#600 RF	Inch(B)	mm(A)
#150, 300				#600								
110	110	105	50	110	150	115	50	16.9	16.9	19.5	1/2	15
110	110	105	50	110	185	115	50	20.8	20.8	24.05	1	25
115	115	105	50	115	197	115	50	28.6	31.2	33.8	1-1/4	32
115	115	105	50	115	197	115	50	28.6	32.5	35.1	1-1/2	40
125	125	105	50	125	197	115	50	36.4	39	44.2	2	50
140	140	125	65.5	140	263	141	65.5	62.4	67.6	75.4	2-1/2	65
170	170	125	65.5	170	300	141	65.5	79.3	85.8	93.6	3	80
190	190	125	65.5	190	316	141	65.5	89.7	93.6	101.4	4	100
280	280	145	82	280	409	141	82	201.5	214.5	240.5	5	125
285	285	145	82	285	409	141	82	227.5	236.6	273	6	150
355	355	145	82	355	420	141	100	364	396.5	422.5	8	200
425	425	145	82	425	460	141	100	455	474.5	526.5	10	250
497	497	-	-	497	-	-	-	0	0	0	12	300*

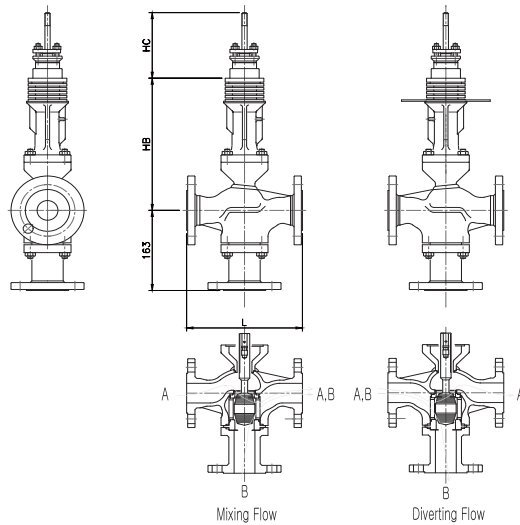
(Unit: mm)

# FIN BONNET TYPE 3-WAY GLOBE VALVE SERIES

## MODEL : ACV 1306W (CASTING 3WAY FIN BONNET TYPE)

- Fluid Temp : 230°C ~ 380°C, -20°C ~ -45°C

The ACV 1306W Series is a product which minimized the damage of the Packing Parts according to the high temperature and low temperature characteristics, and is a model for which Precise Flow Control TRIM is applied, and is suitably designed for the Mixing, and Diverting of Fluids. The kind and quality of materials of the Gland Packing and the Balance Seal are changed according to the temperature used.



### Dimension

(Unit: mm)

HA	HB	HC	Y1	HA	HB	HC	Y1	Weight (Kg)			Size	
Approx.				Approx.								
#150, 300				#600				#150 RF	#300 RF	#600 RF	Inch(B)	mm(A)
110	216	105	50	110	350	115	50	19.5	19.5	22.5	1/2	15
110	216	105	50	110	350	115	50	19.5	19.5	22.5	3/4	20
110	223	105	50	110	385	115	50	24	24	27.75	1	25
115	237	105	50	115	397	115	50	33	36	39	1-1/4	32
115	237	105	50	115	397	115	50	33	37.5	40.5	1-1/2	40
125	255	105	50	125	397	115	50	42	45	51	2	50
140	270	125	65.5	140	463	141	65.5	72	78	87	2-1/2	65
170	351	125	65.5	170	500	141	65.5	91.5	99	108	3	80
190	403	125	65.5	190	516	141	65.5	103.5	108	117	4	100
280	470	145	82	280	609	141	82	232.5	247.5	277.5	5	125
285	480	145	82	285	609	141	82	262.5	273	315	6	150
355	580	145	82	355	620	141	100	420	457.5	487.5	8	200
425	620	145	82	425	660	141	100	525	547.5	607.5	10	250
497	-	-	-	497	-	-	-	0	0	0	12	300*

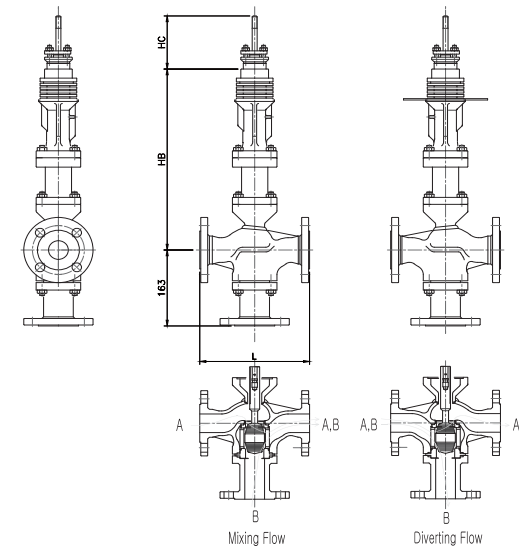
\* The actuator type for 300A Globe is spring return cylinder.

# BELLOWS-SEAL 3-WAY GLOBE VALVE SERIES

## MODEL : ACV 3300W (CASTING 3WAY BELLOWS BONNET TYPE)

- Fluid Temp : -100°C ~ 380°C

The ACV 3300W SERIES is developed for complete confidentiality, and is excellent in fast maintenance and confidentiality with the BELLOWS equipped for the STEM of TRIM PART in Cartridge type. It is a product which minimized the damage of the Packing Parts according to the high temperature and low temperature characteristics, and is a model for which Precise Flow Control TRIM is applied, and is suitably designed for the Mixing, and Diverting of Fluids. The kind and quality of materials of the Gland Packing and Balance Seal are changed according to the temperature used.



### Dimension

(Unit: mm)

HA	HB	HC	Y1	HA	HB	HC	Y1	Weight (Kg)			Size	
Approx.				Approx.								
#150, 300				#600				#150 RF	#300 RF	#600 RF	Inch(B)	mm(A)
110	366	105	50	110	500	115	50	22.1	22.1	25.5	1/2	15
110	366	105	50	110	500	115	50	22.1	22.1	25.5	3/4	20
110	373	105	50	110	535	115	50	27.2	27.2	31.45	1	25
115	387	105	50	115	547	115	50	37.4	40.8	44.2	1-1/4	32
115	387	105	50	115	547	115	50	37.4	42.5	45.9	1-1/2	40
125	405	105	50	125	547	115	50	47.6	51	57.8	2	50
140	420	125	65.5	140	613	141	65.5	81.6	88.4	98.6	2-1/2	65
170	501	125	65.5	170	650	141	65.5	103.7	112.2	122.4	3	80
190	553	125	65.5	190	666	141	65.5	117.3	122.4	132.6	4	100
280	620	145	82	280	759	141	82	263.5	280.5	314.5	5	125
285	630	145	82	285	759	141	82	297.5	309.4	357	6	150
355	730	145	82	355	770	141	100	476	518.5	552.5	8	200
425	770	145	82	425	810	141	100	595	620.5	688.5	10	250
497	-	-	-	497	-	-	-	0	0	0	12	300*

\* The actuator type for 300A Globe is spring return cylinder.

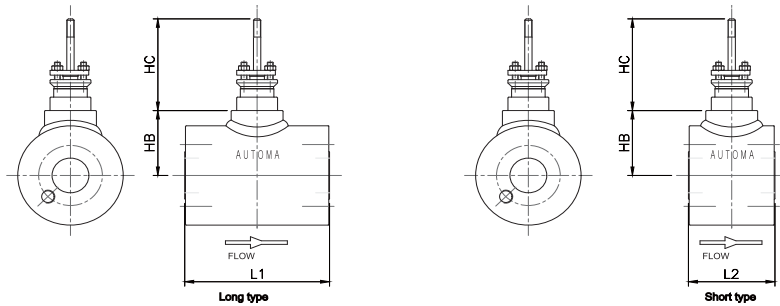
# TEFLON GLOBE VALVE SERIES

## MODEL : ACV 9005S (PTFE VALVE TYPE)

### Constructions

- Single Seated Top Guide Type : 15A ~ 65A(#150, #300)
- Single Seated CAGE Guide Type : 25A ~ 300A(#150, #300)

ACV 9005S SERIES is a model suitable for the corrosive fluids, and is designed to have the corrosion resistant performance by using the STAINLESS as the housing material and by using the PTFE rod for the inner part to keep the hardness. The Pressure Balance Maintenance Type is applied for the inner part of the TRIM Part in order to fundamentally block the leakage of the used fluid.



## Dimension

Size		L			
		LONG		SHORT	
mm(A)	Inch(B)	#150	#300	#150	#300
15	1/2	184	194	120	120
20	3/4	184	194	120	120
25	1	184	197	120	120
32	1-1/4	222	235	200	200
40	1-1/2	222	235	200	200
50	2	254	267	200	200

- Valve Size : 15A ~ 300A
- Body Type : Globe Valve
- Bonnet Type : Lug Bonnet Design
- End Connection : Wafer Tap Type
- Pressure Rating : KS(JIS) 10K, 20K, 30K, ANSI 150, 300, 600
- Flow Direction : Under The Web(#150, #300)

Fluid Temp	Melting Point	Max Using Temp	Range of Temp
PTFE	327	260	-200°C ~ 230°C
PCTFE	210	190	-50°C ~ 180°C
PFA	300-310	260	-190°C ~ 260°C

- Characteristic : Equal%, Linear, Modified%, Custom-engineerd
- Velocity Control Trim : Micro Port, P-Port
- Flow Coefficient Cv : Refer to Cv TABLE
- Actuator Type : Diaphragm, Diaphragm Cylinder, Cylinder, Motor, Hydraulic
- Actuator Acting : Reverse, Direct
- Face to Face : #150, #300 ISA S75.03-1992

(Unit: mm)

HB	HC	Y1	Weight (Kg)		Size	
			#150, 300	#150 RF	#300 RF	Inch(B)
110	105	50	6.5	6.5	1/2	15
110	105	50	6.5	6.5	3/4	20
110	105	50	8	8	1	25
115	105	50	11	12	1-1/4	32
115	105	50	11	12.5	1-1/2	40
125	105	50	14	15	2	50

# Cv TABLE

## Globe Valve Flow Coefficients Rated Cv Chart - Micro Trim Cv (Unbalance Type, Top Guide)

Valve Size	Travel (mm)	Port	Trim NO.																				
			A22	A21	A20	A19	A17	A16	A15	A14	A13	S2.7	S3.3	S3.6	S3.6F	S4.1	S4.5	S4.5F	S5.3	S5.3F	S6.3	S6.3F	S7.5
15A	20	SINGLE	0.015	0.02	0.03	0.04	0.06	0.08	0.10	0.12	0.15	0.20	0.25	0.30	0.35	0.40	0.50	0.60	0.70	0.85	1.00	1.20	1.5
20A	20	SINGLE									0.20	0.25	0.30	0.35	0.40	0.50	0.60	0.70	0.85	1.00	1.20	1.5	
Characteristic	Linear											Equal%, Linear, Modified%											

