

Series 3000 Control Valves Globe-Angle Valves



J Flow Controls

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Ordering Schematic

880	3	0	0	0
Actuator Type	Body Type	Trim Type	Characteristic	Plug Type
Spring Diaphragm				
870	3	0	0	0
		1	1	1
	Globe Single Seated	2	2	2
880		3	3	3
		4	4	4
Cylinder				
670				
680				

Manufacturing Range

Description	Manufacturing Range	Remark
Body Size	3/4" – 10"	
Ratings	ANSI Class 150 – 2500	
Connections	Flanged, Butt-Weld, Socket-Weld	
Body Material	A216 Gr-WCB, A351 Gr-CF8, CF8M, Alloy Steel Available	
Trim Material	304, 316, 420, 630SST, 17-4PH, Hard Facing, Alloy Steel Available	

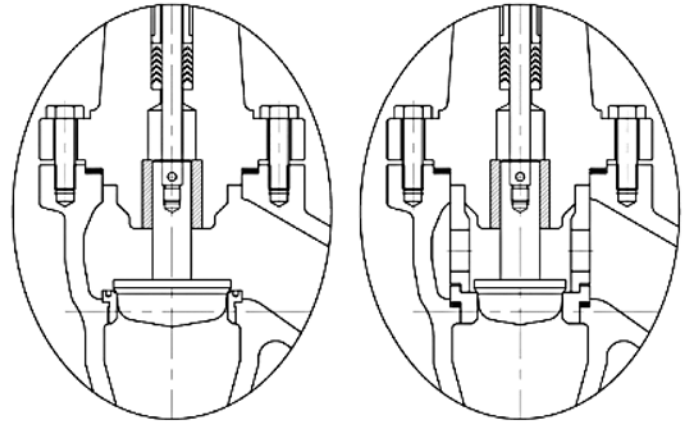
General Specifications

- Flow Direction: Flow to Open or Flow to Close
- Max. Fluid Temperature: 1049°F
- Minimum Fluid Temperature: -320°F
- Seat Leakages: ANSI B16.104 Class IV
 - Option 1: ANSI B16.104 Class V for Metal Seat Tight Shutoff
 - Option 2: ANSI B16.104 Class VI for Teflon Soft Seat & Seal (-22°F ~ 446°F)
- Body: Globe Single Seated Top Guide
- Bonnet Type: Stud Bolted
 - Standard Type: -0.4°F ~ 536°F
 - Extension Type: 538°F ~ 1049°F & under -0.4°F
- Flow Characteristics: Linear, Equal Percentage, 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, Limit switch)

Trim Design Applications – 1

Contoured Trim (Threaded & Quick Change Trim)

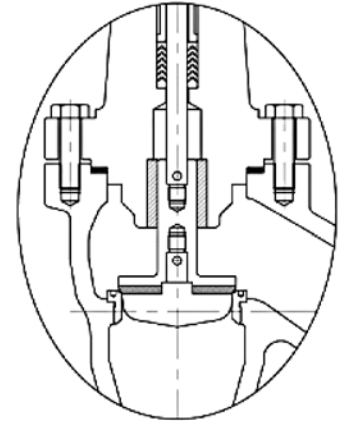
The contoured plug is design with a specially represented valve plug head. The plug head represent defines the flow characteristic through the valve, and offers a smooth profile to the flow leading to a high pressure recovery. The trim is most suited to low pressure drop application and is used in the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



Contoured Soft Seat Trim

An alternative of the standard contoured plug is the soft seated option.

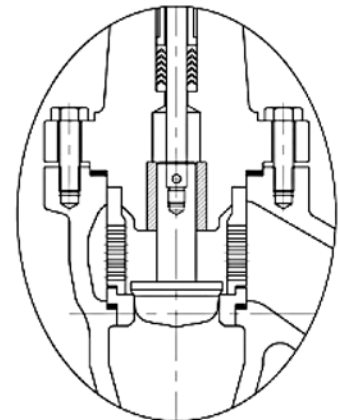
The plug head is manufactured with a clamped on shroud which locks the soft seated ring in position. When the soft face contacts the seating point it deforms the softer ring ensuring a high degree of closure. The soft faced plug is used on applications where bubble tight shut off is required.



