

# Series 3500 Control Valves Globe-3-Way Mixing Valves Globe-3-Way Diverting Valves



for promotes more tightness and heavy duty control  
Series 3500 Control Valves  
Globe - 3 - Way Mixing Valves  
Globe - 3 - Way Diverting Valves

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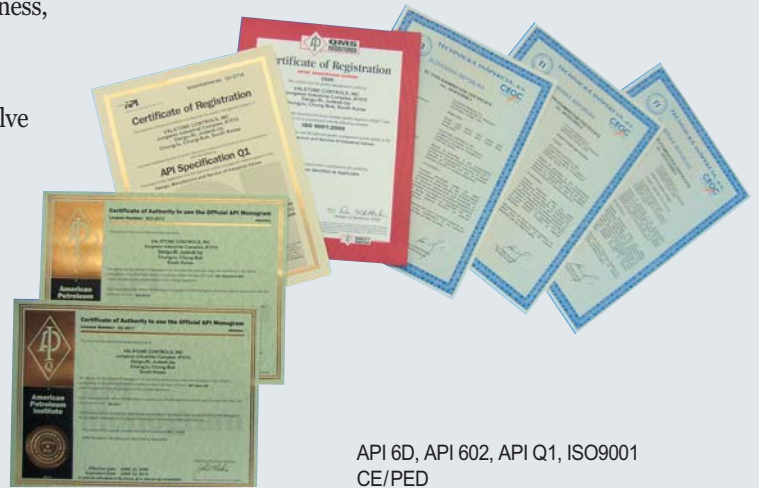
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# Welcome to Valstone

Valstone, a pioneer in process equipments business has expanded the number of capabilities and solutions. Depending upon your needs can be the single-source supplier of this products evaluations and reliability solutions thereby reducing the total cost of process equipment ownership. Valstone is committed to serving the industries where we do business,

1. Control Valves for General Service
2. Control Valves for Severe Service, Including 'OMEGA' Trim Valve
3. Steam Let-down Control Valves
4. Anti-surge Valves
5. Control Valves with Butterfly, Ball, Segment Ball (V-Notch, Eccentric)
6. Control Choke Valves
7. Pressure Regulating Valves
8. Retrofit Kit (Trim, Actuator, Instruments) for Up-grade

providing our customers satisfaction with innovative, high-quality products and services.



API 6D, API 602, API Q1, ISO9001  
CE/PED



## Numbering System

3	5	0	0	-	880
Body Type		Characteristic	Plug Type	Actuator Type	
35 Globe 3-Way		0 Linear 1 EQ % 2 Modified %	0 Mixing 1 Diverting	Spring Diaphragm 870 Multi-Spring Type Air to Close 880 Multi-Spring Type Air to Open	
				Cylinder 670 Spring Cylinder 680 Springless Cylinder	

## Manufacturing Range

Description	Manufacturing Range	Remark
Body Size	1"(25 mm) ~ 24"(600 mm)	
Ratings	ANSI Class 150 ~ 600	
Connections	Flanged, Butt-Weld, Socket-Weld	
Body Material	A216 Gr-WCB, A217 Gr-WC6, WC9, A351 Gr-CF8, CF8M, Alloy Steel available	
Trim Material	304, 316 SST., Alloy Steel available	

## General Specifications

Flow Direction : Flow to Open and Flow to Close

Max. Fluid Temperature : 650°C

Min. Fluid Temperature : -198°C

Seat Leakages : ANSI B16.104 Class IV

\* Option -1 : ANSI B16.104 Class V for Metal Seat Tight Shut off

\* Option -2 : ANSI B16.104 Class VI for Teflon Soft Seat & Seal (-198°C ~ 230°C)

