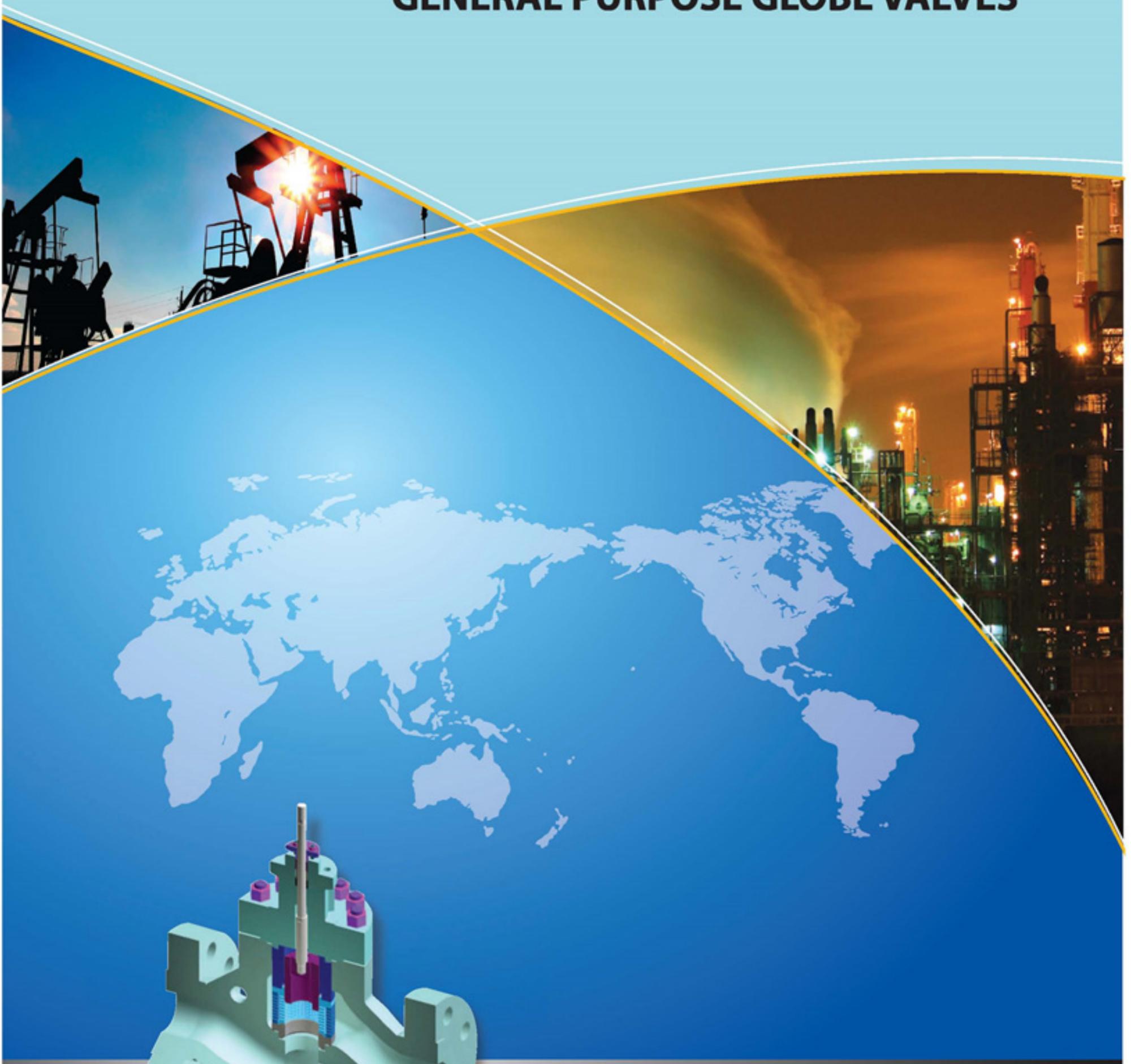


DV200-Series Cage Application Valve

MS. MD. MT. CC
GENERAL PURPOSE GLOBE VALVES



DV200-Series Cage Control Valve

This versatile design can be used for compressible and non-compressible fluid service application in valve sizes ranging from 3/4 through 18" in pressure classes 150, 300, 600, 900, 1500 and 2500 LBS.