Tendril (Multi-hole, Multi-stage) Trim

The trim design presented is a multi-stage, multi-hole trim. There are 1 ~ 5 Stage designs available depending on pressure drop and potential for cavitation.

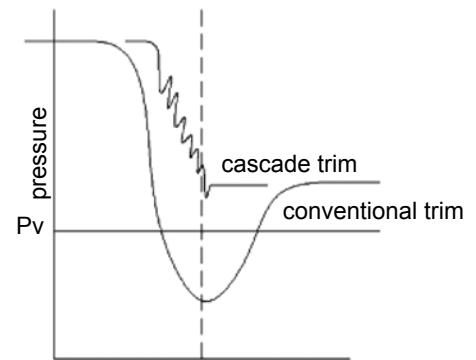
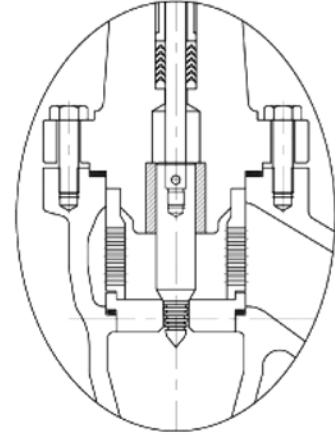
The fluid passes through the flow path generated by incorporating angled flats onto the surface of the plug, together with a cut out on the internal diameter of the seat. The pressure drop is apportioned across the stages of letdown so that the pressure drop progressively reduces as it passes through 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.



Trim Design Applications – 2

Multi-Grooved (Cascade) Trim

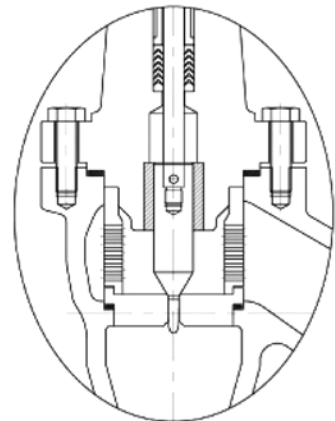
Cascade trim for non-compressible fluid applications is designed for any number of grooves of required pressure drop to meet the specifications for preventing cavitation from occurring and eventual erosion. There are 7~9 groove designs available depending on pressure drop and potential for cavitation. 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.