## Globe Valve Flow Coefficients Rated Cv Chart 1 (Unbalance Type, Top Guide)

Characteristic : \*Equal%, Linear, Modified%

Valve Size	Travel (mm)	Port	Trim NO.																				
			S7.5F	S8.6	S10	S11	S11.5	S12.5	S14	S15	S15F	S20	S20F	S25	S25F	S32	S32F	S40	S40F	S50	S50F	S65	S65F
15A	20	SINGLE	1.8	2.0	2.7	3.0	3.6	4.0	5.0	6.0	7.5												
20A	20	SINGLE	1.8	2.0	2.7	3.0	3.6	4.0	5.0	6.0	7.5	9.0	12.0										
25A	20	SINGLE							5.0	6.0	7.5	9.0	12.0	14.0	18.0								
32A	25	SINGLE							6.0	7.5	9.0	12.0	14.0	18.0	25.0	29.0							
40A	25	SINGLE									9.0	12.0	14.0	18.0	25.0	29.0	33.0	40.0					
50A	25	SINGLE											14.0	18.0	25.0	29.0	33.0	40.0	50.0	65.0			
65A	30	SINGLE													25.0	29.0	37.0	40.0	50.0	65.0	85.0	102.0	

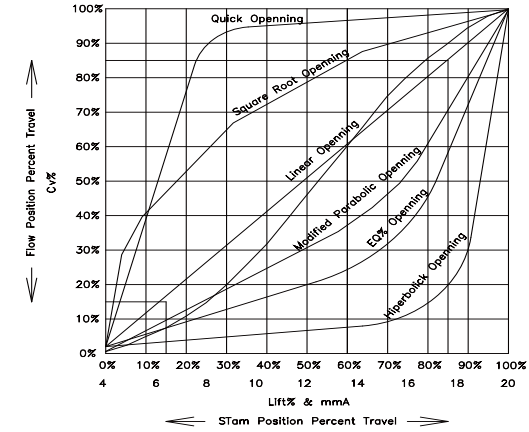
## Globe Valve Flow Coefficients Rated Cv Chart 2 (Balance Type, Cage Guide)

Characteristic : \*Equal%, Linear, Modified%

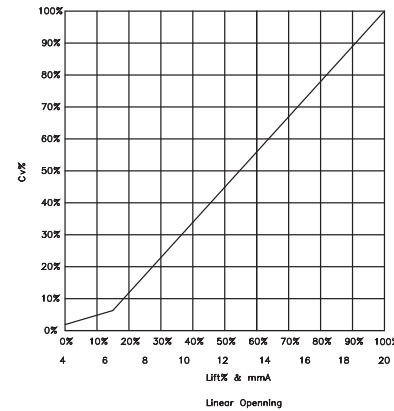
Valve Size	Trim No.	Port	S80		S100		S125		S150		S200		S250		S300
			4Port	3Port	4Port	3Port	6Port	5Port	4Port	3Port	8Port	6Port	4Port	8Port	6Port
80A	40		106	90											
100A	40				175	149									
125A	50						266								
150A	50							335	284	212					
200A	75										660	580	388		
250A	75												945	750	
300A	120														1500

# GLOBE VALVE FLOW CHARACTERISTICS

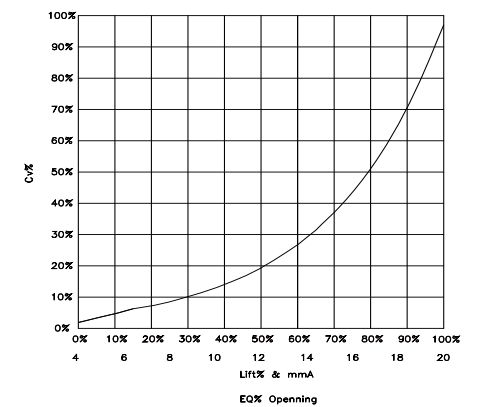
## In Herrent Flow Characteristics for Common Valve Trim Design



## Automa STD' Linear Flow Characteristics Curve

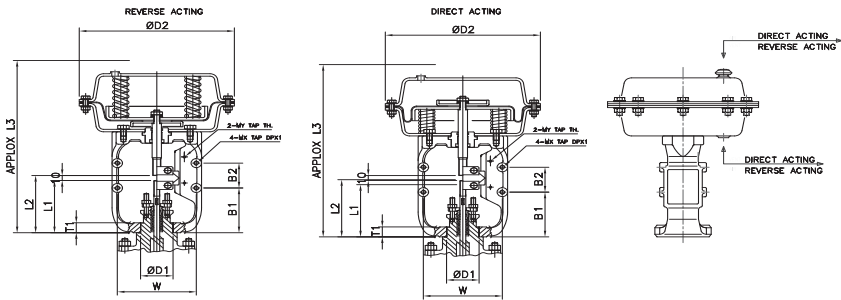


## Automa STD' EQ% Flow Characteristics Curve



# SINGLE ACTING DIAPHRAGM ACTUATOR SERIES

MODEL : ACV ALDR-N, ACV ALDD-N (General Pneumatic Actuator)



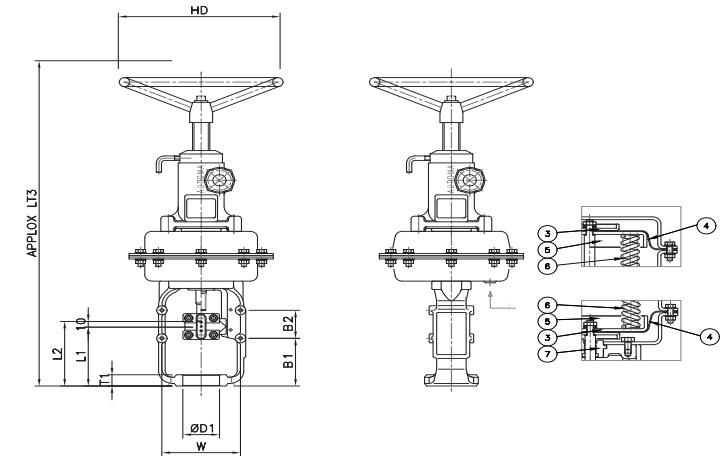
## Dimension

Model	ØD1 +0.1~+0.3	ØD2	T1	L1	L2	L3	L3H	W	B1	B2
220	56	220	20	105	115	290	500	120	85	50
270	56	270	20	105	115	345	700	136	90	50
350	65.5	350	20	125	135	420	850	160	110	50
470	80	470	24	145	155	525	1150	235	130	50

- Operating Spring Range : 1.0bar ~ 2.4bar / 0.8bar ~ 2.4bar
- Supply Pressure : Revers Act. 1.0bar ~ 3.0bar  
Direct Act. 1.0bar ~ 3.0bar
- Operating Speed : One Cycle(open to close) 3 to 15sec
- Air Signal Connection : PT 1/4
- Ambient Temperature : -40°C to +93°C
- Main Part Material : Diaphragm / EPDM  
Spring / SWOCS-V  
Yoke / FCD45  
Diaphragm Casing / C.Steel plate  
Diaphragm Rod / 304SS
- Color : HJ BLUE

# TOP HANDLE (OPTION)

MODEL : ACV ALDR-T, ACV ALDD-T (General Top Handle Pneumatic Actuator)



## Dimension

(Unit: mm)

Effective Diaphragm Area cm <sup>2</sup>	Force (kgf)					Stroke	Actuator Rod diameter	MX x DPX	Model
	1.2	1.5	1.8	2.1	2.4				
190	226	283	339	396	452	20	Ø16 x M14 x 1.5P	M8 x DP20	220
320	369	461	554	646	739	25	Ø16 x M14 x 1.5P	M8 x DP20	270
550	676	846	1015	1184	1353	30(40)	Ø25 x M20 x 1.5P	M8 x DP20	350
1,100	1154	1443	1731	2020	2309	50, 75	Ø30 x M24 x 1.5P	M8 x DP20	470

- Top Handle Body Material : C.Steel
- Top Handle Inner Part Material : SS Steel
- Top Handle Material : C.Steel
- Color : HJ BLUE



# ALLOWABLE SEAT LEAKAGE & SHELL TEST PRESSURE

## • Allowable Seat Leakage

- Series Number : ACV
- Series Name : Single Seated Type Globe Valve with Pneumatic Diaphragm Actuator
- Allow.Leakage : ANSI B 16.104 - 1976
- Test Fluid : Air (Test Pressure : 4kg/cm<sup>2</sup> G)
- Air Test : Bubble Tight Table

Port Size		Allowance Leakage(Air-Liter/min)				Allowance Leakage(Water-Liter/min)			
Inch	mm	II	III	IV	V	II	III	IV	V
1/2	12.7	36.500	7.300	0.730	0.073	0.855	0.171	0.017	0.002
3/4	19.1	54.750	10.950	1.095	0.110	1.282	0.256	0.026	0.003
1	25	85.167	17.033	1.703	0.170	1.994	0.399	0.040	0.004
1-1/4	32	152.083	30.417	3.042	0.304	3.561	0.712	0.071	0.007
1-1/2	40	200.750	40.150	4.015	0.402	4.701	0.940	0.094	0.009
2	50	304.167	60.833	6.083	0.608	7.123	1.425	0.142	0.014
2-1/2	65	517.083	103.417	10.342	1.034	12.108	2.422	0.242	0.024
3	80	669.167	133.833	13.383	1.338	15.670	3.134	0.313	0.031
4	100	1034.167	206.833	20.683	2.068	24.217	4.843	0.484	0.048
6	150	2555.000	511.000	51.100	5.110	59.829	11.966	1.197	0.120
8	200	4988.333	997.667	99.767	9.977	116.809	23.362	2.336	0.234

1. Table items calculate the ANSI II, III, IV, V

- 1.1. If the port doesn't provide a nominal outer diameter, operating test is performed by determining valve stroke based on valve size. Leakage is calculated using formula allows
  - 1.2. When testing, the gauge pressure (G) must be used.
  - 1.3. When the amount of leakage is calculated by formula, it must be calculated by absolute pressure (abs.).
  - 1.4. Marking IV is ANSI Class V provisions. Only for our product, standard of Maximum Seat Leakage is conducted by us.
2. Allowed leakage calculation ANSI Class V

$Q2 = 14.6 \times P1 \times \sqrt{G2} \times 1000/60 \times 0.0001$	<p>Q2 = Volumetric Flow (Liter/min)                      G2 = Gas Weight (Air 1)                      P1 = Valve inlet Pressure (Absolute Pressure : abs.)</p>
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## • Class VI Maxmum Allowable Seat Leakage (In accordance with ANSI/FCI 70-2)

Nomal Port Diameter		Bubbles Per Minute	
in	mm	ml per minute	Bubbles per minute
1	25	0.15	1
1-1/2	38	0.30	2
2	51	0.45	3
2-1/2	64	0.60	4
3	76	0.90	6
4	102	1.70	11

## • Water Test Pressure Table

(Unit : Kgf/cm<sup>2</sup> (PSIG))

Body Material	150LB		300LB		Material
	Shell	Seat	Shell	Seat	
A216-WCB	32 (450)	22 (315)	79 (1125)	57 (815)	C-Steel casting
A352-LCB	28 (400)	21 (295)	74 (1050)	54 (765)	
A352-LCC	32 (450)	22 (315)	79 (1125)	58 (825)	
A217-WC1	28 (400)	21 (295)	74 (1050)	54 (765)	Alloy Steel Casting
A217-WC6	32 (450)	22 (320)	79 (1125)	58 (825)	
A217-WC9					
A217-C5					
A217 C12	30 (425)	21 (305)	77 (1100)	56 (795)	Austenitic Steel Casting
A351 CF8					
A351 CF8M					
A351 CF3					
A351 CF3M					
A351 CN7M	25 (350)	18 (255)	63 (900)	46 (660)	
A351 CK20	28 (400)	20 (295)	72 (1025)	52 (740)	

# 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 SP 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. SECURITY