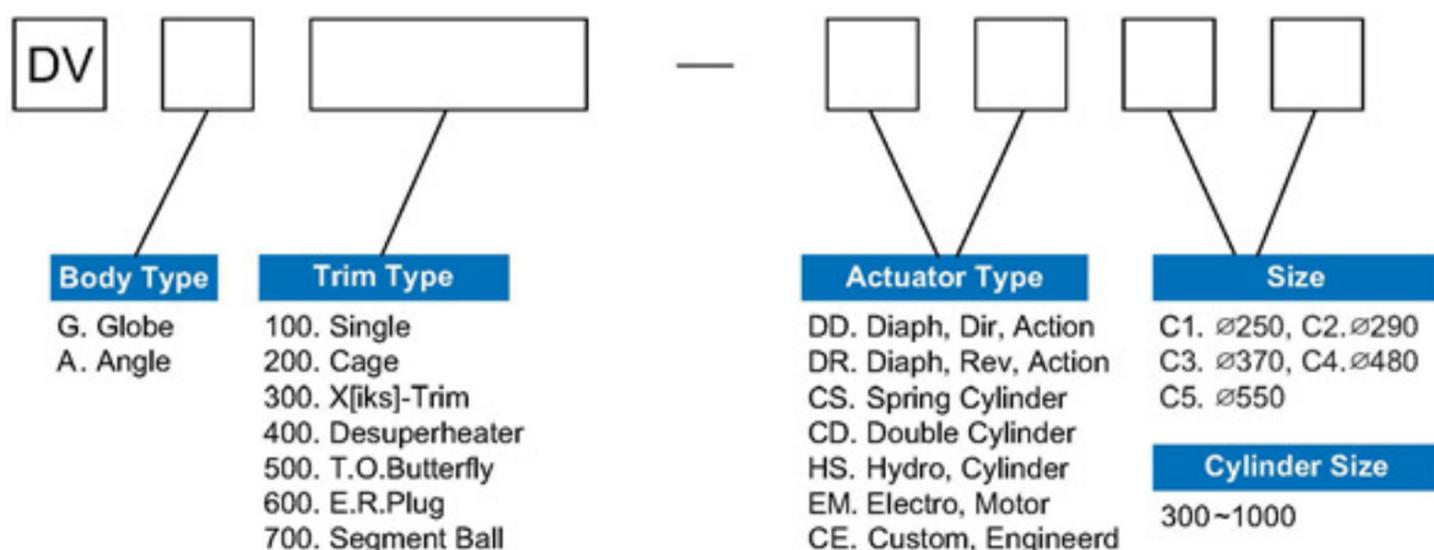
DV-Series valves are supplied with either direct or reverse acting actuators plus a number of optional accessories to satisfy most final control element requirements. Our DV-Series valves also permits interchangeability of actuator and trim types within certain valve Size for simplifying control changes in the field. This feature combined with a wide selection of standard and optional trim assemblies provides optimum control and has proven to be economical should field conversion be necessary.

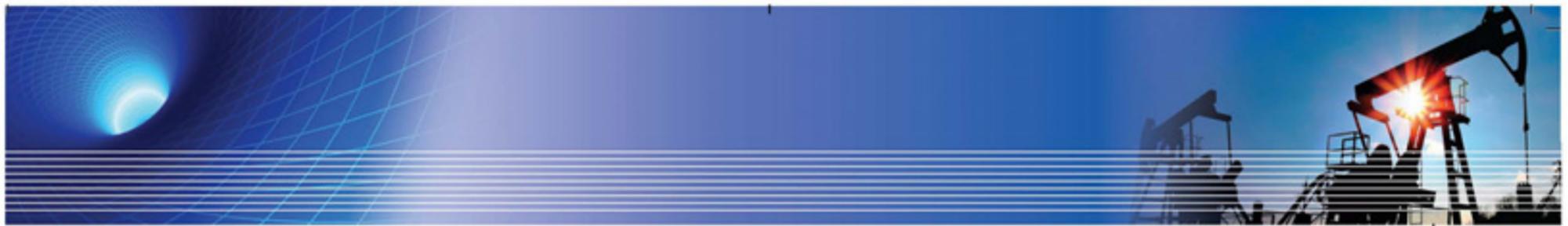
DJC engineers long experience success with fluid control devices carries through with the DV-Series control valve & Actuator series to meet the needs of the power and process industries.

Contents

Introduction	2
Contents	2
Model Numbering System	2
Specification	3
General Application	4
General Selection Information	5