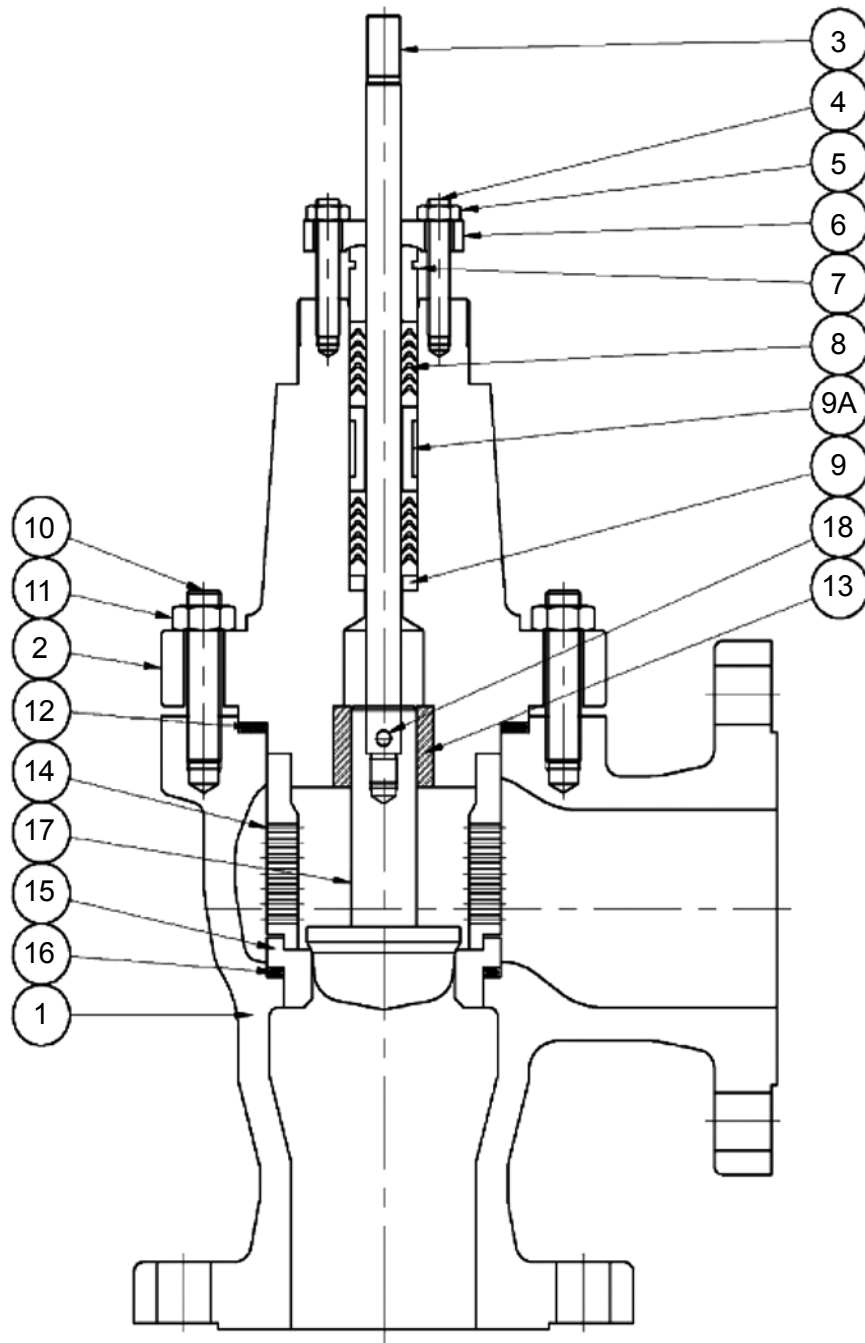
Micro Trim

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 Equal Percentage, 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 have potential 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 1450 psi.



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

Part No.	Description	Material
1	Body	ASTM A216 Gr-WCB / Alloy Steel Available
2	Bonnet	ASTM A216 Gr-WCB / Alloy Steel Available
3	Plug Stem	316 Stainless Steel
4	Packing Stud	316 / 304 Stainless Steel
5	Packing Nut	316 / 304 Stainless Steel
6	Packing Flange	316 / 304 Stainless Steel
7	Gland	316 / 304 Stainless Steel
8	Packing	PTFE Carbon Fiber / Graphite / Grafoil + Graphite
9	Packing Spacer	316 / 304 Stainless Steel
9A	Lantern Ring	316 / 304 Stainless Steel
10	Body Stud	A193 B7
11	Body Nut	A194 2H
12	Body Gasket	316 SST with Grafoil Filler
13	Guide Bushing	Solid Stellite / 440B Stainless Steel
14	Seat Ring Retainer	316 / 304 Stainless Steel
15	Seat Ring	304 & 316SST, 316L and Alloy Steel / Soft Seat Available
16	Seat Ring Gasket	316 SST with Grafoil Filler
17	Plug	304 & 316SST, 316L and Alloy Steel / Soft Seat Available
18	Plug Stem Pin	316 Stainless Steel

Body Materials: Stainless Steel

Part No.	Description	Material
1	Body	ASTM A351 Gr-CF8 / A351 Gr-CF8M
2	Bonnet	ASTM A351 Gr-CF8 / A351 Gr-CF8M
3	Plug Stem	316 Stainless Steel
4	Packing Stud	316 / 304 Stainless Steel
5	Packing Nut	316 / 304 Stainless Steel
6	Packing Flange	316 / 304 Stainless Steel
7	Gland	316 / 304 Stainless Steel
8	Packing	PTFE Carbon Fiber / Graphite / Grafoil + Graphite
9	Packing Spacer	316 / 304 Stainless Steel
9A	Lantern Ring	316 / 304 Stainless Steel
10	Body Stud	A193 B7
11	Body Nut	A194 2H
12	Body Gasket	316 SST with Grafoil Filler
13	Guide Bushing	Solid Stellite / 440B Stainless Steel
14	Seat Ring Retainer	316 / 304 Stainless Steel
15	Seat Ring	304 & 316SST, 316L and Alloy Steel / Soft Seat Available
16	Seat Ring Gasket	316 SST with Grafoil Filler
17	Plug	304 & 316SST, 316L and Alloy Steel / Soft Seat Available
18	Plug Stem Pin	316 Stainless Steel