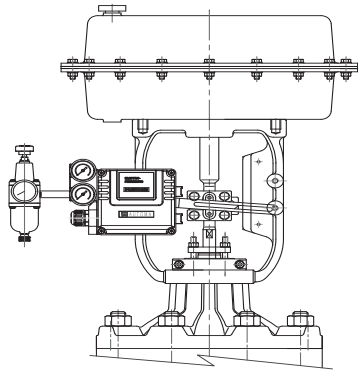
JIS 7S-39	Valve Inspection Regulations
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### 8. OTHERS

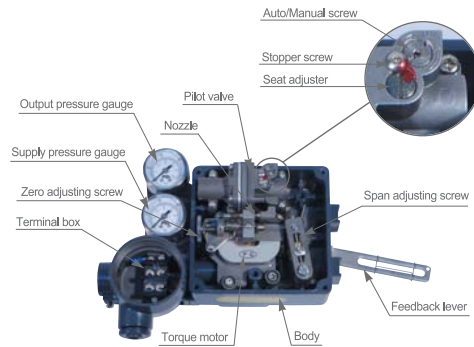
JPI-7B-60-79	Interlock & Emergency Shut-Down System Instrumentation Design Data
ASME ST' D NO. 112	Diaphragm Actuator Control Valve Terminology
JIS B 0100	Valve Terminology

# POSITIONER AIR LINE CONNECTION BLOCK DIAGRAM

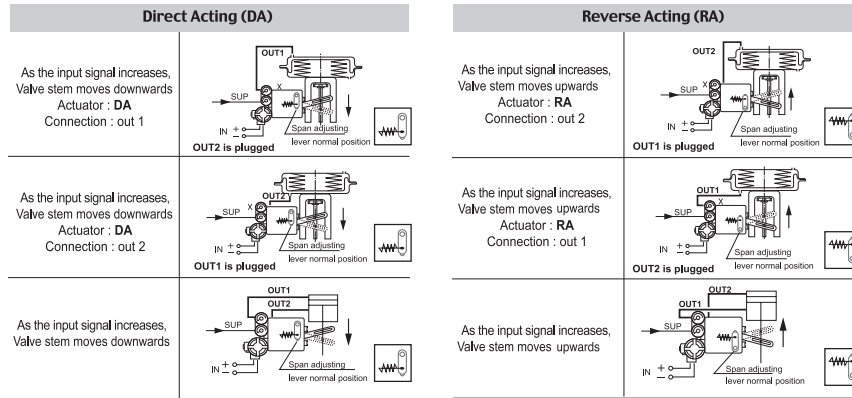
## • Positioner Equipped State



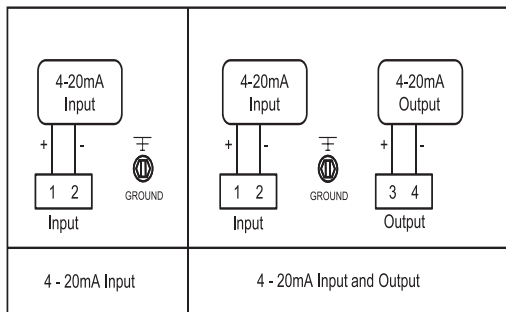
## • Positioner Inner Structure



## • AIR Piping Connection Diagram according to the direction of ACTING



## • Wiring Diagram



Motor Actuator & Valves

# ELECTRIC VALVE





# ROTARY TYPE ACTUATOR



## Motor

- Specially designed induction motor to generate high starting torque and high efficiency equipped with thermal protector to prevent damage from over heating.
- Insulation Class F

## Housing

- Hard anodized Aluminum casting and external epoxy powder coated against severe industrial environment.

## Sealing

- By O-ring in all interfaces IP67(Standard), and double o-ring for IP68(Option)

## Handwheel

- Difference sizes depending on actuator torque, and knob on handwheel for easy operation.

## Gearing

- Precisely machined double worm gear c/w minimum back-lash, low noise, high output torque.

## Self locking

- Provided by double worm gearing to keep position of valve unchanged against reverse torque from valve.



## External mechanical stopper

- Prevents over run of travel angle when limit switch fails.

## Cable entries

- Standard 2xPF 3/4" (Max 1") for various cable gland.

## Removable drive bushing and ISO5211 mounting base

- (F07~F16) for easy mounting on valve.



## Captive cover bolt

- Designed to prevent losing it during maintenance or installation.
- \* All external bolts are stainless steel for rust prevention

# ROTARY TYPE ACTUATOR

## Tapered interface between cover and lower housing

- For easy lifting cover up from lower housing for wiring or maintenance.
- Standard : Short interface for providing easier access to internal component.
- Explosion proof : Long interface for keeping the length of flame path.



Standard

Explosion proof



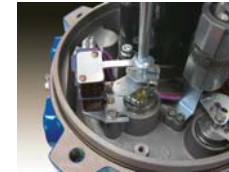
## Indicator

- Continuous mechanical position indicator and window with dial.



## Torque switches

- Protect actuator from damage caused by overload from the driven valve over the whole travel.
- 1 each for open / close



## Limit switches

- Directly engaged with driving shaft to set accurate position of valve.
- 2ea for each travel end (Open/Close).
- Optional Extra Limit switches (Max 4ea for each end) : Except for ATM 0020~0100.



## Terminal

- Spring loaded push type terminal for tight wiring connection under severe vibration.



## Space Heater

- Anti-condensation



## Manual override

- Auto/Manual switchable lever and handwheel engagement for emergency manual operation.
- Drive force automatically resorted by motor start, unless lever padlock to prevent this occurring.

# SPECIFICATION

## Technical Data

Model	Rated torque	Duty cycle	Operating time			Stem adaption	Motor insulation	Rated current 50/60Hz					No of hand wheel turns	Weight
			50Hz	60Hz	24DC (No Load)			1Phase		3Phase		DC		
	Nm	%	Second			mm	Class	110V	220V	380V	440V	24V	90°	Kg

### • Small ATM Series

ATM0020	25	50	11	11	11	□11 x 11	E	0.16	0.08	-	-	0.55	-	1
ATM0040	40	50	16	13	-	□14 x 14	B	0.27	0.21	-	-	0.80	6	2.5
ATM0080	80	50	16	14	12	□17 x 17	E	0.97	0.52	0.52	0.56	3.80	7	3.5

### • Regular ATM Series

ATM0100	100	50	21	18	18	Φ22	□20	F	0.98/1.10	0.52/0.58	0.43/0.33	0.59/0.42	2.80	10	7
ATM0160	160	50	26	22	33	Φ25	□23	F	1.60/1.70	0.85/0.90	0.30/0.30	0.30/0.32	1.80	12	15
ATM0240	240	50	26	22	33	Φ25	□23	F	1.62/1.72	0.87/0.90	0.32/0.32	0.32/0.35	2.40	12	15
ATM0350	350	50	31	26	37	Φ40	□34	F	1.72/1.80	0.92/0.95	0.32/0.32	0.32/0.35	3.80	14	20
ATM0500	500	30	31	26	34	Φ40	□34	F	3.60/3.90	1.50/1.60	0.52/0.56	0.55/0.58	5.00	14	20
ATM0800	800	25	39	32	-	Φ48	□40	F	3.90/4.20	2.05/2.20	0.82/0.88	0.82/0.88	-	17	25
ATM1100	1100	25	39	32	-	Φ48	□40	F	3.90/4.30	2.15/2.30	0.84/0.90	0.84/0.88	-	17	25
ATM2000	2000	25	59	50	-	Φ75	□64	F	4.95/4.55	2.95/3.15	1.50/1.80	2.30/2.20	-	13	42
ATM3000	3000	25	59	50	-	Φ75	□64	F	6.60/6.10	3.75/3.85	1.60/2.00	2.50/2.40	-	13	42

### • Large ATM Series

ATM6000	6000	25	178	149	-	Φ120	□100	F	4.95/4.55	2.95/3.15	1.50/1.80	2.30/2.20	-	39	152
ATM9000	9000	25	178	149	-	Φ120	□100	F	6.60/6.10	3.75/3.85	1.60/2.00	2.50/2.40	-	39	152

## Standard Specification

<b>Enclosure</b>	Weatherproof IP67, NEMA 4X and 6, O-ring sealed (ATM0020 : IP66)
<b>Main Power Supply</b>	24VDC, 110/220VAC/1Ph/50/60Hz, 380/440VAC/3Ph/50/60Hz ±10% (ATM0020&ATM0040 : 1Phase, 24VDC)
<b>Control Power Supply</b>	110/220VAC/1Ph/50/60Hz ±10%
<b>Duty Cycle (On-Off)</b>	S2 : 10min ~ 30min
<b>Duty Cycle (Modulating)</b>	S4 : 30~50%, 300~1200 start/hour
<b>Motor</b>	Squirrel cage induction motor
<b>Limit Switches</b>	2 each for open and close (SPDT 250VAC/10A rating)
<b>Torque Switches</b>	1 each for open and close (SPDT 250VAC/10A rating except for ATM0020/0040/0080/0100)
<b>Stall Protection/set temp.</b>	Built in thermal protection, open 150°C±5°C, Close 97°C ± 15°C
<b>Travel Angle</b>	90° ± 5° (0° ~ 100°)
<b>Position Indicator</b>	Continuous mechanical indicator with arrow
<b>Manual Override</b>	Declutchable (except for ATM0020 : N/A, ATM0040 : By shaft, ATM0080 : By Wrench)
<b>Self Locking</b>	Provided by double worm gearing (no brake) (except for ATM0020/0040/0080)
<b>Mechanical Stopper</b>	1 each for each travel end (open and close), external & adjustable (except for ATM0020/0040)
<b>Space Heater</b>	5W(110/220VAC) for anti condensation
<b>Cable Entries</b>	2-PF3/4" TAP (except for ATM0020 : 1-PG11, ATM0040, ATM0080 : 2-M20x1.5)
<b>Lubrication</b>	EP Type grease
<b>Terminal block</b>	Screw and lever push type (spring loaded)
<b>Ambient Temperature</b>	Basic actuator : -20°C ~ +70°C (except for ATM0020 : -10°C ~ +65°C) C/W Control Option : -10°C ~ +60°C)
<b>Ambient Humidity</b>	90%RH Max(Non-condensing)
<b>Anti Vibration</b>	XYZ 10g, 02~34Hz, 30minutes
<b>External Coating</b>	Dry Powder(Polyester), Blue Color, Munsell No. B-0188

# OPTIONS AVAILABLE

## • Mechanical

Symbol	Description	Remark
EX	Explosion proof(Exd II BT4) / Approved by KTL, ATEX, NEPSI	Except for ATM0020/0040/0080
WT	Wathertight(IP68), Temporary submersible / 10M Head 1000hours	Except for ATM0020/0040/0080
ALS	Auxiliary limit switches (Max 2 for each travel end)	Except for ATM0020/0040
ATS	Auxiliary torque switches (Max 2 for each travel end)	Except for ATM0020/0040/0080/0100
EXT	Extended travel angle (up to 120°, 135°, 180°, 270°)	Except for ATM with Gear box (Large ATM Series)
SV	Variation in torque and operating speed	Please consult before ordering

## • Remote monitoring and control

<b>PK</b>	<b>Potentiometer Kit</b> (output signal : 0~1 Kohm) High resolution potentiometer and precisely machined gearing are directly engaged with drive shaft to feedback continuous position of valve
<b>CT</b>	<b>Current transmitter</b> (output signal : 4-20mA) Zero / Span Adjustment
<b>RPC /Signal configuration</b>	<b>Remote position controller</b> (by input and output signal) Input : 4-20mA, 0-10VDC, 2-10VDC, 1-5VDC, 0-5VDC Output : 4-20mA (Option : 0-10VDC, 2-10VDC, 1-5VDC, 0-5VDC) Auto-calibration Reverse operating direction
<b>Bus Communication</b>	Profibus Communication CANopen Communication