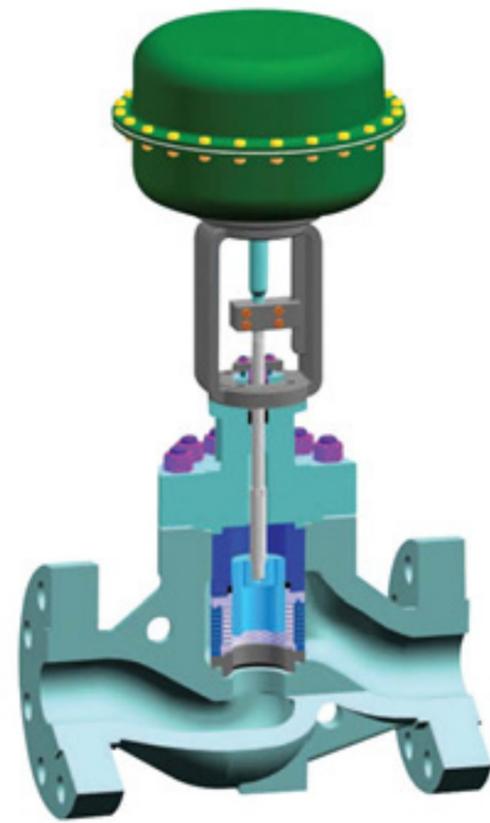
DV Series Selection Guide





Specification

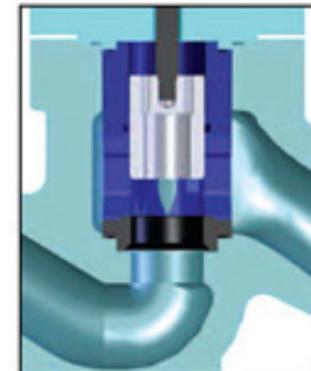
Body Seize	1" to 20" (Optional / up to 36")
Body Style	Globe, Angle
Pressure Rating	ANSI Class 150, 300, 600, 900, 1500 and 2500 LBS
End Connection	Flanges, Socket welded, Butt welded, Ring joint type, etc.
Trim Design	Unbalanced , Balanced and Auxiliary Pilot CC: Conventional Cage. MS : Multi-hole 1stage, MD: Multi-hole 2stages, MT :Multi-hole 3stages,, X[iks]-Trim : Disk Stack
Bonnet Type	Bolted design, Pressure seal design, Standard, Extension, Cryogenic, Bellows seal
Seat Leakage	ANSI B16.34 /ANSI FCI 20.1 Class IV(Standard), V(Optional), VI(Optional, Soft seat) MSS-SP-61(Optional)
Characteristic	Equal%, Linear, Modified%, Quick opening, Custom engineered
Standard Materials	
Body & Bonnet	A216 WCB/ A105, A217 WC6/ A182F11, A217 WC9/ A182 F22, A182F91 Stainless steel, Tungsten, Titanium, Monel, Hastelloy, etc.
Trim	316SS, 410SS, 420SS, 420J2SS, 630SS F-11, F-22, F-91 with Stellite overlay Inconel, Others special materials.
Balance-Seal	RTFE "U" Seal Carbon with metal seal Graphite with Inconel seal
Rangeability	15:1, 30:1, 50:1 to 800:1 Custom engineered



General Application

Conventional cage / balanced single seat port throttle

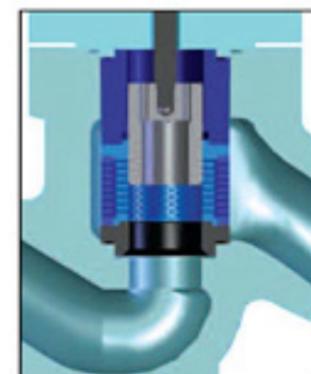
General purpose cage guided valve trim which can be used in most clean compressible and non-compressible fluid services for both modulating and on/off control. The balanced plug design reduces actuator force requirements thus permitting use of smaller, less expensive actuators while maintaining tight shut-off capability.



CONVENTIONAL CAGE

Multi-hole 1stage, 2stages Trim

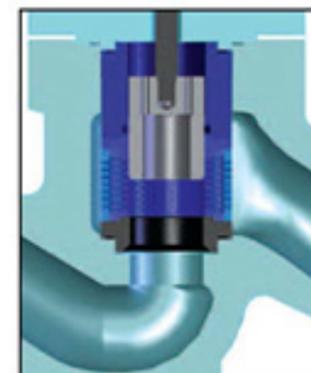
This trim offers some of the advantages of the multiple stages MH Trim. Single stage trim reduces the damaging effects of flashing and cavitation when used with compressible and non-compressible fluids. Turn down ratio, seat leakage, dBA levels, flashing and cavitation reduction are based upon the individual design criteria of each trim. The single stage trim can be used in place of other port throttling trim styles. Size is available in 2inch through 18" valves with balanced and unbalanced plugs. / Option 20"~36"



MULTI-HOLE 2 STAGES

Muti-hole 3stage Trim

DJC multi-hole multi-stage trim assembly in unbalanced or balanced single seat designs provides multiple pressure breakdowns for noise abatement in critical pressure drop steam or gas applications. This trim is also equally effective in high pressure drop liquid applications for preventing cavitation and trim erosion damage.

