

Series 3000 Control Valves Globe-Angle Valves



for promotes more tightness and heavy duty control
Series 3000 Control Valves
Globe-Angle Valves

Contents

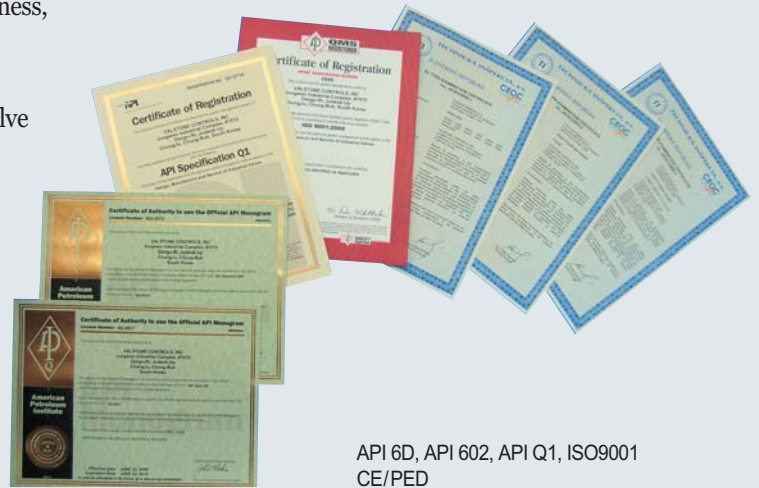
Numbering System & Manufacturing Range.....	3	Flow Coefficients (Rated Cv).....	8
Trim Design Applications.....	4~5	Dimensions.....	9
Body Constructions.....	6	Actuators Constructions.....	10
Body Materials.....	7	Weights & Accessories.....	11

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	0	0	0	-	880
Body Type	Trim Type	Characteristic	Plug Type	Actuator Type	
3 Globe Angle Pattern	0 Undetermined 1 Standard Cage 2 Tendril 1-Stage 3 Tendril 2-Stage 4 Tendril 3-Stage 5 Unbalance Plug 6 Others	0 Undetermined 1 Linear 2 Equal % 3 Modified % 4 Semi Throttle	0 Undetermined 1 Contoured 2 Tendril 3 Multi-groove (Cascade) 4 Micro	Spring Diaphragm 870 Multi-Spring Type Air to Close 880 Multi-Spring Type Air to Open Cylinder 670 Spring Cylinder 680 Springless Cylinder 700 Hydraulic 900 Electric Motor	

Manufacturing Range

Description	Manufacturing Range	Remark
Body Size	3/4"(20 mm) ~ 24"(600 mm)	
Ratings	ANSI Class 150 ~ 4500	
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, 420, 630SST, 17-4PH, Hard Facing, 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,)

Trim Design Applications

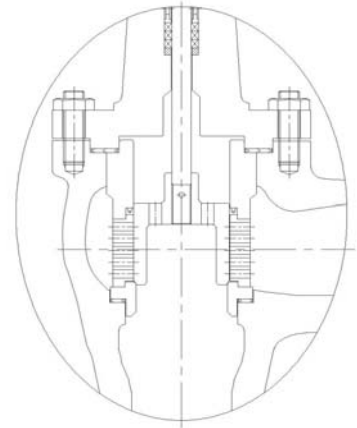
Cage Balanced Trim

The heavy duty cage guided balance design ideally suited to high pressure drop compressible and incompressible fluids as it enables the flow velocity to be controlled through the valve by the incorporation of an increased outlet and pressure drop elements in the outlet end.

Also, this valves combines high integrity features, such as ASME VIII body & bonnet bolting design, a high flow capacity and a wide range of trim designs. This means it is ideally suited to meet the various critical service process control requirements that are demanded from a wide range of industry related applications.