PK



CT



RPC

## • Local control

### LP4 for 1 & 3 Phase (ATM 0100~9000)

Control power : Free Voltage (85~265VAC) 50/60Hz, Option : 24VDC  
Magnetic selector switches, SMPS (Switching Module Power Supply)  
: Open/Close & Local/Stop/Remote

#### Local lamp indication

: Power - White(on), Remote : Blue(on)  
: In case of Close Torque Switch Trip - Yellow(on)+Green(flickering : only at Local Position)  
: In case of Open Torque Switch Trip - Yellow(on)+Red(flickering : only at Local Position)  
: Full Close - Green(on), Closing - Green(flickering : only at Local Position)  
: Full Open - Red(on), Opening - Red(flickering : only at Local Position)

\* Options Available : PK, CT, RPC(Modulating), IP68, Explosion proof

### LM4 for 3 Phase (ITQ0160~9000)

Including the same functions as LP4  
Reversing electric contactors, Transformer



# OPTIONS AVAILABLE

## • Local control

### ICM1 for 1 & 3 Phase (Integral Control Module) (ATM0160-9000)



Main Power : 3Ph / 220/380/440 VAC  
 1Ph / 110/220 VAC  
 Control power : 24VDC (Internal Power)  
 (Option : 110VAC, 220VAC (External Power))  
 Magnetic selector switches  
 : Open/Close & Local/Stop/Remote  
 Reversing electric contactors, Transformer, Phase Detector  
 Auto-Phase Discriminator



Local lamp indication  
 : Power - White(on), Remote : Blue(on)  
 : In case of Close Torque Switch Trip - Yellow(on)+Green(flickering)  
 : In case of Open Torque Switch Trip - Yellow(on)+Red(flickering)  
 : Full Close - Green(on), Closing - Green(flickering)  
 : Full Open - Red(on), Opening - Red(flickering)  
 : Single & Reverse Phasing : (Yellow + Green + Red) all flickering

\* Options Available : Explosion Proof, IP68

### ICM2 for 1 & 3 phase (Integral with LCD Display) (ATM0160-9000)

Including the same functions as ICM1  
 Reversing electric contactors, Transformer, Auto-Phase Discriminator, LCD Display  
 \* Options Available : CT, RPC(Modulating), Explosion Proof, IP68, Bus Communication



### ICM3 for 1 & 3 phase (Integral with LCD Display / IP68 Enclosure) (ATM0160-9000)

Including the same functions as ICM2  
 Reversing electric contactors, Transformer, Auto-Phase Discriminator, LCD Display, IP68, Explosion Proof, RPC(Modulating), Bus Communication, 34pins separate compartment for terminal block



## • Fail safe

### BP for 1Phase (ATM0160-0500)

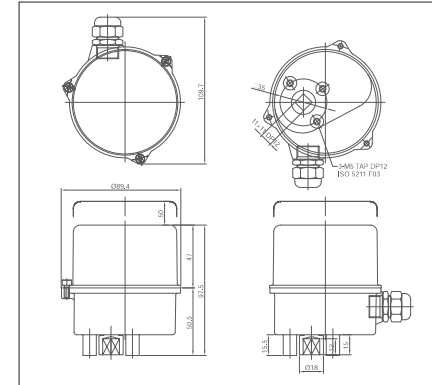
Motor : 24 VDC  
 Rechargeable Battery back up - Fail safe function  
 When Main power is alive, actuator works as normally.  
 Once power fails, actuator will move to pre-set fail safe position.  
 Input power : Free Voltage (85-265 VAC) 50/60Hz  
 Output contacts : open/close/Alarm relay  
 LED signal indication : 4 LEDs (Full Open/Close, Over Torque and Power)  
 Rechargeable battery : 2.0AH 27.5VDC(Ni-Cd)

# DIMENSIONS

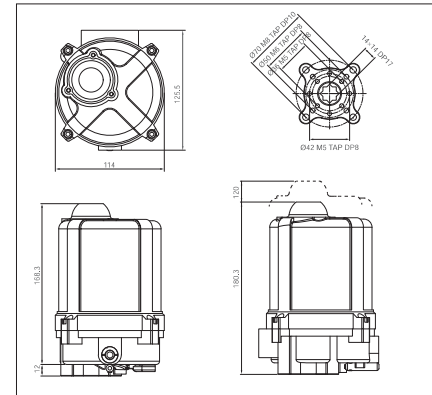
## Small ATM Series



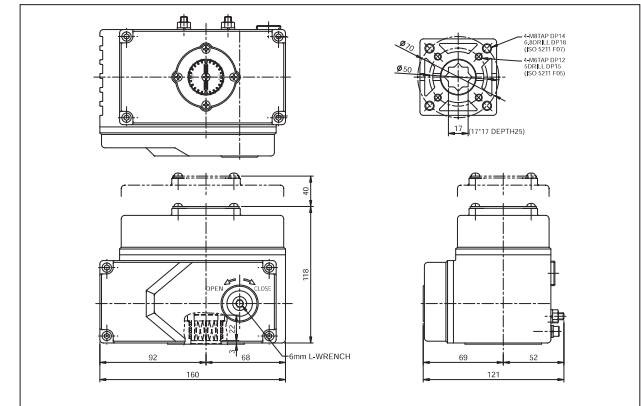
ATM0020



ATM0040



ATM0080



# DIMENSIONS

## Regular ATM Series

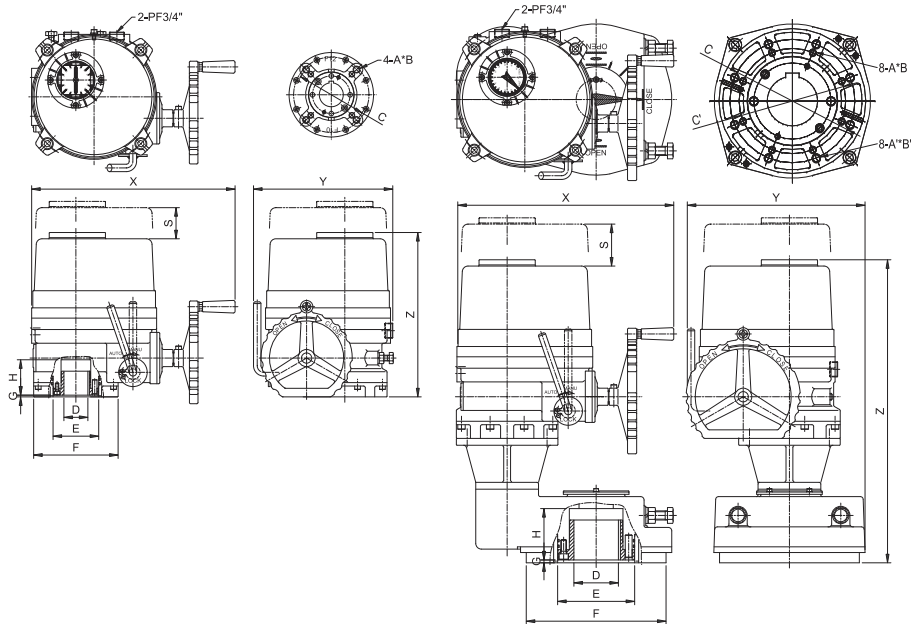
## Large ATM Series

With Gear Box

Type	ATM0100	ATM0160	ATM0240	ATM0350	ATM0500	ATM0800	ATM1100	ATM2000	ATM3000	ATM6000	ATM9000
Flange	F07	F07	F07	F10	F10	F12	F12	F16	F16	F25	F25
ISO5211		F10	F10	F12	F12	F14	F14			F30	F30
C	Φ70	Φ70 Φ102	Φ70 Φ102	Φ102 Φ125	Φ102 Φ125	Φ125 Φ140	Φ125 Φ140	Φ165	Φ165	Φ254 Φ298	Φ254 Φ298
A	M8	M8/M10	M8/M10	M10/M12	M10/M12	M12/M16	M12/M16	M20	M20	M16/M20	M16/M20
B	14	14/17	14/17	17/21	17/21	20/25	20/25	32	32	30/35	30/35
D (Key)	Φ22	Φ25	Φ25	Φ40	Φ40	Φ48	Φ48	Φ75	Φ75	Φ120	Φ120
D (Squ.)	□20	□23	□23	□38	□38	□40	□40	□64	□64	□100	□100
E	Φ50	Φ58.5	Φ58.5	Φ80	Φ80	Φ95	Φ95	Φ135	Φ135	Φ216	Φ216
F	Φ88	Φ125	Φ125	Φ148	Φ148	Φ178	Φ178	Φ226	Φ226	Φ350	Φ350
G	3	3	3	3	3	3	3	5	5	5	5
H	37	57	57	62	62	67	67	90	90	114	114
S	125	140	140	170	170	195	195	225	225	225	225
X	258	338	338	357	357	380	380	440	440	532	532
Y	172	229	229	244	244	287	287	375	375	417	417
Z	245	284	284	313	313	338	338	385	385	668	668

(mm)

(mm)



# DIMENSIONS

## Control Option

(mm)

Type	RPC			CT			BP			LP4/LM4/ICM1/ICM2			ICM3		
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
ATM0100	340	190	220	316	172	220	428	172	220	X			X		
ATM0160 / 0240	0			0			508	229	259	499	229	259	517	284	259
ATM0350 / 0500	0			0			527	244	288	518	244	288	536	284	288
ATM0800 / 1100	0			0			X			541	284	313	559	284	313
ATM2000 / 3000	0			0			X			600	375	385	620	375	385
ATM6000 / 9000	0			0			X			677	417	668	697	417	668

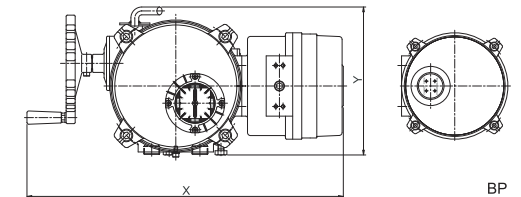
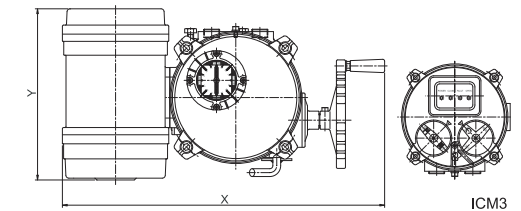
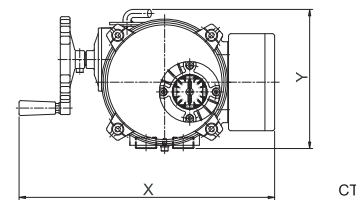
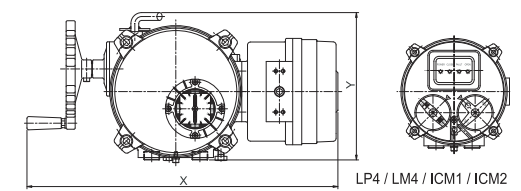
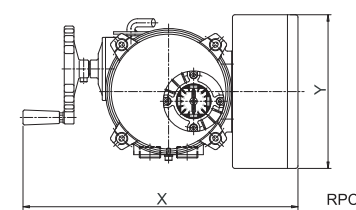
\* O : Installed inside of actuator