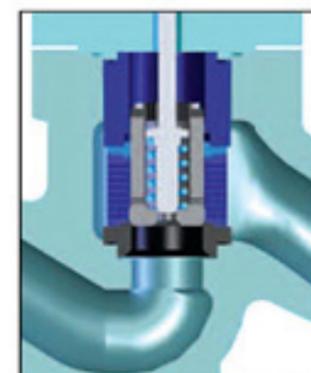


MULTI-HOLE 3 STAGES

Auxiliary pilot plug trim [APT]

The APT trim is designed primarily for high pressure differential applications where tight shut-off is essential. Such applications include steam and water pressure reduction, steam throttling to atmosphere or to condense, isolation, super-critical boiler start-up and variety of other uses in steam and water control system. The design of the APT trim provides tight shut-off, excellent control and rangeability, but requires low actuator thrust which provides rapid response. It is also lower in cost.

The trim is basically a port throttling single seat design with main and pilot plugs working in APT. The large main plug is the control device. Inside the main plug seats first as a large balanced plug and this is rapidly followed by the closing of the pilot plug. At this point, the plug from an unbalanced assembly and up stream pressure helps create high seating force resulting in reliable shut-off as high as class B. To open the actuator need only lift the small pilot to cause the main plug to once again become balanced.



AUXILIARY PILOT TRIM / APT WITH 1 STAGE



General Selection Information

Trim Cv Calculation

A full description of the procedures use for calculating the Cv on various is detailed in the DJC sizing & selection program.

Body Selection

Generally, the valve body must be capable of supporting the selected trim design without producing excessive velocity. The following tables can be used as a guide for determining the maximum recommended body velocities for liquid and gas/vapor applications.

Recommended maximum inlet and outlet velocities for liquid service

Maximum Recommended Velocity

Valve size	Valve Body Material					
	Carbon Steel		Alloy Steel		Cu / Ni Alloys	
	m / s	Ft / s	m / s	Ft / s	m / s	Ft / s
1" ~ 12" / 25A~300A	13.1	43	15.8	52	7.6	25
14" ~ 24" / 350A~600A	10.7	35	13.1	43	6.4	21
Above 24"	7.6	25	10.7	35	4.6	15

Recommended maximum inlet and outlet velocities for gas/vapor service

Maximum Recommended Velocity

Allowable Noise Level (dBA)	Inlet		Outlet		Mach Number
	m / s	Ft / s	m / s	Ft / s	
< 85	144	475	253	830	0.3

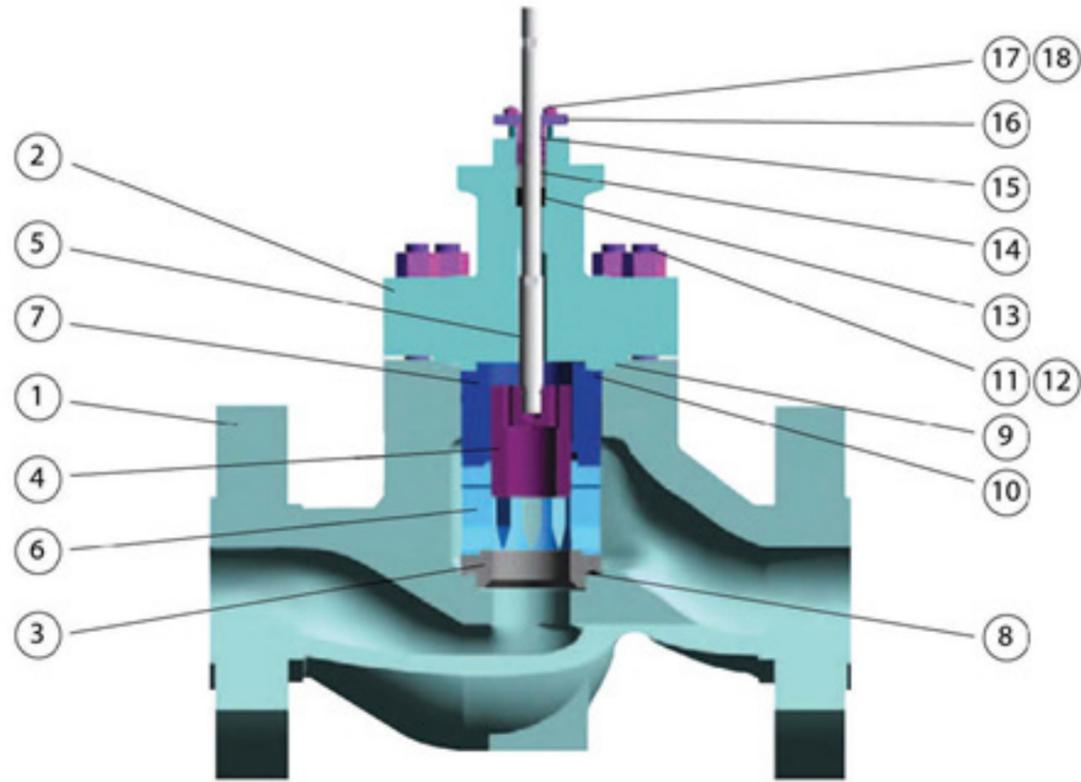
Trim Inherent Rangeability

The inherent rangeability of a valve trim is dependent on a number of factors including size and style. The valves detailed below table provide a general guideline to the maximum achievable values.