Flow Coefficients – Rated Cv

Valve Size	Travel	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"	0.79	1.9	4.0	7.0											
3/4"	0.79	1.9	4.0	7.0	14										
1"	0.79	1.9	4.0	7.0	14										
1-1/2"	0.79	1.9	4.0	7.0	15	20	28								
2"	1.18	1.9	4.0	7.0	17	21	28	52							
3"	1.57					22	34	53	76	118					
4"	1.57						35	55	78	122	205				
6"	1.97							58	85	134	216	315	420		
8"	1.97									140	230	330	435		
	2.76														695
10"	1.97										233	345	454		
	2.76														715 1220

Tendril Trim (Multi-Hole, 1-Stage)

Valve Size	Travel	Nominal Trim Size (Inch)													
		1/4	1-1/2	2	2-1/2	3	4	5	6	8	10				
3/4", 1"	0.79	9													
1-1/2"	0.79	9	16												
2"	1.18		19	22											
3"	1.57			28	32	76									
4"	1.57					76	105								
6"	1.97							160	210						
8"	2.76												340		
10"	2.76														540

This trim is applicable to Quick Change, Linear Flow Characteristics

Multi-Groove Trim (Cascade)

Valve Size	Travel	Nominal Trim No.						
		A	B	C	D	E	F	G
3/4", 1"								
1-1/2"	1.18	0.4	0.8	1.25	3.0	6.0	10.0	16.0
2", 3"								

This trim is applicable only Quick Change, Linear Flow Characteristics

Micro Trim (Mini Flow Trim)

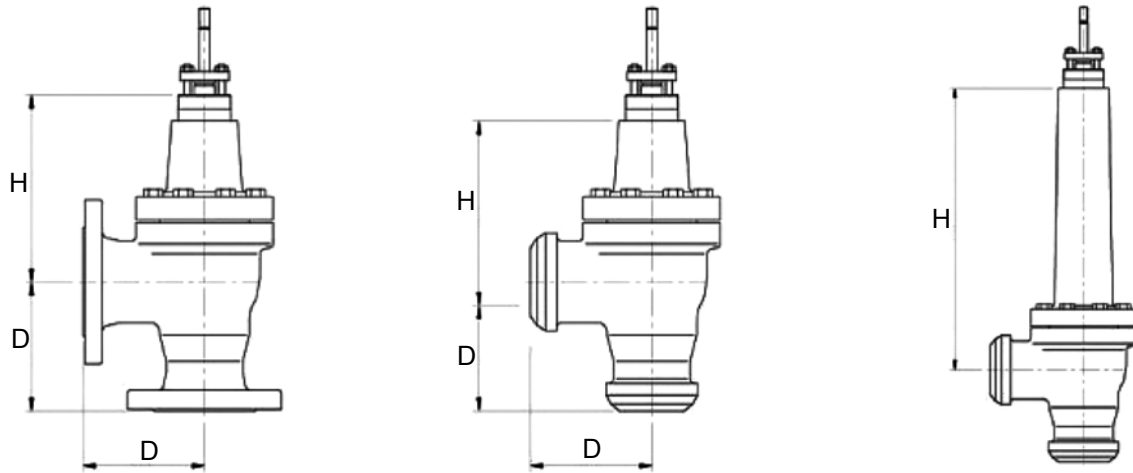
Valve Size	Travel	Nominal Trim No.							
		1	2	3	4	5	6	7	8
3/4", 1"									
1-1/2"	1.18	0.001	0.004	0.008	0.025	0.11	0.3	0.6	1.0
2"									

This trim is applicable only Quick Change, Linear and/or Modified % Flow Characteristics

** The Cv value shown in our catalog are for reference only

J Flow Controls, LLC can design and modify the seat design to meet different customer requirements