\* X : Not available

\* Z : Height of basic actuator

## ATM0100

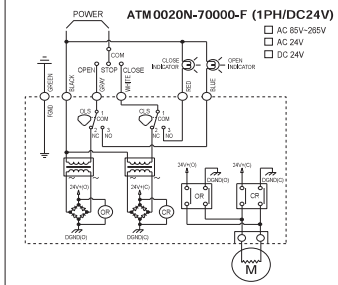
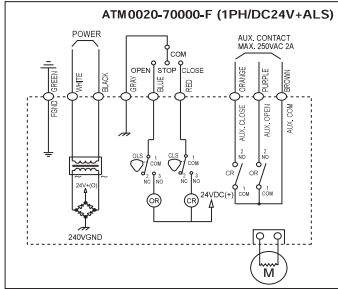
## ATM0160-9000



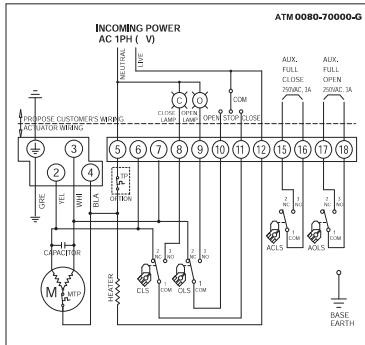
# TYPICAL WIRING

## ATM0020 ~ 0080

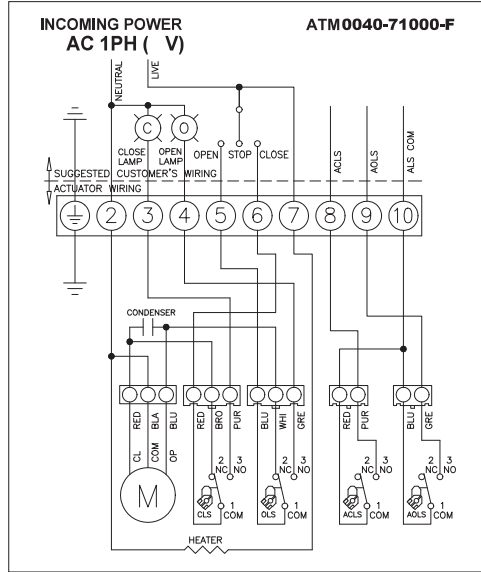
ATM 0020 110/220 (On-Off)



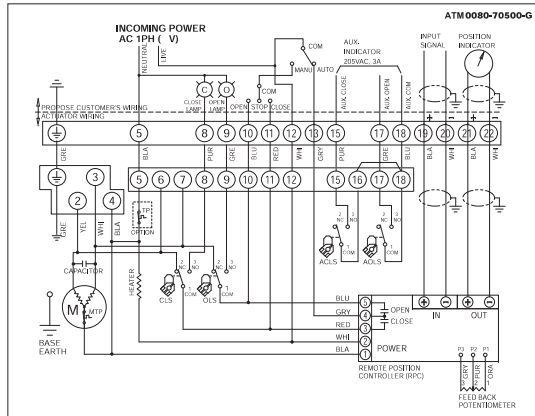
ATM 0080 110/220 (On-Off)



ATM 0040 110/220 (On-Off)



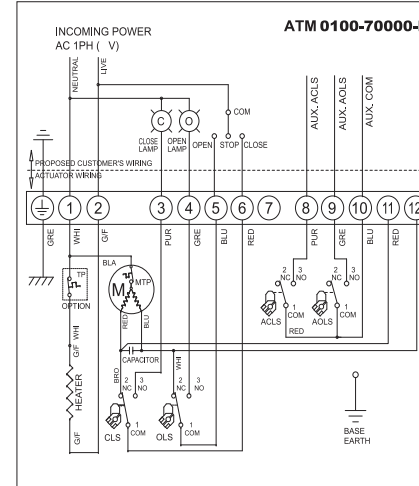
ATM 0080 110/220 RPC



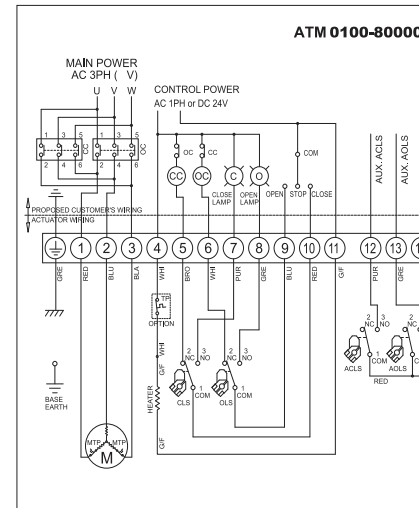
# TYPICAL WIRING

## ATM0100

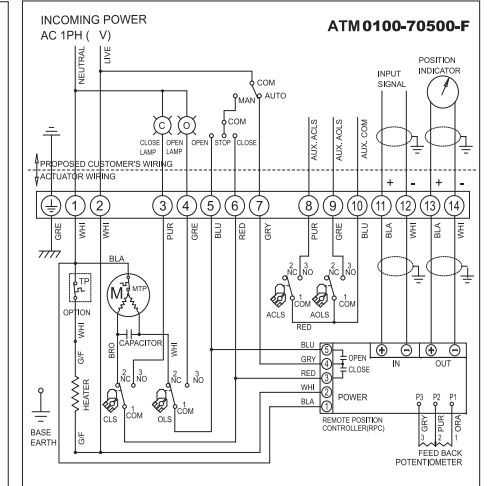
110/220VAC/50/60Hz, 1Ph(On-Off)



380/440VAC/50/60Hz, 3Ph(On-Off)



110/220VAC/50/60Hz, 1Ph(Modulating : RPC)



TORQUE AND LIMIT SWITCHES OPERATION

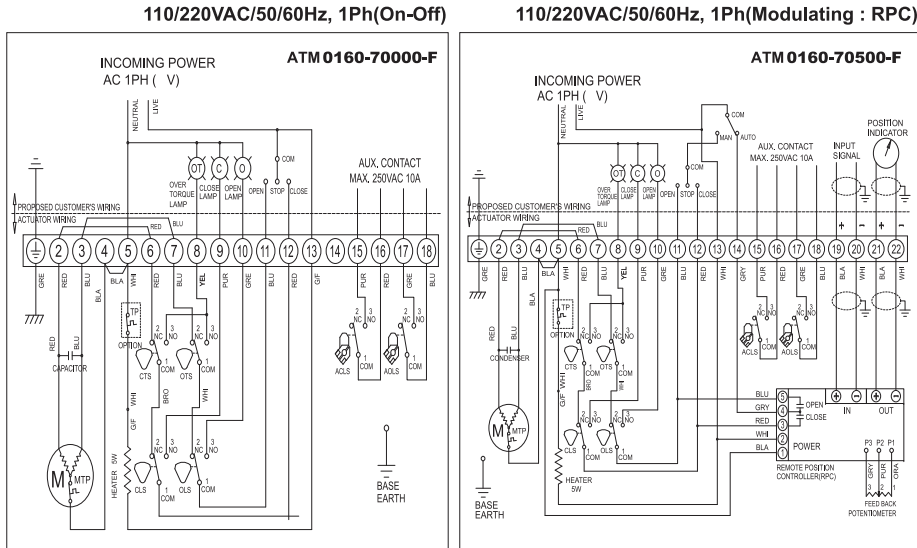
SWITCH	CLOSE	INTERMEDIATE	OPEN
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS1-2			
ACLS1-3			
AOLS1-2			
AOLS1-3			
CTS 1-3	Closing Torque Switch interrupts control if Mechanical overload occurs during closing cycle		
OTS 1-3	Opening Torque Switch interrupts control if Mechanical overload occurs during opening cycle		

### Important Notice

- The Electric Wiring Diagrams shall be modified with terminal no and wires in Red Color For our customers' convenience from 1st of June 2009.
- please only refer to the Wiring Diagram Sticker or separate Wiring Diagram inside of each actuator. If there is any confusion please contact our distributor.

# TYPICAL WIRING

ATM0160 ~ 9000



ALS : Auxiliary Limit Switch  
 AOLS : Auxiliary Open Limit Switch (Dry contact)  
 ACLS : Auxiliary Close Limit Switch (Dry Contact)

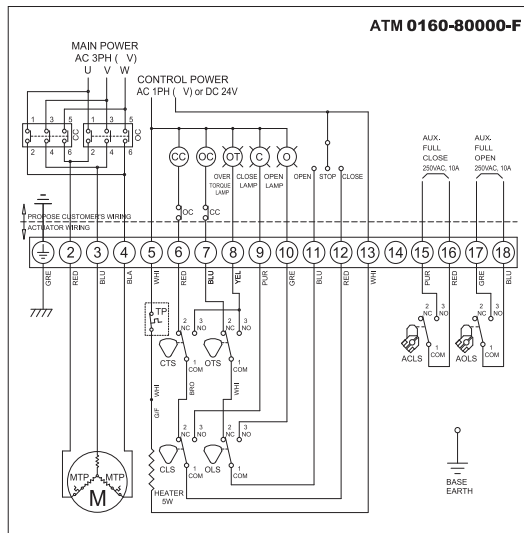
O : Open Lamp  
 C : Close Lamp  
 OT : Over Torque Lamp  
 CLS : Close Limit Switch (250VAC 10A)  
 OLS : Open Limit Switch (250VAC 10A)  
 CTS : Close Torque Switch (250VAC 10A)  
 OTS : Open Torque Switch (250VAC 10A)  
 CC : Close Magnetic Coil  
 OC : Open Magnetic Coil  
 M : Motor  
 TP : Thermal Protector (250VAC 15A Option)  
 MTP : Thermal Protector built in motor

\* Each actuator should be powered through its own individual switch or relay contacts to prevent cross feed between two or more actuators.

\* In case of 3ph actuator, make sure to place actuator on the middle of travel angle before electrical operation to avoid "Jamming"

\* All internal wiring is done as color coding.