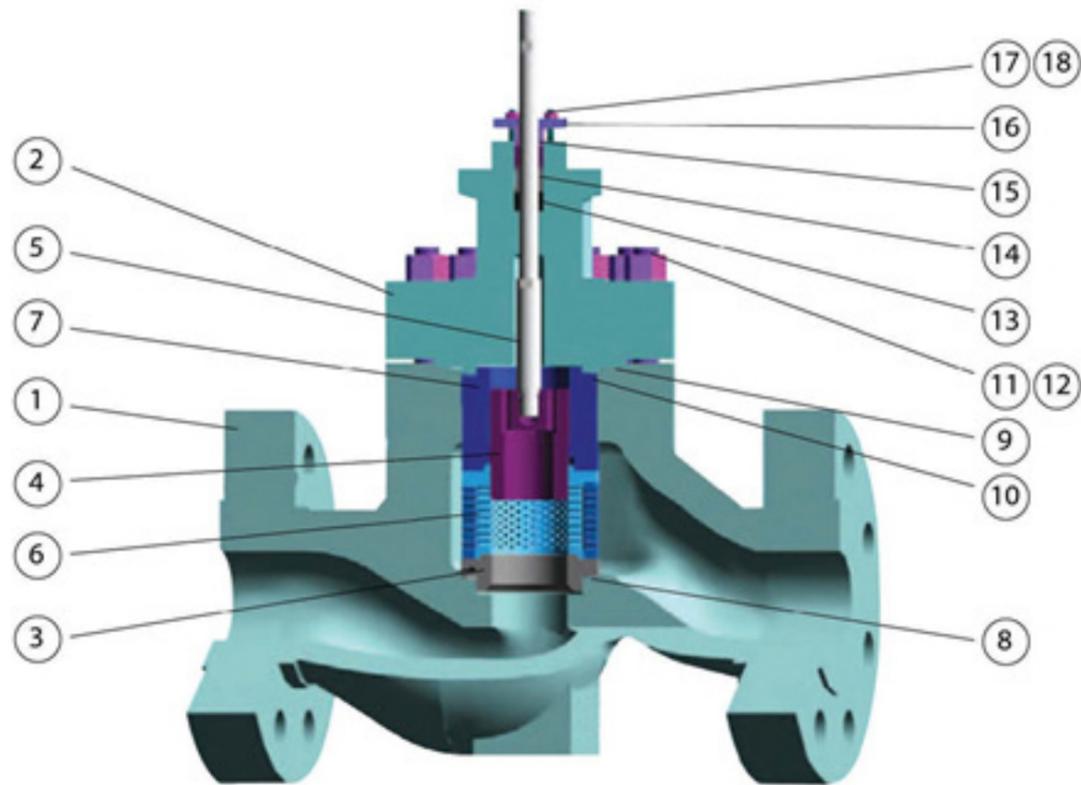
Trim size	Standard Rangeability
Up to 8"	50 : 1
Up to 8"	60 : 1
Up to 8"	70 : 1
Up to 8"	80 : 1
Special Application Maximum Rangeability	800 : 1



Body Materials



Conventional Cage Valve



Velocity Control Valve



General Selection Information

Carbon Steel or Alloy Steel

Part No.	Valve type	Temperature Range
5	Plug-Stem	316SS
17	Packing Stud	316SS
18	Packing Nut	316SS
16	Packing Flange	S25C or 316SS
15	Gland	316SS
14	Packing	See Specification Sheet
13	Packing Spacer	316SS
2	Bonnet	A216 WCB A217-WC6 or A217-WC9
11	Body Stud	A194 B7
12	Body Nut	A194 2H
9+10	Body Gasket	Spiral wounded
6	Cage	316SS
8	Seat Ring Gasket	Spiral wounded
3	Seat Ring	316SS, 316SS+Stellite 420J2 SS 630SS
4	Plug	316SS, 316SS+Stellite 420J2 SS 630SS
1	Body	A216 WCB A217-WC6 or A217-WC9, A217 C12
7	Balance Cylinder	Rctaincr : 316SS