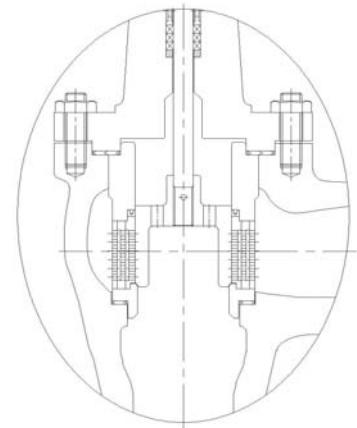
Performance

- Stable flow control with high rangeability
- Low-noise, anti-cavitation control and erosion resistant trims
- Streamline flow passages to secure capacity



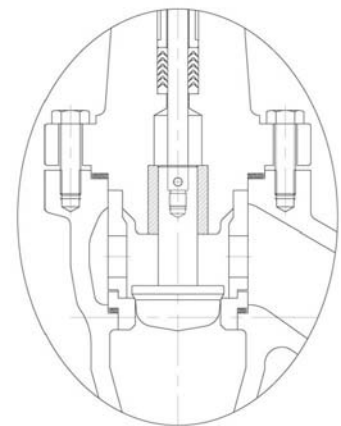
Tendril (Multi-hole, Multi-stage) Trim

The trim design presented a Multi-Stage, multi-hole trim. There are 1 ~ 5 Stage designs available depending on pressure drop and potential for cavitation. The fluid passes through the flow path generated by incorporating angled flats onto the surface of the plug, together with a cut out on the internal diameter of the seat. The pressure drop is apportioned across the stages of letdown so that the pressure drop progressively reduces as it passes through the stages of the trim. This gives excellent resistance to cavitation on high pressure drop applications. For very high pressure drop applications the plug and seat insert would be manufactured from tungsten carbide or glass metallic optionally.



Contoured Trim (Quick Change Trim)

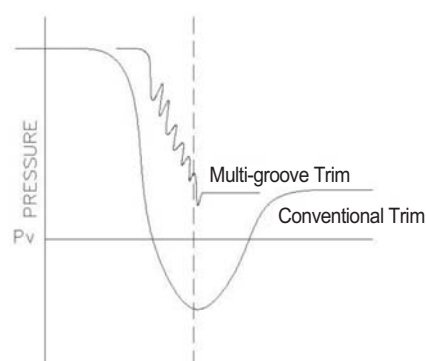
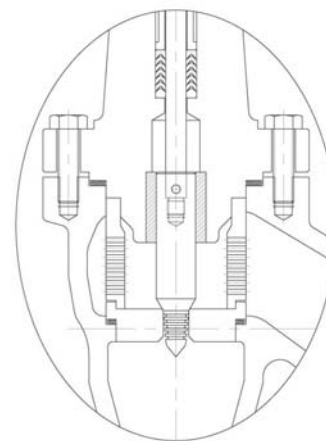
The contoured plug is designed with a specially represented valve plug head. The plug head represent defines the flow characteristic through the valve, and offers a smooth profile to the flow leading to a high pressure recovery. The trim is most suited to low pressure drop application and is used in the majority of control applications.



Trim Design Applications

Multi-groove(Cascade) Trim

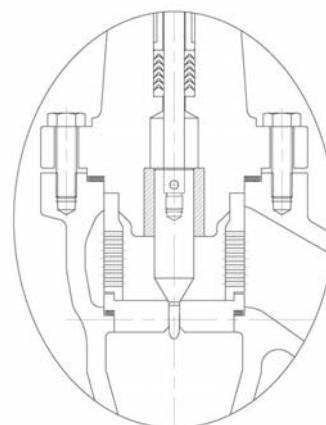
Multi-groove trim for non-compressible fluid applications is designed for any number of grooves of required pressure drop to meet the specifications for preventing cavitation from occurring and eventual erosion. There are 7~9 Grooves designs available depending on pressure drop and potential for cavitation. The fluid passes through the flow path generated by incorporating angled flats onto the surface of the plug, together with a cut out on the internal surface of the seat. The pressure drop is apportioned across the stages of letdown so that the pressure drop progressively reduces as it passes through the grooves of the trim. This gives excellent resistance to cavitation on high pressure drop applications. For very high pressure drop applications the plug and seat insert would be manufactured from tungsten carbide or advanced glass metallic optionally.