380/440VAC/50/60Hz, 3Ph(On-Off)

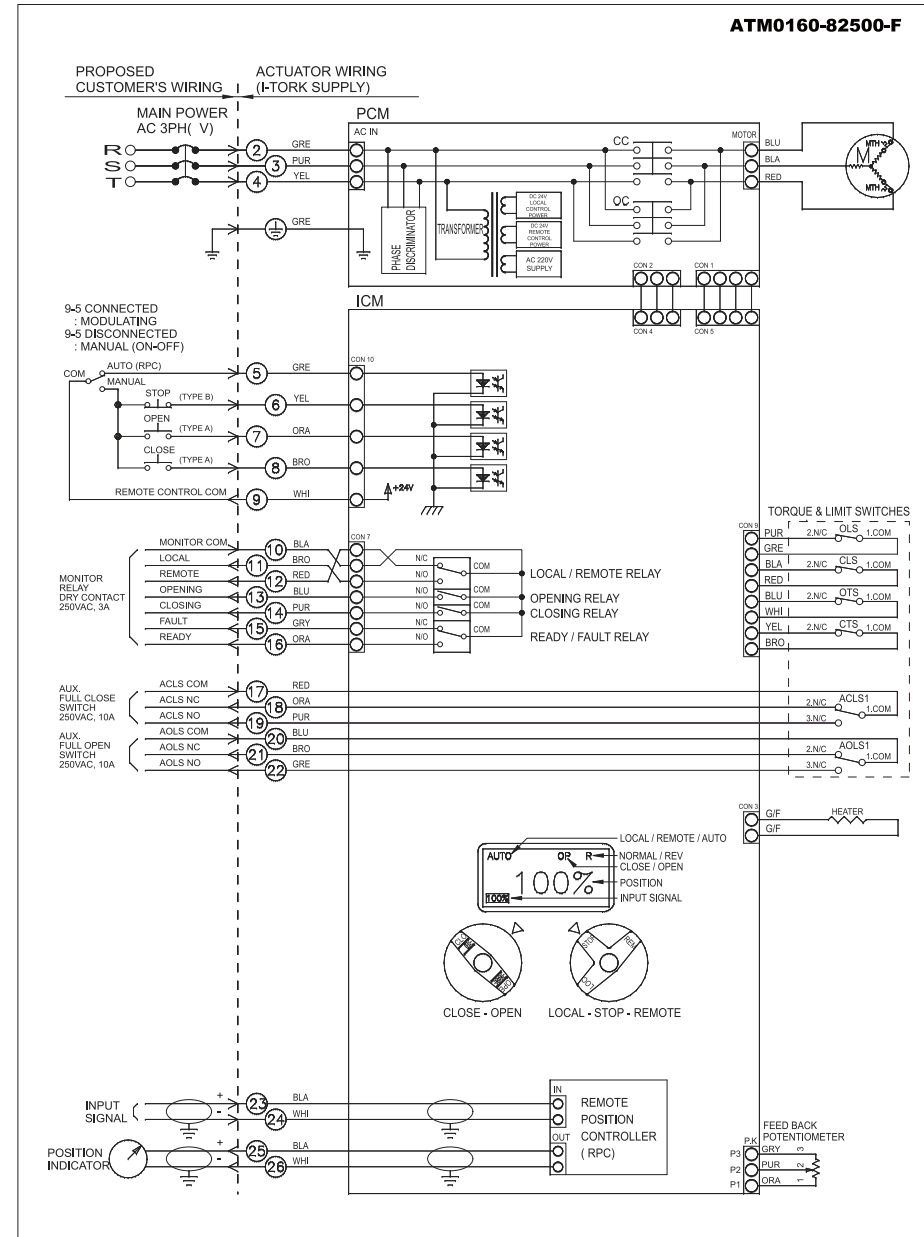


# TYPICAL WIRING

ICM2 for 3Phase

ICM2 for 3Phase

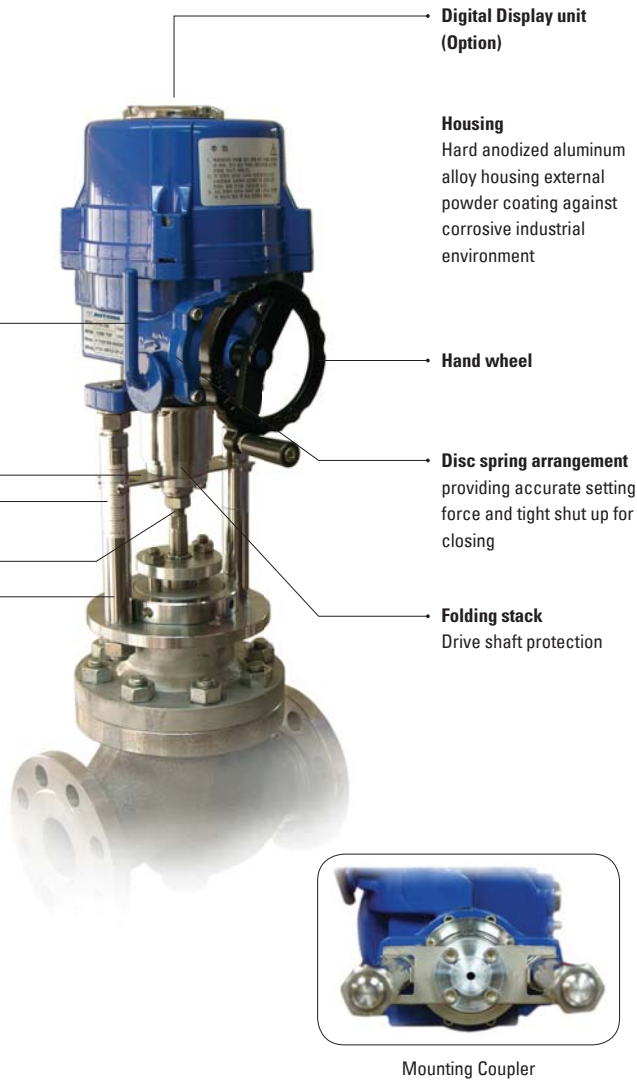
ATM0160-82500-F



# LINEAR TYPE ACTUATOR

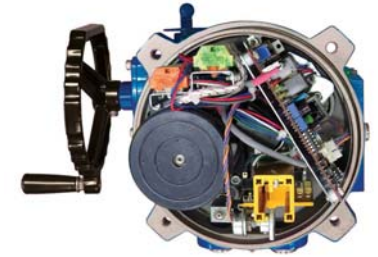
## • AQL Series

Automa designs, produces and provides high quality electric actuator and services related to industrial valve automation and controls. AQL series linear actuator has been developed for a wide range of linear applications and to service reliable performance, long trouble free operation, more flexibility and maximized ability to integrate fully into sophisticated control system.



# LINEAR TYPE ACTUATOR

- Robust construction, precise positioning, reliable performance
- Wide range of application
- Compact internal Arrangement
- Modulating control options can be installed on site
- Local control options for easy commissioning and emergency operation in the field



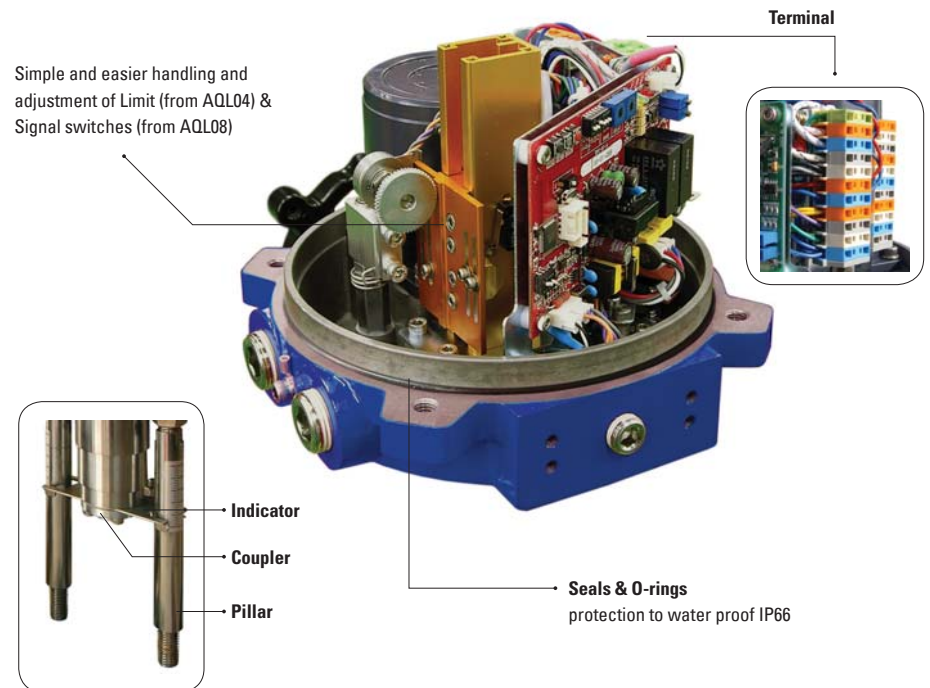
## • Electric Operation

- On-off

## • Modulating control

- Input : 4-20mA, 0-10VDC, 2~10VDC, 1~5VDC, 0~5VDC
- Output : 4-20mA (Option : 0-10VDC, 2~10VDC, 1~5VDC, 0~5VDC)
- Auto-calibration
- 0-10V or other signal selection
- Transmitter output 4-20 mA

Simple and easier handling and adjustment of Limit (from AQL04) & Signal switches (from AQL08)



# SPECIFICATION, OPTIONS AVAILABLE

## Technical Data

Model	Max Force KN	Max. Stroke mm	Positioning Speed mm/sec (50/60Hz)	Rated Current(A)				AC/DC 24V	Valve Stem Threads mm	PCD on Flange mm	Pillar Threads M16	Weight Kg
				1 Phase		3 Phase						
				110VAC	220VAC	380VAC	440VAC					
AQL04	4	40	0.7/0.83	0.45/0.44	0.26/0.25	0.30/0.31	0.26/0.40	3.00	Max. M20	100	M16	9
AQL06	6	40	0.7/0.9	0.49/0.48	0.29/0.28	0.32/0.33	0.30/0.42	3.50	Max. M20	100	M16	9
AQL08	8	50	0.9/1.1	0.92/0.88	0.48/0.46	0.18/0.17	0.17/0.16	2.90	Max. M20	100	M16	18
AQL10	10	50	0.9/1.1	0.95/0.91	0.50/0.48	0.19/0.18	0.18/0.17	3.20	Max. M20	100	M16	18
AQL12	12	50	0.9/1.1	0.98/0.94	0.52/0.50	0.20/0.19	0.19/0.18	3.50	Max. M20	100	M16	18
AQL20	20	100	0.9/1.1	1.75/1.68	0.93/0.89	0.30/0.30	0.32/0.31	6.00	Max. M24	155	M20	23
AQL25	25	100	0.9/1.1	1.80/1.72	0.95/0.92	0.32/0.32	0.34/0.33	7.00	Max. M24	155	M20	24

## Standard Specification

<b>Manual Override</b>	Handwheel with switchable declutchable lever
<b>Enclosure (EN60529)</b>	IP66
<b>Cable Entry</b>	2 X PF 3/4" TAP
<b>Position Indication</b>	Graduation on pillar pointed by carrier plate
<b>Housing</b>	Aluminum alloy hard anodized for anti-corrosion
<b>Painting</b>	Epoxy power coated
<b>Ambient Temperature</b>	-20°C ~ +70°C
<b>Operating Mode (IEC34-1, 8)</b>	S2 30 Min S4 1200 c/h 50%ED
<b>Motor Protection</b>	Thermal switch, Class F insulation
<b>Space Heater</b>	5W (110/220VAC) for anti condensation
<b>Limit Switch</b>	2 each for open/close (SPDT 10A 250VAC rating)
<b>Force Switch</b>	1 each for open/close (SPDT 10A 250VAC rating)
<b>Mounting Direction</b>	Any direction except for heading downward
<b>Pillar Material</b>	Stainless steel, carbon steel with special surface treatment

## • Available Optional Controls

<b>RPC</b>	<b>Remote position controller</b> 4-20mA input/output, Selectable other signal
<b>PK</b>	<b>Potentiometer</b> 0-1Kohm feedback
<b>CT</b>	<b>Current transmitter</b> 4-20mA output
<b>ADC 16</b>	<b>AC / DC converter</b>

## • Local Control

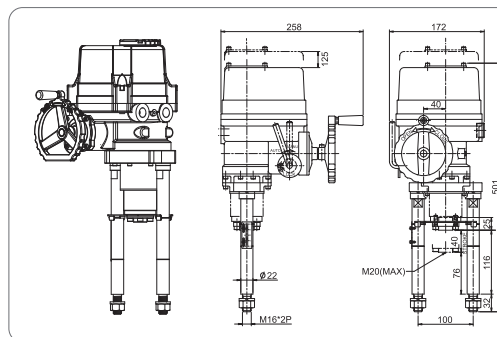
<b>LP4</b>	<b>Local control (1 phase)</b> Local control unit
<b>LM4</b>	<b>Local control (3 phase)</b> LP4 with reversing contactor and transformer
<b>ICM1/2</b>	<b>Integral unit</b> Local controller with phase discriminator (except for AQL04/06)
<b>BP</b>	<b>Battery back up unit</b> Fail Safe (Fail position either open/close/stay put) (except for AQL04/06)
<b>EX</b>	<b>Explosion proof</b> Exd II B T4 (Nepsi)