Stainless Steel

Part No.	Valve type	Temperature Range
1	Body	A351 CF8M, A351 CF8
2	Bonnet	A351 CF8M, A351 CF8
11	Body Stud	A193 B8
12	Body Nut	316SS
4	Plug	316SS, 316SS+Stellite
3	Seat Ring	316SS, 316SS+Stellite
6	Seat Ring Retainer	316SS
7	Upper Seat Ring Retainer	316SS with Cr. Plate
5	Plug-Stem	316SS or 630SS
9+10	Body Gasket	Spiral wounded
8	Seat Ring Gasket	Spiral wounded
14	Packing	See Specification sheet
15	Gland Follower	316SS
17	Packing Stud	316SS
18	Packing Nut	
13	Packing Spacer	S25C or 316SS

Cv, FL Travel Chart

Linear Standard Type

Percent of Travel			10	20	30	40	50	60	70	80	90	100
FL			0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.90
Valve Size	Orifice Dia	Travel(mm)	Rated Cv									
1-1/2"	1.58"	20/30	4.55	7.93	11.32	14.70	18.08	21.47	24.85	28.23	31.62	35.0
2"	1.97"	30	6.11	10.65	15.20	19.74	25.28	28.83	33.37	37.91	42.46	47.0
2-1/2"	2.50"	30/40	9.49	16.55	23.60	30.66	37.72	44.77	51.83	58.89	65.94	73.0
3"	2.00"	30/40	7.15	12.47	17.78	23.10	28.42	33.73	39.05	44.37	49.68	55.0
	3.15"		13.65	23.80	33.95	44.10	54.25	64.40	74.55	84.70	94.85	105.0
4"	3.15"	40/50	14.30	24.93	35.57	46.20	56.83	67.47	78.10	88.73	99.37	110.0
	3.94"		24.70	43.07	61.43	79.80	98.17	116.53	134.90	153.27	171.63	190.0
6"	3.94"	40/50	26.0	45.3	64.7	84.0	103.3	122.7	142.0	161.3	180.7	200.0
	5.98"	50/70	52.0	98.7	129.3	168.0	206.7	245.3	284.0	322.7	361.3	400.0
8"	7.80"	70	70.2	122.4	174.6	226.8	279.0	331.2	383.4	435.6	487.8	540.0
		100	87.1	151.9	216.6	281.4	346.2	410.1	475.7	540.5	605.2	570.0
10"	9.88"	70	109.2	190.4	271.6	352.8	434.0	515.2	596.4	677.6	758.8	840.0
		100	135.2	235.7	336.3	436.8	537.3	637.9	738.4	838.9	939.5	1040.0
12"	11.65"	70	136.5	238.0	339.5	441.0	542.5	644.0	745.5	847.0	948.5	1050.0
		100	188.5	328.7	458.8	609.0	749.2	889.3	1029.5	1169.7	1309.8	1450.0
14"	13.60"	100	195.0	340.0	485.0	630.0	775.0	920	1065.0	1210.0	1355.0	1500.0
		130	257.4	448.8	640.2	831.6	1023.0	1214.4	1405.8	1597.2	1788.6	1980.0
16"	15.60"	100	266.5	464.7	662.8	861.0	1059.2	1257.3	1455.5	1653.7	1851.8	2050.0
		130	338.0	589.3	840.7	1092.0	1343.3	1594.7	1846.0	2097.3	2348.7	2600.0

Equal Percentage Standard Type

Percent of Travel			10	20	30	40	50	60	70	80	90	100
FL			0.94	0.94	0.94	0.94	0.94	0.94	0.93	0.92	0.92	0.90
Valve Size	Orifice Dia	Travel(mm)	Rated Cv									
1-1/2"	1.58"	20/30	1.64	2.30	3.24	4.55	6.39	8.98	12.62	17.73	24.91	35.0
2"	1.97"	30	2.20	3.09	4.35	6.11	8.58	12.06	16.94	23.81	33.45	47.0
2-1/2"	2.50"	30/40	3.28	4.61	6.47	9.09	12.78	17.96	25.23	35.45	49.82	70.0
3"	2.00"	30/40	3.33	4.67	6.56	9.23	12.96	18.21	25.93	35.96	50.53	71.0
	3.15"		4.92	6.91	9.71	13.64	19.17	26.94	37.85	53.18	74.73	105.0
4"	3.15"	40/50	5.15	7.24	10.17	14.29	20.08	28.22	39.65	55.71	78.28	110.0
	3.94"		8.90	12.50	17.57	24.69	34.69	48.74	68.49	96.23	135.22	190.0
6"	3.94"	40/50	9.2	12.9	18.1	25.5	35.8	50.3	70.7	99.3	139.5	196.0
	5.98"	50/70	18.7	26.3	37.0	52.0	70.6	102.6	144.2	202.6	284.7	400.0
8"	7.80"	70	24.4	34.2	48.1	67.6	94.9	133.4	187.4	263.4	370.1	520.0
		100	30.4	42.8	60.1	84.5	118.7	166.8	234.3	329.2	462.6	650.0
10"	9.88"	70	39.3	55.3	77.7	109.1	153.4	215.5	302.8	425.5	597.8	840.0
		100	48.7	68.4	96.2	135.1	189.9	266.8	374.9	526.8	740.2	1040.0
12"	11.65"	70	47.8	67.1	94.3	132.5	186.2	261.7	367.7	516.6	725.9	1020.0
		100	66.5	93.5	131.3	184.5	259.3	364.3	511.9	719.2	1010.6	1420.0
14"	13.60"	100	67.9	95.4	134.1	188.4	264.7	372.0	522.7	734.4	1031.9	1450.0
		130	92.7	130.3	183.1	257.3	361.5	507.9	713.7	1002.9	1409.1	1980.0
16"	15.60"	100	89.0	125.0	175.7	246.9	346.9	487.4	684.9	962.3	1352.2	1900.0
		130	118.0	165.8	233.0	327.4	460.1	646.5	908.4	1276.4	1793.4	2520.0