Dimensions



ANSI Class 150 ~ 600

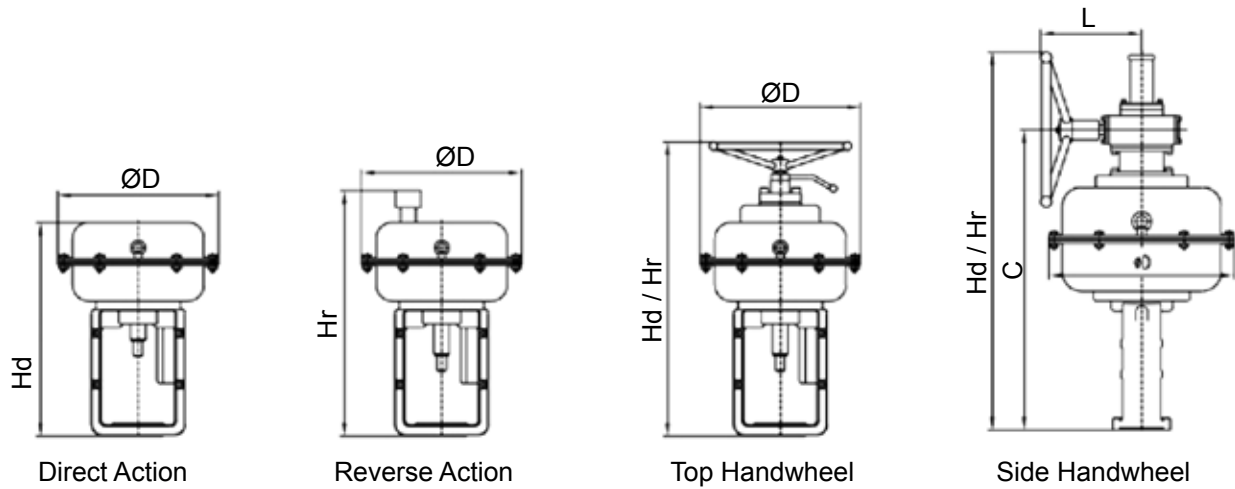
Valve Size	A							D			H			
	ANSI Class 150~600	ANSI Class 150		ANSI Class 300		ANSI Class 600		ANSI Class 150	ANSI Class 300	ANSI Class 600	ANSI Class 150~300		ANSI Class 600	
	Thd, SW, BW	RF	RTJ	RF	RTJ	RF	RTJ				Std. Bonnet	Ext. Bonnet	Std. Bonnet	Ext. Bonnet
1/2"	8.3	7.2	-	7.5	8.0	8.0	8.0	3.6	3.7	4.0	6.3	11.6	6.3	11.6
3/4"	8.3	7.2	-	7.6	8.1	8.1	8.1	3.6	3.8	4.1	6.3	11.6	6.3	11.6
1"	8.3	7.2	7.8	7.8	8.3	8.3	8.3	3.6	3.9	4.1	6.3	11.6	6.3	11.6
1-1/2"	9.9	8.7	9.3	9.3	9.8	9.9	9.9	4.4	4.7	5.0	6.3	11.6	6.3	11.6
2"	11.3	10.0	10.5	10.5	11.1	11.3	11.4	5.0	5.3	5.6	6.3	11.6	6.3	11.6
3"	13.3	11.7	12.2	12.5	13.1	13.3	13.4	5.9	6.3	6.7	8.3	13.0	9.5	13.4
4"	15.5	13.9	14.4	14.5	15.1	15.5	15.6	6.9	7.2	7.8	8.3	13.0	10.8	14.8
6"	20.0	17.8	18.3	18.6	19.3	20.0	20.1	8.9	9.3	10.0	11.4	16.9	12.8	17.7
8"	24.0	21.4	21.9	22.4	23.0	24.0	24.1	10.7	11.2	12.0	16.9	23.0	16.9	23.0
10"	29.6	26.5	27.0	27.9	28.5	29.6	29.7	13.3	13.9	14.8	18.5	25.0	18.9	25.4