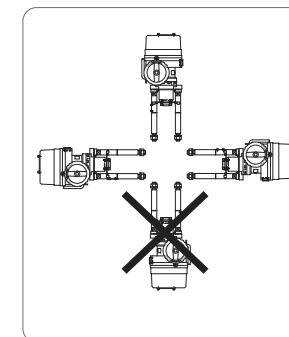
# DIMENSIONS, WIRING

## AQL 04 / 06

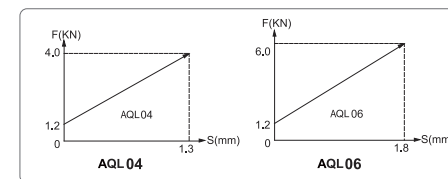
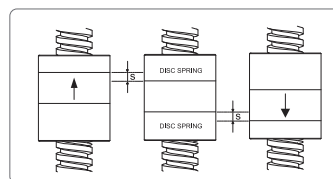
### Dimensions(mm)



### Correct mounting direction



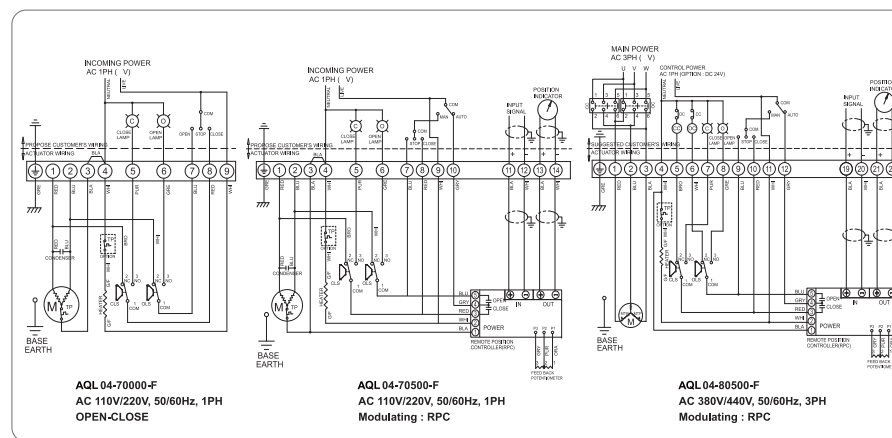
### Setting closing(opening) force



Disc spring arrangement

F : Closing(opening)force  
S : Amount of disc spring compression

### Standard wiring

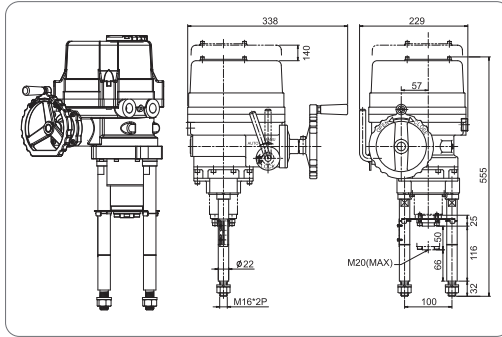




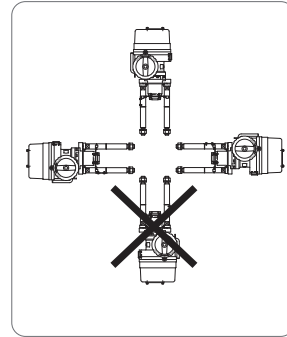
# DIMENSIONS, WIRING

AQL 08 / 10 / 12

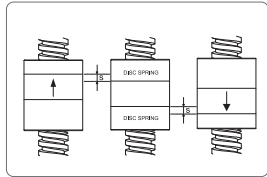
## Dimensions(mm)



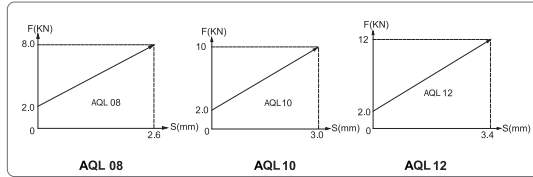
## Correct mounting direction



## Setting closing(opening) force

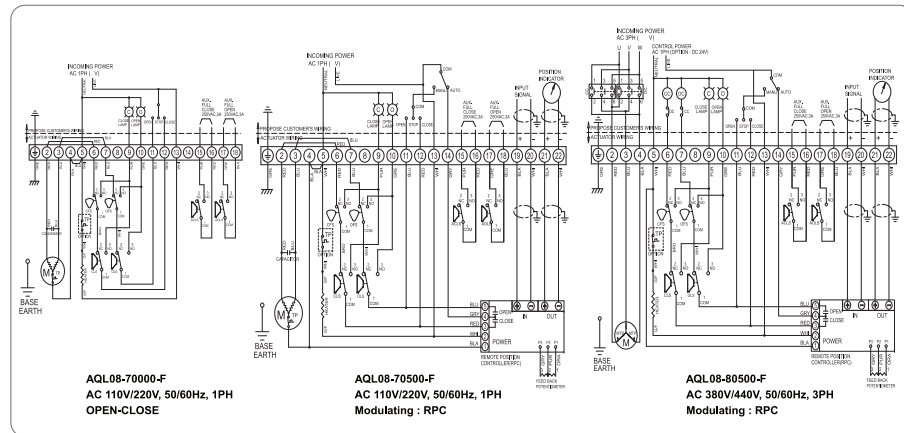


Disc spring arrangement



F : Closing(opening)force  
S : Amount of disc spring compression

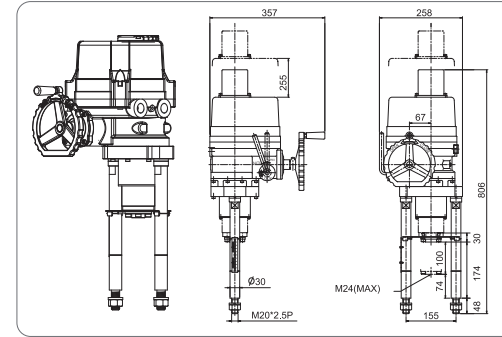
## Standard wiring



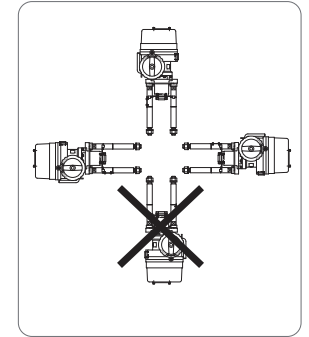
# DIMENSIONS, WIRING

AQL 20 / 25

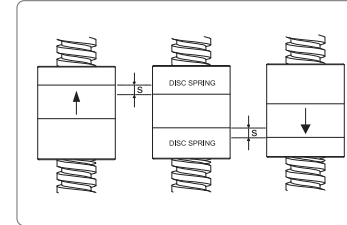
## Dimensions(mm)



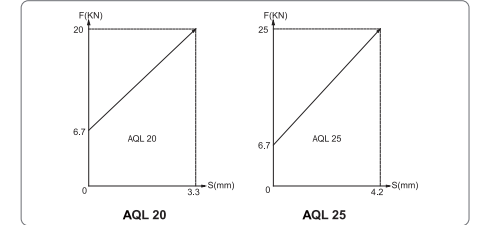
## Correct mounting direction



## Setting closing(opening) force

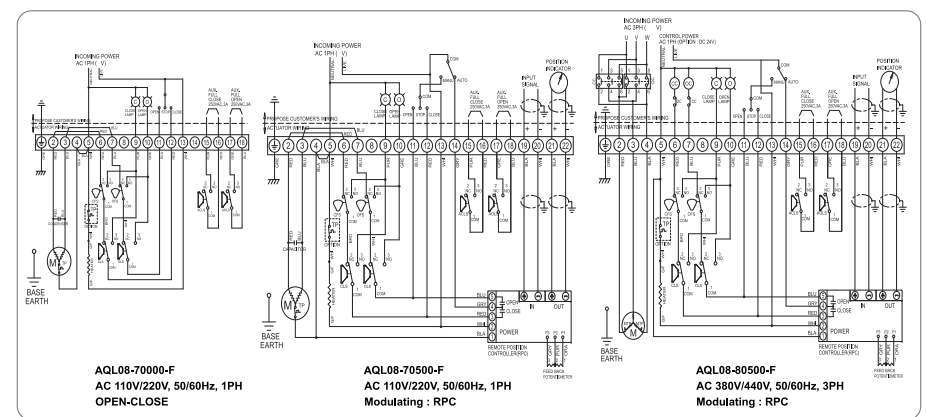


Disc spring arrangement



F : Closing(opening)force  
S : Amount of disc spring compression

## Standard wiring



# ELECTRIC 1-PIECE SCREWED BALL VALVE



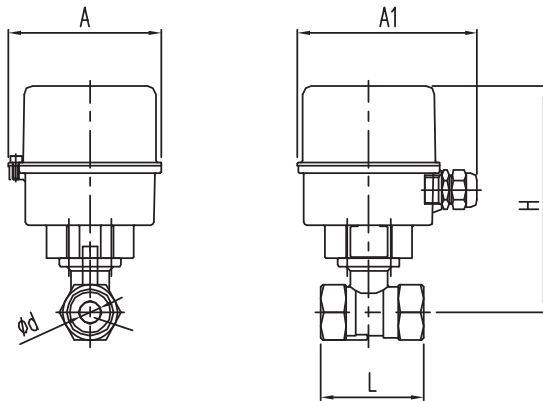
## Application

- Water distribution pipes
- Industrial cleaning machines
- Sterilizers, Boilers
- Air conditioners, Water filters
- Medical equipments, Vacuum packing

## Specification

• This is subject to change.

Valve Size	10A (3/8")	15A (1/2")	20A (3/4")	25A (1")	32A(1-1/4")	40A (1-1/2")	50A (2")
Actuator Model	ATM0020					ATM0040	
Actuator Type	Electric						
Main Power	AC110V, AC220V, DC24V						
Travel Angle	90° ± 5°						
Fluid Temperature	-20°C ~ +80°C						
Rating	1000psi						
Body Material	A351-CF8 / Body		A351-CF8 / Ball			PTFE / Seat	



## Dimension

End Connection : PT SCREW (mm)

Model	Size		Motor		H (Approx.)	L	Φd
			A	A1			
ATM0020-10S1	10A	3/8"	90	110	126	45	7
ATM0020-15S1	15A	1/2"	90	110	128	55	9.2
ATM0020-20S1	20A	3/4"	90	110	134	60	12.5
ATM0020-25S1	25A	1"	90	110	137	73	15
ATM0020-32S1	32A	1-1/4"	90	110	140	78	20
ATM0040-40S1	40A	1-1/2"	114	126	227	89	25
ATM0040-50S1	50A	2"	114	126	235	100	32

# ELECTRIC 3-PIECE SCREWED BALL VALVE



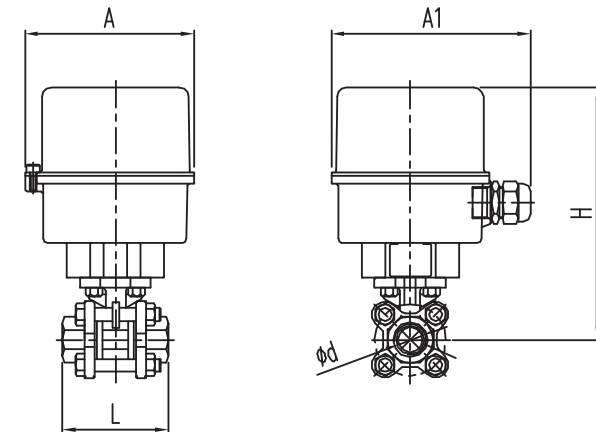
## Application

- Water distribution pipes
- Industrial cleaning machines
- Sterilizers, Boilers
- Air conditioners, Water filters
- Medical equipments, Vacuum packing

## Specification

• This is subject to change.