Cv, FL Travel Chart

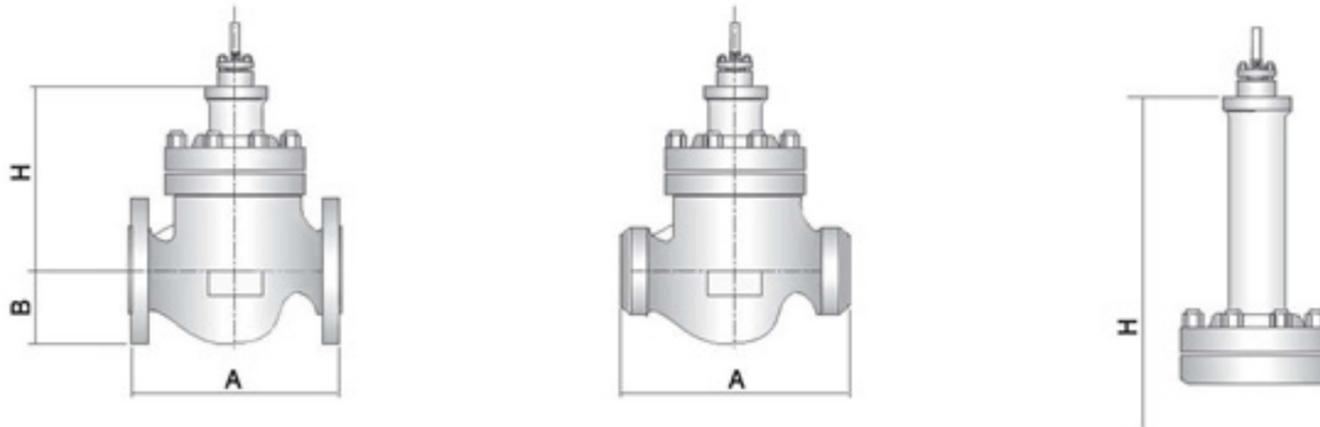
Linear Multi Hole Type(1-Stage)

Percent of Travel			10	20	30	40	50	60	70	80	90	100
FL			0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.90
Valve Size	Orifice Dia	Travel(mm)	Rated Cv									
1-1/2"	1.58"	30	2.70	5.74	8.77	11.80	14.83	17.87	20.90	23.93	26.97	30.0
2"	1.97"	40	3.60	7.65	11.69	15.74	19.78	23.82	27.87	31.91	35.96	40.0
2-1/2"	2.50"	40	6.12	13.00	19.87	26.75	33.62	40.50	43.37	54.25	61.12	68.0
3"	3.15"	40	8.11	17.21	26.30	35.40	44.50	53.60	62.70	71.80	80.90	90.0
		50	9.01	19.12	29.23	39.34	49.45	59.56	69.67	79.78	89.89	100.0
4"	3.94"	50	11.71	24.85	38.00	51.14	64.28	77.43	90.57	103.71	116.86	130.0
		60	13.51	28.68	43.84	59.01	74.17	89.34	104.50	119.67	134.83	150.0
6"	5.98"	50	22.5	47.8	73.1	98.3	123.6	148.9	174.2	199.4	224.7	250.0
		70	27.9	59.3	90.6	121.9	153.3	184.6	216.0	247.3	278.7	310.0
8"	7.80"	70	38.7	82.2	125.7	169.2	212.6	256.1	299.6	343.1	386.5	430.0
		100	46.8	99.4	152.0	204.6	257.1	309.7	362.3	414.9	467.4	520.0
10"	9.88"	70	49.5	105.1	160.7	216.4	271.5	327.6	383.2	438.8	494.4	550.0
		100	66.6	141.5	216.3	291.1	365.9	440.7	515.5	590.4	665.2	740.0
12"	11.65"	100	85.6	181.6	277.7	373.7	469.8	565.8	661.9	757.9	853.6	950.0
		130	106.3	225.6	344.9	464.2	583.5	702.8	822.1	941.4	1060.7	1180.0
14"	13.60"	100	99.1	210.3	321.5	432.7	543.9	655.1	766.4	877.6	988.8	1100.0
		130	126.1	267.6	409.2	550.7	692.3	833.8	975.4	1116.9	1258.5	1400.0
16"	15.60"	130	153.1	325.0	496.9	668.7	840.6	1012.5	1184.4	1356.3	1528.3	1700.0
		150	178.3	378.5	578.7	778.9	979.1	1179.3	1379.4	1579.6	1779.8	1980.0