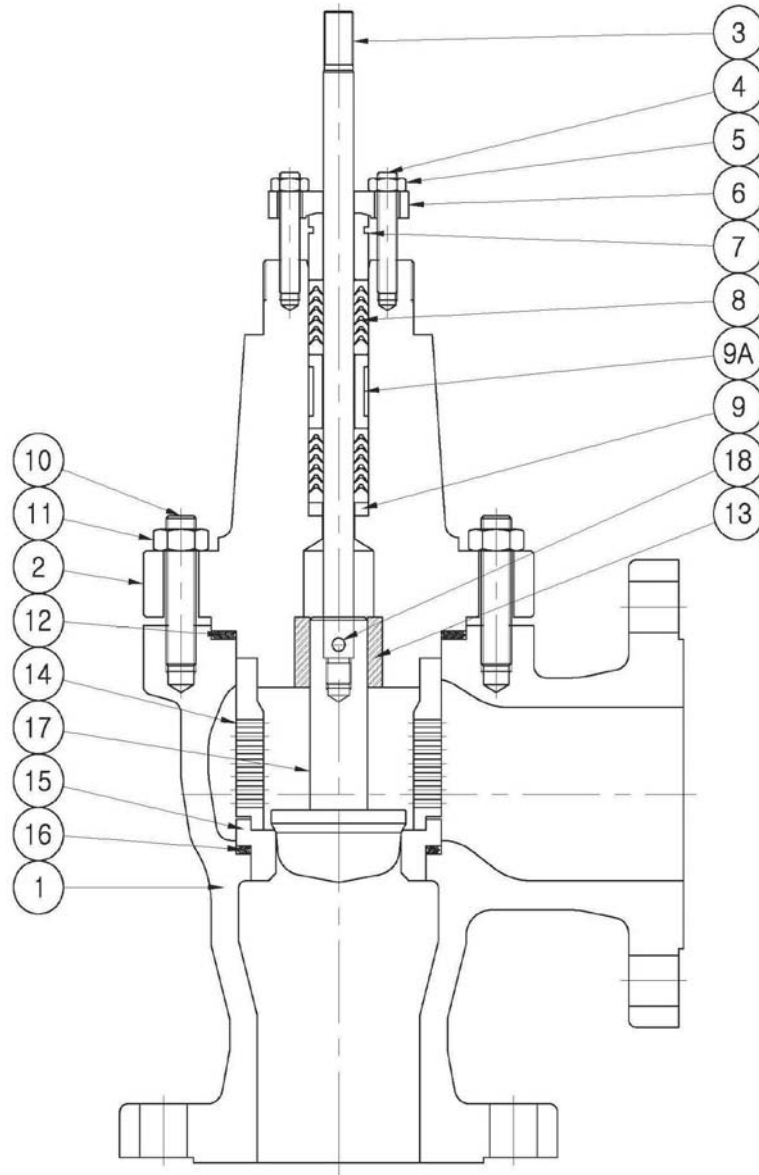
Micro Trim

The micro trim designs a seat guided construction, capable of handling high pressure drops, without instability problems. This trim design has an inherent flow characteristic of Linear or Modified EQ%, and has excellent rangeability. It is an ideal selection for the control of very low flow rates.

For very high pressure drop applications, or flows which would potentially cavitation there are multi-stage options of this design(5 stages maximum), and there are also applicable tungsten carbide and advanced glass metallic options for pressure drops greater than 100 bar.