Body : Globe Single Seated Top Guide

Bonnet Type : Stud Bolted

\* Standard Type : -20 ~ 280°C

\* Extension Type : 281 ~ 650°C & under -20°C

Flow Characteristics : Equal Percentage, Linear, Modified %, Semi-Throttle

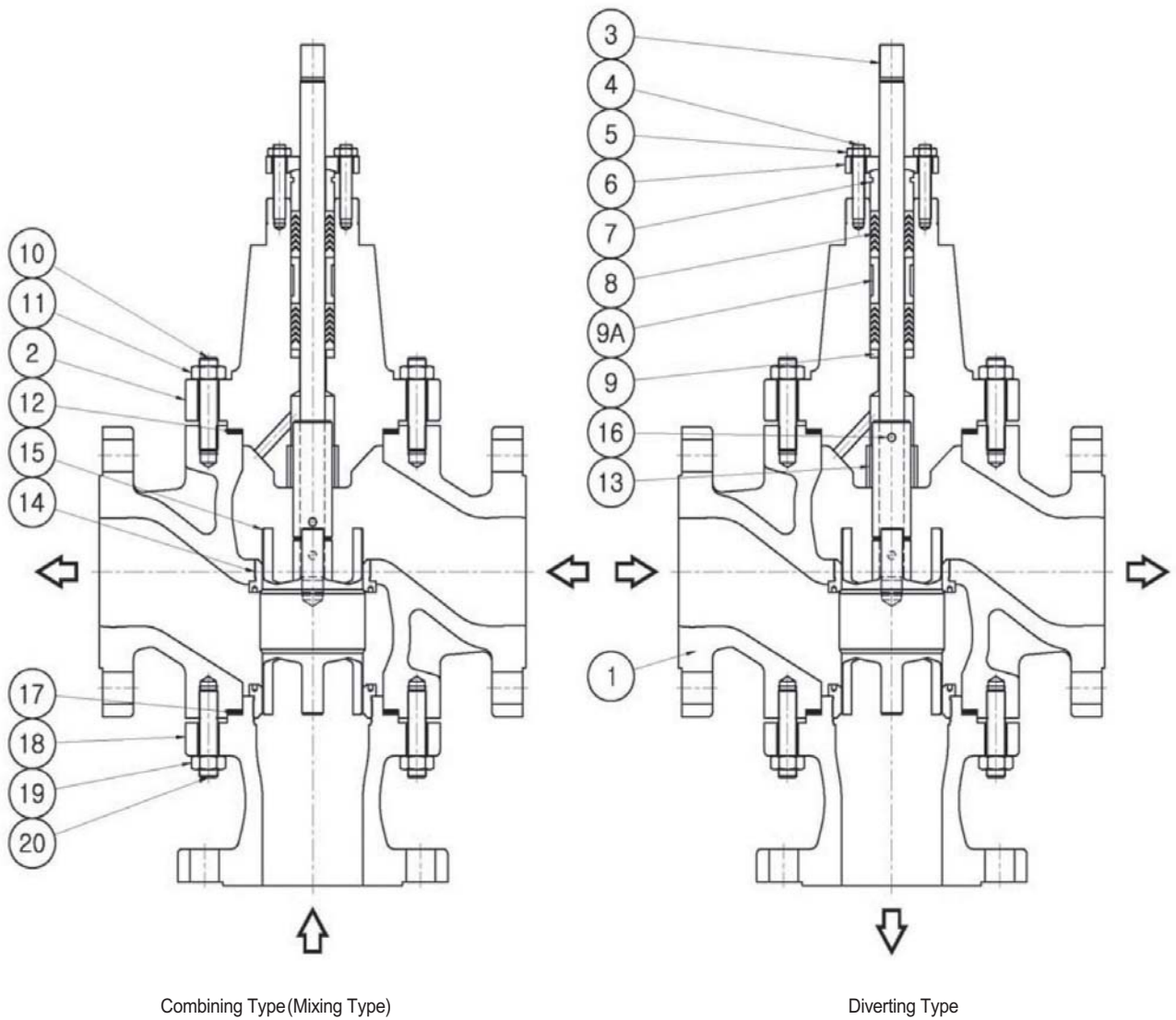
Cv Ratio : 50:1

Diaphragm actuators enclosed, Heavy duty Cylinders (spring-cylinder and double-cylinder) available.

Applicable for various Instruments (Positioner, SOV, Lim. S/W, ....)