Valve Size	8A (1/4")	10A (3/8")	15A (1/2")	20A (3/4")	25A (1")	32A(1-1/4")	40A (1-1/2")	50A (2")
Actuator Model	ATM0020					ATM0040		
Actuator Type	Electric							
Main Power	AC110V, AC220V, DC24V							
Travel Angle	90° ± 5°							
Fluid Temperature	-20°C ~ +80°C							
Rating	1000psi							
Body Material	A351-CF8 / Body			A351-CF8 / Ball		PTFE / Seat		



## Dimension

End Connection : PT SCREW (mm)

Model	Size		Motor		H (Approx.)	L	Φd
			A	A1			
ATM0020-8S3	8A	1/4"	90	110	141	64	12.5
ATM0020-10S3	10A	3/8"	90	110	141	64	12.5
ATM0020-15S3	15A	1/2"	90	110	145	72	15
ATM0020-20S3	20A	3/4"	90	110	151	80	20
ATM0040-25S3	25A	1"	114	126	240	85	25
ATM0040-32S3	32A	1-1/4"	114	126	245	105	32
ATM0040-40S3	40A	1-1/2"	114	126	255	113	38
ATM0080-50S3	50A	2"	160	121	209	132	50

# ELECTRIC FLANGED BALL VALVE



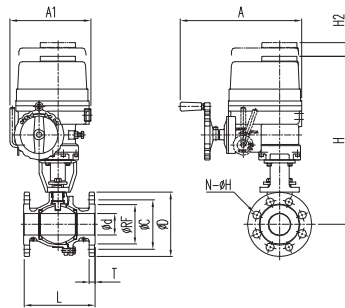
## Application

- Water distribution pipes
- Industrial cleaning machines
- Sterilizers, Boilers
- Air conditioners, Water filters
- Medical equipments, Vacuum packing
- Food & Beverage lines
- Vacuum distribution pipes

## Specification

• This is subject to change.

Valve Size	15A ~ 300A		
Actuator Model	ATM0040 ~ ATM3000		
Actuator Type	Electric		
Main Power	AC110V, AC220V, AC380V, AC440V, DC24V		
Travel Angle	90° ± 5°		
Fluid Temperature	-20°C ~ +150°C		
Rating	JIS 10K (20K) (40K)	ANSI 150# (300#) (600#)	
Body Material	SCS13(SCS14, SCPH2) / Body	SCS13(SCS14) / Ball	PTFE(RTFE, PEEK, METAL) / Seat



## Dimension

(mm)

Model	Size	Motor		H (Approx.)	H2	L	End Connection (JIS 10K RF)						
		A	A1				T	φd	φRF	φC	φD	N-ΦH	
ATM0040-15F	15A	1/2"	114	126	280	-	108	12	15	51	70	95	4-15
ATM0040-20F	20A	3/4"	114	126	283	-	117	14	20	56	75	100	4-15
ATM0040-25F	25A	1"	114	126	292	-	127	14	25	67	90	125	4-19
ATM0040-32F	32A	1-1/4"	114	126	295	-	140	16	32	76	100	135	4-19
ATM0080-40F	40A	1-1/2"	160	121	260	40	165	16	40	81	105	140	4-19
ATM0080-50F	50A	2"	160	121	267	40	178	16	50	96	120	155	4-19
ATM0100-65F	65A	2-1/2"	258	172	397	125	190	18	65	116	140	175	4-19
ATM0160-80F	80A	3"	338	229	478	140	203	18	80	126	150	185	8-19
ATM0350-100F	100A	4"	357	244	521	170	229	18	100	151	175	210	8-19
ATM0500-125F	125A	5"	357	244	575	170	356	20	125	182	210	250	8-23
ATM0800-150F	150A	6"	380	284	597	195	394	22	150	212	240	280	8-23
ATM1100-200F	200A	8"	380	284	627	195	457	22	200	262	290	330	12-23
ATM2000-250F	250A	10"	440	375	763	225	533	24	250	324	355	400	12-25
ATM3000-300F	300A	12"	440	375	829	225	610	24	300	368	400	445	16-25

# ELECTRIC BUTTERFLY VALVE



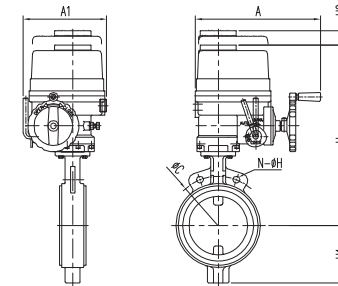
## Application

- Water distribution pipes
- Industrial cleaning machines
- Sterilizers, Boilers
- Medical equipments, Vacuum packing
- Air ventilation systems

## Specification

• This is subject to change.

Valve Size	40A ~ 600A		
Actuator Model	ATM0040 ~ ATM3000		
Actuator Type	Electric		
Electrical	AC110V, AC220V, AC380V, AC440V, DC24V		
Rotating Angle	90° ± 5°		
Fluid Temperature	-15°C ~ +80°C		
Rating	JIS 10K	ANSI 150#	
Body Material	FC(SCS13) / Body	SCS13(SCS14) / Disc	EPDM (PTFE) / Seat



## Dimension

End Connection : JIS 10K WAFER (mm)

Model	Size	Motor		H (Approx.)	H1	H2	L	φC	N-ΦH	
		A	A1							
ATM0040-40BF	40A	1-1/2"	114	126	314	58	-	41	105	4-19
ATM0040-50BF	50A	2"	114	126	321	67	-	43	120	4-19
ATM0080-65BF	65A	2-1/2"	160	121	269	71	40	46	140	4-19
ATM0080-80BF	80A	3"	160	121	279	83	40	46	150	8-19
ATM0080-100BF	100A	4"	160	121	292	96	40	52	175	8-19
ATM0100-125BF	125A	5"	258	172	433	114	125	56	210	8-23
ATM0160-150BF	150A	6"	338	229	485	124	140	56	240	8-23
ATM0240-200BF	200A	8"	338	229	532	175	140	60	290	12-23
ATM0350-250BF	250A	10"	357	244	618	210	170	68	355	12-25
ATM0500-300BF	300A	12"	357	244	638	248	170	78	400	16-25
ATM0800-350BF	350A	14"	380	284	684	250	195	78	445	16-25
ATM1100-400BF	400A	16"	380	284	703	280	195	102	510	16-27
ATM2000-450BF	450A	18"	440	375	827	366	225	114	565	20-27
ATM2000-500BF	500A	20"	440	375	880	421	225	127	620	20-27
ATM3000-600BF	600A	24"	440	375	965	493	225	154	730	24-33

# ELECTRIC GLOBE VALVE (AQL SERIES)



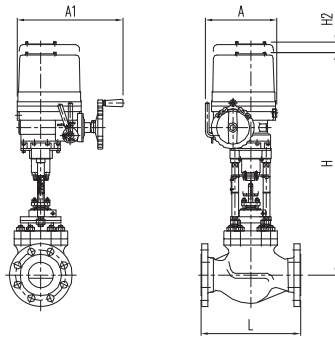
## Application

- Applicable where Instrument air can't be supplied.
- Applicable where quick operating time isn't required.
- Flow control, Pressure control, Temperature control service is available.

## Specification

• This is subject to change.

Valve Size	15A ~ 250A
Actuator Model	AQL04 ~ AQL20
Cable entry	2 x PF 3/4"
Electrical	AC110V, AC220V, AC380V, AC440V, DC24V
Fluid Temp	-20°C ~ +230°C
Rating	JIS 10K, JIS 20K, JIS 30K, ANSI 150#, ANSI 300#, ANSI 600#
Connection	RF, BW, SW, SCR'D
Body Material	SCPH2, SCS13, SCS14, SCS16
Trim Material	316SS, 316LSS



## Dimension

End Connection : JIS 10K RF (mm)

Model	Size	Motor		H (Approx.)	H2	L (JIS 10K RF)	
		A	A1				
AQL04-15A	15A	1/2"	172	340	595	125	184
AQL04-20A	20A	3/4"	172	340	595	125	184
AQL04-25A	25A	1"	172	340	595	125	184
AQL04-32A	32A	1-1/4"	172	340	620	125	222
AQL04-40A	40A	1-1/2"	172	340	620	125	222
AQL06-50A	50A	2"	172	340	674	125	254
AQL06-65A	65A	2-1/2"	172	340	674	125	276
AQL08-80A	80A	3"	229	340	758	140	298
AQL08-100A	100A	4"	229	340	758	140	352
AQL10-125A	125A	5"	229	340	910	140	403
AQL12-150A	150A	6"	229	340	910	140	451
AQL20-200A	200A	8"	258	357	1100	255	543
AQL20-250A	250A	10"	258	357	1100	256	673

# ELECTRIC GLOBE VALVE (AGL SERIES)



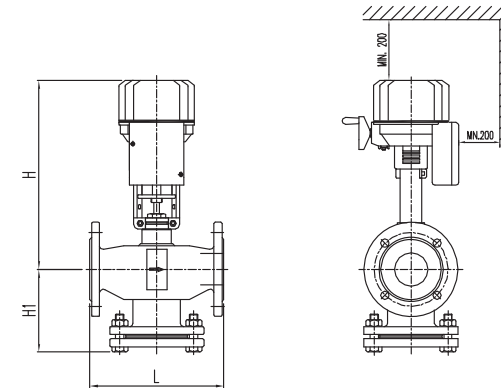
## Application

- Building automation
- Air conditioning & Heating system
- District heating, Ice thermal storage system
- Cooling & Hot water control (Temperature)

## Specification

• This is subject to change.

Valve Size	15A ~ 150A
Actuator Model	AGL-10(P) ~ AGL-250(P)
Cable entry	2 x PF 1/2"
Electrical	AC24V, AC220V
Fluid Temp	-25°C ~ +120°C
Rating	JIS 10K, ANSI 150#
Body Material	FCD45, SCPH2, SCS13, SCS14



## Dimension

End Connection : JIS 10K RF (mm)

Model	Size	L	H1	H (Approx.)			
				AGL20	AGL35	AGL55	
AGL-15A	15A	1/2"	130	69	330	330	-
AGL-20A	20A	3/4"	150	75	334	334	-
AGL-25A	25A	1"	160	75	334	334	-
AGL-32A	32A	1-1/4"	200	97	339	339	-
AGL-40A	40A	1-1/2"	200	97	339	339	-
AGL-50A	50A	2"	230	147	339	339	-
AGL-65A	65A	2-1/2"	290	180	360	360	-
AGL-80A	80A	3"	310	186	360	360	-
AGL-100A	100A	4"	350	205	-	421	-
AGL-125A	125A	5"	400	238	-	432	-
AGL-150A	150A	6"	480	279	-	448	478