Body Constructions



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

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 / 440B Stainless Steel
5 Packing Nut	316/304 Stainless Steel	14 Seat Ring Retainer	316/304 Stainless Steel
6 Packing Flange	316/304 Stainless Steel	15 Seat Ring	304 & 316 SST, 316L and Alloy Steel / Soft Seat available
7 Gland	316/304 Stainless Steel	16 Seat Ring Gasket	316 SST with Grafoil Filler
8 Packing	PTFE Carbon Fiber / Graphite / Grafoil + Graphite	17 Plug	304 & 316 SST, 316L and Alloy Steel / Soft Seat available
9 Packing Spacer	316/304 Stainless Steel	18 Plug Stem Pin	316 Stainless Steel
9A Lantern Ring	316/304 Stainless Steel		

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 / 440B Stainless Steel
5 Packing Nut	316/304 Stainless Steel	14 Seat Ring Retainer	316/304 Stainless Steel
6 Packing Flange	316/304 Stainless Steel	15 Seat Ring	304 & 316 SST, 316L and Alloy Steel / Soft Seat available
7 Gland	316/304 Stainless Steel	16 Seat Ring Gasket	316 SST with Grafoil Filler
8 Packing	PTFE Carbon Fiber / Graphite / Grafoil + Graphite	17 Plug	304 & 316 SST, 316L and Alloy Steel / Soft Seat available
9 Packing Spacer	316/304 Stainless Steel	18 Plug Stem Pin	316 Stainless Steel
9A Lantern Ring	316/304 Stainless Steel		

Flow Coefficients - Rated Cv

Valve Size (inch)	Travel (mm)	Nominal Trim Size (inch)													
		1/4	3/8	1/2	1	1-1/4	1-1/2	2	2-1/2	3	4	5	6	8	10
1/2	20	1.9	4.0	7.0											
3/4	20	1.9	4.0	7.0	14										
1	20	1.9	4.0	7.0	14										
1-1/2	20	1.9	4.0	7.0	15	20	28								
2	30	1.9	4.0	7.0	17	21	28	52							
3	40					22	34	53	76	118					
4	40						35	55	78	122	205				
6	50							58	85	134	216	315	420		
8	50									140	230	330	435		
	70													695	
10	50										233	345	454		
	70													715	1220

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.

Tendril Trim (Multi-Hole, 1-Stage)

Valve Size (inch)	Travel (mm)	Nominal Trim Size (inch)													
		1/4	1-1/2	2	2-1/2	3	4	5	6	8	10				
3/4, 1	20	9													
1-1/2	20	9	16												
2	30		19	22											
3	40			28	32	76									
4	40					76	105								
6	50								160	210					
8	70											340			
10	70														540

This trim will be applicable only Quick Change, Linear Flow Characteristics.

Multi-Groove Trim (Cascade)

Valve Size (inch)	Travel (mm)	Nominal Trim No.						
		A	B	C	D	E	F	G
3/4, 1 1-1/2, 2	30	0.4	0.8	1.25	3.0	6.0	10.0	16.0

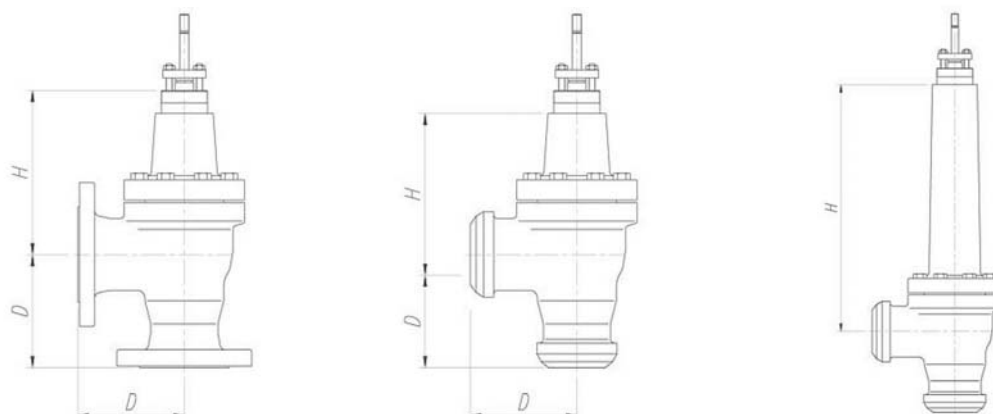
This trim will be applicable only Quick Change, Linear Flow Characteristics.