## Body Constructions



1 Body	8 Packing	14 Seat Ring
2 Bonnet	9 Packing Spacer	15 Plug
3 Plug Stem	9A Lantern Ring	16 Plug Stem Pin
4 Packing Stud	10 Body Stud	17 Bottom Flange Gasket
5 Packing Nut	11 Body Nut	18 Bottom Flange
6 Packing Flange	12 Body Gasket	19 Bottom Flange Nut
7 Gland	13 Guide Bushing	20 Bottom Flange Stud

## Body Materials : Carbon Steel or Alloy Steel

Description	Material	Description	Material
1 Body	ASTM A216 Gr-WCB / Alloy Steel available	10 Body Stud	A193 B7
2 Bonnet	ASTM A216 Gr-WCB / Alloy Steel available	11 Body Nut	A194 2H
3 Plug Stem	316 Stainless Steel	12 Body Gasket	316 SST with Grafoil Filler
4 Packing Stud	316/304 Stainless Steel	13 Guide Bushing	Solid Stellite / 440C Stainless Steel
5 Packing Nut	316/304 Stainless Steel	14 Seat Ring	316 Stainless Steel
6 Packing Flange	316/304/303 Stainless Steel	15 Plug	316 Stainless Steel
7 Gland	316/304/303 Stainless Steel	16 Plug Stem Pin	316 Stainless Steel
8 Packing	PTFE Carbon Fiber / Graphite / Grafoil + Graphite	17 Bottom Flange Gasket	316 Stainless Steel with Grafoil Filler
9 Packing Spacer	316/304/303 Stainless Steel	18 Bottom Flange	ASTM A216 Gr-WCB / Alloy Steel available
9A Lantern Ring	316/304/303 Stainless Steel	19 Bottom Flange Nut	A194 2H
		20 Bottom Flange Stud	A193 B7

## Body Materials : Stainless Steel

Description	Material	Description	Material
1 Body	ASTM A351 Gr-CF8 / A351 Gr-CF8M	10 Body Stud	A193 B7
2 Bonnet	ASTM A351 Gr-CF8 / A351 Gr-CF8M	11 Body Nut	A194 2H
3 Plug Stem	316 Stainless Steel	12 Body Gasket	316 SST with Grafoil Filler
4 Packing Stud	316/304 Stainless Steel	13 Guide Bushing	Solid Stellite / 440C Stainless Steel
5 Packing Nut	316/304 Stainless Steel	14 Seat Ring	316 Stainless Steel
6 Packing Flange	316/304/303 Stainless Steel	15 Plug	316 Stainless Steel
7 Gland	316/304/303 Stainless Steel	16 Plug Stem Pin	316 Stainless Steel
8 Packing	PTFE Carbon Fiber / Graphite / Grafoil + Graphite	17 Bottom Flange Gasket	316 Stainless Steel with Grafoil Filler
9 Packing Spacer	316/304/303 Stainless Steel	18 Bottom Flange	ASTM A351 Gr-CF8 / A351 Gr-CF8M
9A Lantern Ring	316/304/303 Stainless Steel	19 Bottom Flange Nut	A194 2H
		20 Bottom Flange Stud	A193 B7

## Flow Coefficients - Rated Cv

Valve Size		Travel (mm)	Orifice Diameter	Cv
inch	mm			
1"	25	13	27	10
1-1/2"	40	19	38	21
2"	50	25	51	36
3"	80	38	67	75
4"	100	38	89	124
6"	150	51	133	270
8"	200	64	178	480
10"	250	64	222	750

The Cv values shown in our catalogue are for reference only. Valstone qualified engineer can design and modify the seat design to meet different customer's requirements. Valstone is continuing to develop and improve valve designs.