ANSI Class 900 ~ 2500

Valve Size	A						D				H			
	ANSI Class 900~1500	ANSI Class 2500	ANSI Class 900		ANSI Class 1500		ANSI Class 2500		ANSI Class 900-1500	ANSI Class 2500	ANSI Class 900~1500		ANSI Class 2500	
	SW, BW	SW, BW	RF	RTJ	RF	RTJ	RF	RTJ			Std. Bonnet	Ext. Bonnet	Std. Bonnet	Ext. Bonnet
3/4"	9.8	11.5	9.5	9.5	9.5	9.5	11.3	11.3	4.9	5.8	7.9	12.0	9.4	13.4
1"	11.5	12.5	11.5	11.5	11.5	11.5	12.5	12.5	5.8	6.3	7.3	11.8	7.3	11.8
1-1/2"	13.1	14.1	13.1	13.1	13.1	13.1	14.3	14.3	6.6	7.1	7.3	11.8	7.3	11.8
2"	12.2	15.5	12.2	12.4	12.2	12.4	15.5	15.6	6.1	7.8	9.3	13.2	11.6	15.7
3"	16.0	20.7	15.2	15.4	16.0	16.1	20.8	21.0	8.0	10.4	11.6	15.8	14.4	18.5
4"	19.0	25.0	18.3	18.4	19.0	19.1	25.0	25.4	9.5	12.5	14.0	18.3	17.5	22.0
6"	24.0	30.0	21.9	22.0	24.0	24.3	30.0	30.5	12.0	15.0	17.1	22.8	20.7	26.6

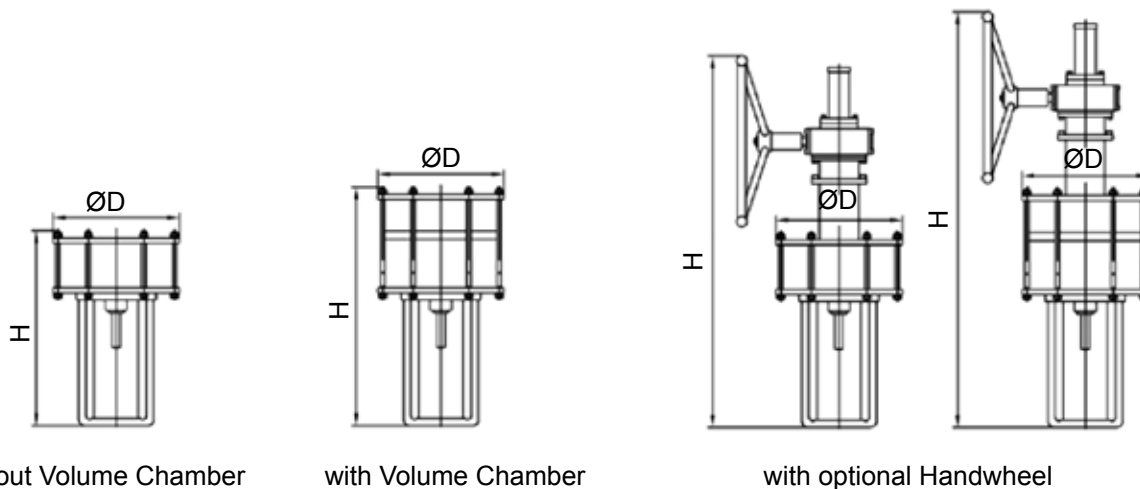
Actuator and Handwheels

Model 870 / 880 Diaphragm Actuators



Actuator Size	D	Without Handwheel		With Handwheel				
		DA Hd	RA Hr	Handwheel Type	DA Hd	RA Hr	C	L
#25	9.8	13.1	13.9	Top	17.7	18.6	-	-
#29	11.4	14.5	16.5	Top	21.0	22.4	-	-
#37	14.6	16.1	18.1	Top	22.6	24.4	-	-
#48	18.9	24.8	26.7	Side	38.5	38.5	30.7	10.2
#55	21.7	26.7	28.7	Side	43.2	43.2	33.4	11.8
#55H	21.7	28.7	30.6	Side	45.2	45.2	33.4	11.8

Model 670 / 680 Cylinder Actuators



Weight

Body Sub-Assembly

Valve Size	ANSI Class							
	150~300	600	900	1500	2500	150~600 Welding	900~1500 Welding	2500 Welding
3/4"~1"	44	44	97	97	97	40	88	88
1-1/2"	60	60	60	128	128	55	117	117
2"	71	71	154	154	265	66	139	254
3"	137	137	287	287	551	128	242	529
4"	196	196	456	456	926	207	461	906
6"	362	463	875	1047	1874	445	853	1025
8"	712	915	-	-	-	893	-	-
10"	1085	1367	-	-	-	1058	-	-

Actuator

Actuator Size	Standard	With Handwheel	
		Top	Side
#25	22	29	33
#29	42	55	60
#37	82	101	108
#48	203	238	247
#55	256	309	320
#55H	265	318	331

Accessories

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