Micro Trim (Mini Flow Trim)

Valve Size (inch)	Travel (mm)	Nominal Trim No.							
		1	2	3	4	5	6	7	8
3/4, 1 1-1/2, 2	30	0.001	0.004	0.008	0.025	0.11	0.3	0.6	1.0

This trim will be applicable only Quick Change, Linear and/or Modified% Flow Characteristics.

Dimensions



ANSI Class 150~600

(unit : mm)

Valve Size (inch)	A							D			H			
	ANSI Class 150~600	ANSI Class 150		ANSI Class 300		ANSI Class 600		ANSI Class 150	ANSI Class 300	ANSI Class 600	ANSI Class 150~300		ANSI Class 600	
	Thr'd SW, BW	RF	RTJ	RF	RTJ	RF	RTJ				Standard Bonnet	Extension Bonnet	Standard Bonnet	Extension Bonnet
1/2	210	184	-	190	203	203	203	92	95	102	160	295	160	295
3/4	210	184	-	194	206	206	206	92	97	103	160	295	160	295
1	210	184	197	197	210	210	210	92	99	105	160	295	160	295
1-1/2	251	222	235	235	248	251	251	111	118	126	160	295	160	295
2	286	254	267	267	283	286	289	127	134	143	160	295	160	295
3	337	298	311	317	333	337	340	149	159	169	210	330	240	340
4	394	352	365	368	384	394	397	176	184	197	210	330	275	375
6	508	451	464	473	489	508	511	226	237	254	290	430	325	450
8	610	543	556	568	584	610	613	272	284	305	430	585	430	585
10	752	673	686	708	724	752	755	337	354	376	470	635	480	645

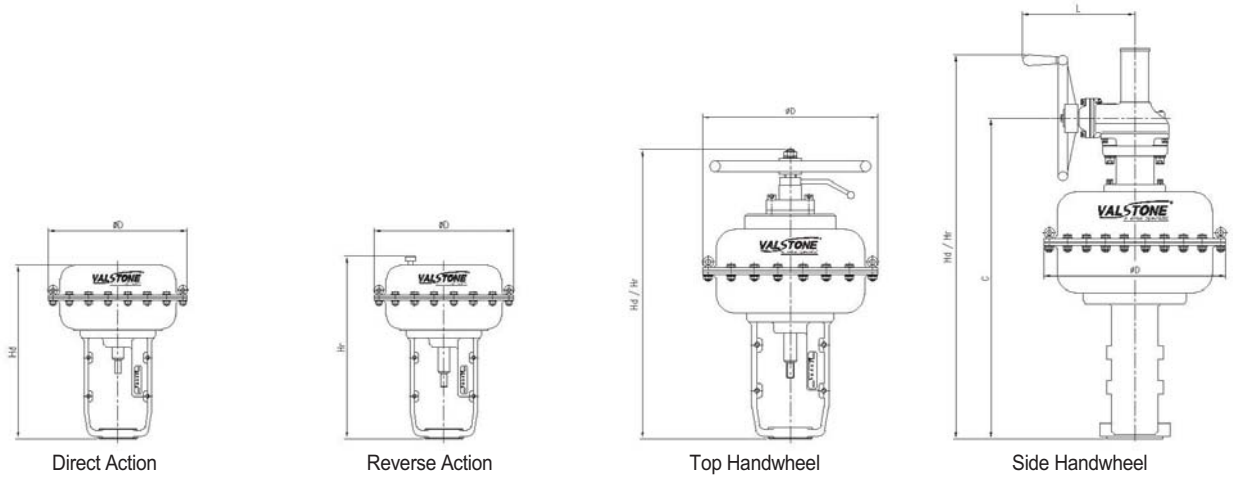
ANSI Class 900~2500

(unit : mm)