### Flow Characteristics : LINEAR

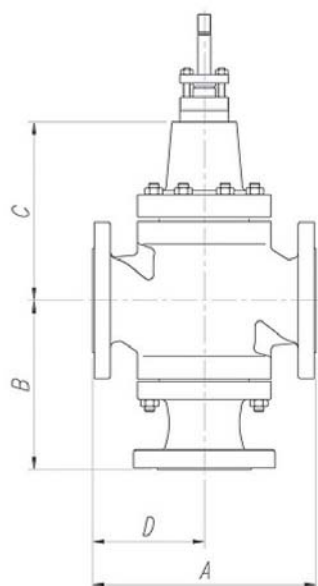
Valve Size		Percent of Valve Travel																					
inch	mm	0%		10%		20%		30%		40%		50%		60%		70%		80%		90%		100%	
1"	25	0	9	0.9	8.1	1.8	7.2	2.7	6.3	3.6	5.4	4.5	4.5	5.4	3.6	6.3	2.7	7.2	1.8	8.1	0.9	9	0
1-1/2"	40	0	21	2.1	18.9	4.2	16.8	6.3	14.7	8.4	12.6	10.5	10.5	12.6	8.4	14.7	6.3	16.8	4.2	18.9	2.1	21	0
2"	50	0	36	3.6	32.4	7.2	28.8	10.8	25.2	14.4	21.6	18	18	21.6	14.4	25.2	10.8	28.8	7.2	32.4	3.6	36	0
3"	80	0	75	7.5	67.5	15	60	22.5	52.5	30	45	37.5	37.5	45	30	52.5	22.5	60	15	67.5	7.5	75	0
4"	100	0	124	12.4	111.6	24.8	99.2	37.2	86.8	49.6	74.4	62	62	74.4	49.6	86.8	37.2	99.2	24.8	111.8	12.4	124	0
6"	150	0	270	27	243	54	216	81	189	108	162	135	135	162	108	189	81	216	54	243	27	270	0
8"	200	0	480	48	432	96	384	144	336	192	288	240	240	288	192	336	144	384	96	432	48	480	0
10"	250	0	750	75	675	150	600	225	525	300	450	375	375	450	300	525	225	600	150	675	75	750	0

## Dimensions

### Dimensions : Mixing

(unit : mm)

Valve Size (inch)	A			B			C	D		
	ANSI CLASS 150	ANSI CLASS 300	ANSI CLASS 600	ANSI CLASS 150	ANSI CLASS 300	ANSI CLASS 600		ANSI CLASS 150	ANSI CLASS 300	ANSI CLASS 600
1"	184	197	210	140	140	140	130	92	99	99
1-1/2"	222	235	251	159	159	159	133	111	118	118
2"	254	267	286	168	168	168	159	127	134	134
3"	298	318	337	203	203	219	203	149	159	159
4"	353	368	394	229	229	257	213	177	184	184
6"	451	473	508	289	289	314	279	226	237	237
8"	543	568	610	337	337	362	321	272	284	284
10"	625	660	705	391	391	416	333	313	330	330



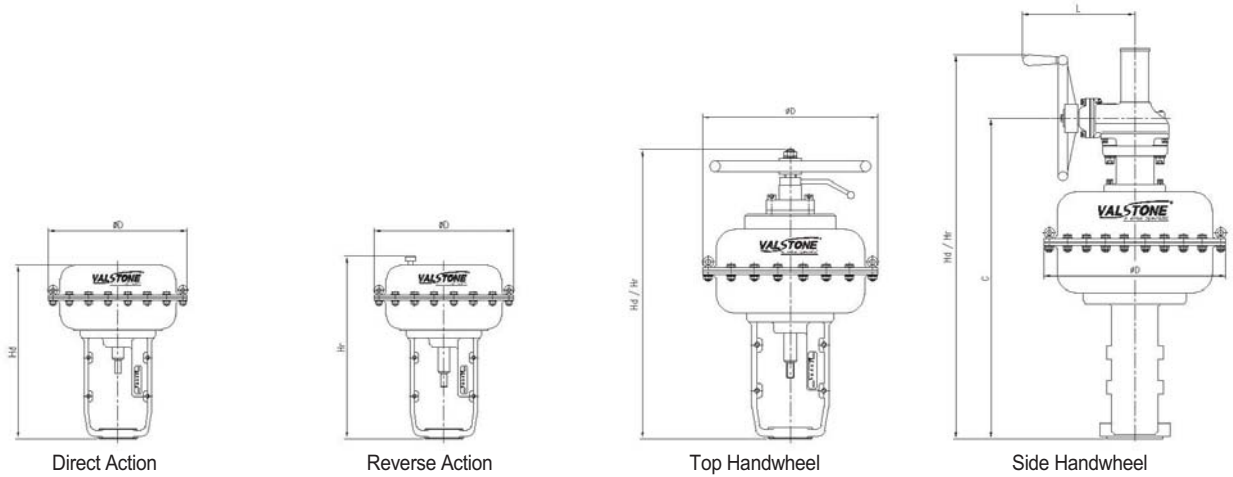
### Dimensions : Diverting

(unit : mm)

Valve Size (inch)	A			B			C	D		
	ANSI CLASS 150	ANSI CLASS 300	ANSI CLASS 600	ANSI CLASS 150	ANSI CLASS 300	ANSI CLASS 600		ANSI CLASS 150	ANSI CLASS 300	ANSI CLASS 600
1-1/2"	222	235	251	178	178	178	155	103	109	118
2"	254	267	286	197	197	197	184	118	124	133
3"	298	318	337	238	238	251	235	140	140	140
4"	353	368	394	270	270	282	238	167	175	187
6"	451	473	508	330	330	356	321	194	205	222
8"	543	568	610	391	391	416	375	217	230	251
10"	625	660	705	457	457	490	416	252	270	294

# Actuator Constructions

## Model 870 / 880 Diaphragm Actuators

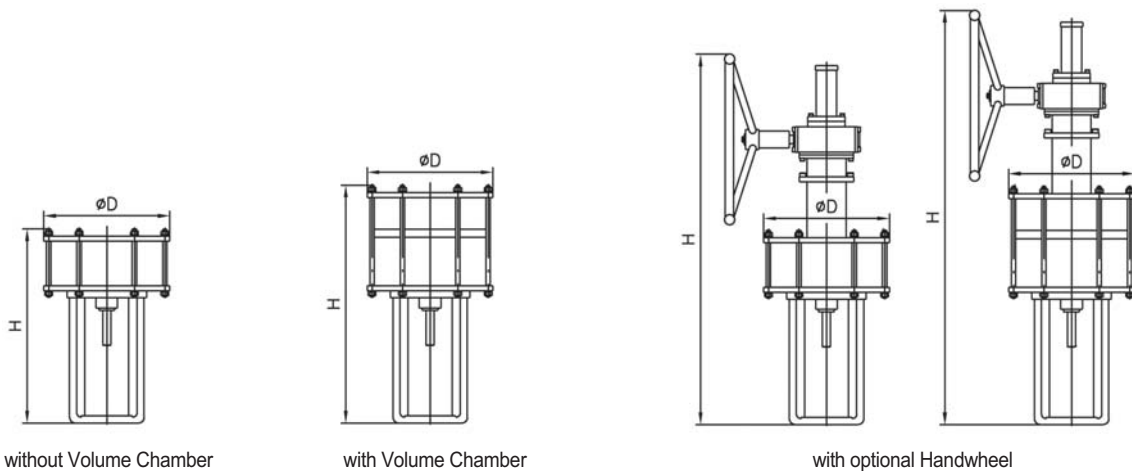


### Dimensions

(unit : mm)

Actuator Size	D	Without Handwheel		With Handwheel				
		DA	RA	Handwheel Type	DA	RA	C	L
		Hd	Hr		Hd	Hr		
#25	250	332	352	Top	450	473	-	-
#29	290	369	419	Top	534	569	-	-
#37	370	410	460	Top	575	620	-	-
#48	480	629	679	Side	979	979	779	260
#55	550	678	728	Side	1,098	1,098	848	300
#55H	550	728	778	Side	1,148	1,148	848	300

## Model 670 / 680 Cylinder Actuators



\* Please refer to 670 / 880 Actuator Catalog



## Weight

Body Sub - Assembly (unit : Kg<sup>3</sup>)

Valve Size (inch)	Flanged	
	150~300	600
1"	20	32
1-1/2"	41	45
2"	57	63
3"	100	106
4"	136	149
6"	238	279
8"	351	424
10"	779	947

Actuator (unit : Kg<sup>3</sup>)

Valve Size (inch)	Standard	With Handwheel	
		Top	Side
#25	10	13	15
#29	19	25	27
#37	37	46	49
#48	92	108	112
#55	116	140	145
#55H	120	144	150

## Accessories

- \* Positioners
  - Smart, E/P, P/P Positioners for Single / Double Acting
- \* Instruments Valves
  - Transfer (Trip) Valves, Volume Booster Relay
  - Air Regulators (Air set), Speed Control Valves
- \* Limit Switches
- \* Solenoid Valves



## Note







## *Valstone, Valves that Work!!*

- 1. Control Valves for General Service*
- 2. Control Valves for Severe Service, Including 'OMEGA' Trim Valves*
  - 3. Control Chock Valves*
  - 4. V-Notch Control Valves*
  - 5. Anti-Surge Valves*
- 6. Pressure Regulating Valves*
- 7. Retrofit for Up-grade*