Valve Size (inch)	A								D		H			
	ANSI Class 900, 1500 SW, BW	ANSI Class 2500 SW, BW	ANSI Class 900		ANSI Class 1500		ANSI Class 2500		ANSI Class 900~1500	ANSI Class 2500	ANSI Class 900~1500		ANSI Class 2500	
			RF	RTJ	RF	RTJ	RF	RTJ			Standard Bonnet	Extension Bonnet	Standard Bonnet	Extension Bonnet
3/4	248	292	242	242	242	242	286	286	124	146	200	305	240	340
1	292	318	292	292	292	292	318	318	146	159	185	300	185	300
1-1/2	333	359	333	333	333	333	359	362	167	180	185	300	185	300
2	311	393	311	314	311	314	393	397	156	197	235	335	295	400
3	406	527	387	390	406	409	527	533	203	264	295	400	365	469
4	483	635	464	467	483	486	635	645	242	318	355	465	445	560
6	610	762	556	559	610	616	762	775	305	381	435	580	525	675

Actuators and Handwheels

Model 870 / 880 Diaphragm Actuators

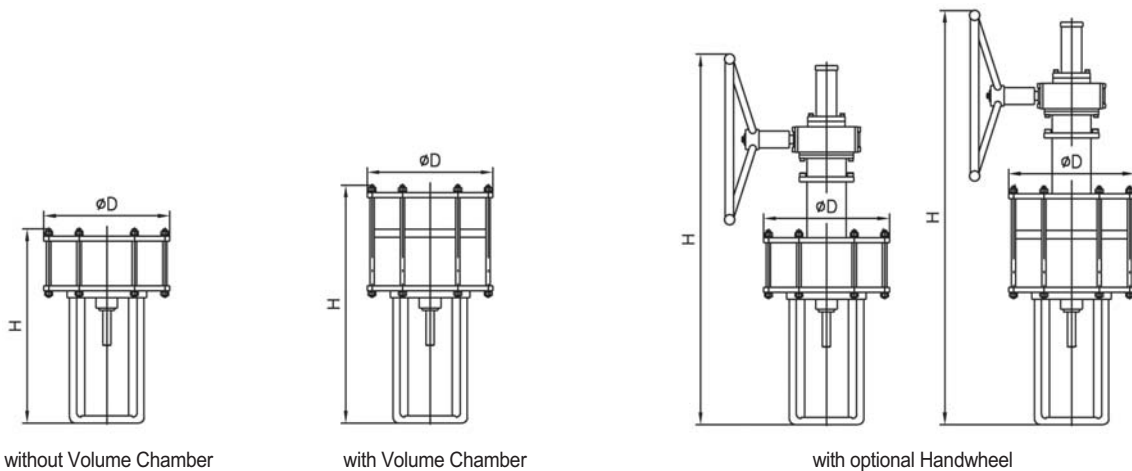


Dimensions

(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 : Kg³)

Valve Size (inch)	ANSI Class							
	150~300	600	900	1500	2500	150~600 Welding	900~1500 Welding	2500 Welding
3/4~1	20	20	44	44	44	18	40	40
1-1/2	27	27	27	58	58	25	53	53
2	32	32	70	70	120	30	63	115
3	62	62	130	130	250	58	110	240
4	89	89	207	207	421	94	209	411
6	164	210	397	475	850	202	387	465
8	323	415	-	-	-	405	-	-
10	492	620	-	-	-	480	-	-

Actuator

 (unit : Kg³)

Actuator Size	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





Valstone, Valves that Work!!

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 - 3. Control Chock Valves*
 - 4. V-Notch Control Valves*
 - 5. Anti-Surge Valves*
- 6. Pressure Regulating Valves*
- 7. Retrofit for Up-grade*