Equal Percentage Multi Hole Type(1-Stage)

Percent of Travel			10	20	30	40	50	60	70	80	90	100
FL			0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.90
Valve Size	Orifice Dia	Travel(mm)	Rated Cv									
1-1/2"	1.58"	30	1.22	1.71	2.40	4.63	8.19	11.75	15.32	18.88	22.44	26.0
2"	1.97"	40	1.78	2.50	3.51	6.77	11.97	17.18	22.39	27.59	32.80	38.0
2-1/2"	2.50"	40	2.44	3.42	4.81	9.26	16.39	23.51	30.63	37.75	44.88	52.0
3"	3.15"	40	3.28	4.61	6.47	12.47	22.06	31.65	41.23	50.82	60.41	70.0
		50	3.98	5.59	7.89	15.14	26.78	38.43	50.07	61.71	73.36	85.0
4"	3.94"	50	4.68	6.58	9.25	17.81	31.51	45.21	58.91	72.60	86.30	100.0
		60	5.15	7.24	10.17	19.59	35.44	49.73	64.80	79.86	94.93	110.0
6"	5.98"	50	8.9	12.5	17.6	33.8	59.9	85.9	111.9	137.9	164.0	190.0
		70	11.7	16.5	23.1	44.5	78.8	113.0	147.3	181.5	215.8	250.0
8"	7.80"	70	15.9	22.4	31.4	60.6	107.1	153.7	200.3	246.9	293.4	340.0
		100	21.2	29.6	41.6	80.1	141.8	203.4	265.1	326.7	388.4	450.0
10"	9.88"	70	18.7	26.3	37.0	71.2	126.0	180.8	235.6	290.4	345.2	400.0
		100	24.8	34.9	49.0	94.4	167.0	239.6	312.2	384.8	457.4	530.0
12"	11.65"	100	30.0	42.1	59.2	114.0	201.7	289.3	377.0	464.7	552.0	640.0
		130	44.5	62.5	87.8	169.2	299.3	429.5	559.6	689.7	819.9	950.0
14"	13.60"	100	37.5	52.7	74.0	142.5	252.1	361.7	471.2	580.8	690.4	800.0
		130	50.6	71.1	99.9	192.4	340.3	488.2	636.2	784.1	932.1	1080.0
16"	15.60"	130	53.9	75.7	106.3	204.8	362.4	519.9	677.4	834.9	992.5	1150.0
		150	71.2	100.0	140.6	270.7	478.9	687.2	895.4	1103.6	1311.8	1520.0

Dimensions



ANSI Class 150-600 LBS

unit/ mm

Valve Size (IN)	A						B		H			
	ANSI Class 150		ANSI Class 300		ANSI Class 600		ANSI Class 150~300	ANSI Class 600	ANSI Class 150~300		ANSI Class 600	
	Rf	Welding	Rf	Welding	Rf	Welding			Standard Bonnet	Extension Bonnet	Standard Bonnet	Extension Bonnet
1-1/2"	222	251	235	251	251	251	62	72	72	315	206	350
2"	254	286	267	286	286	286	75	80	80	370	270	402
2.5"	279	292	292	292	311	311	90	100	100	380	295	430
3"	298	318	318	318	337	337	110	120	120	390	320	454
4"	352	368	368	368	394	384	110	140	140	440	346	488
6"	451	473	473	473	508	508	170	182	182	451	398	520
8"	543	568	568	568	610	610	203	215	215	750	495	780
10"	673	708	708	708	752	752	230	260	260	810	565	860
12"	737	775	775	775	819	819	280	300	300	850	700	950
14"	889	927	927	927	972	972	315	345	345	-	745	-
16"	1016	1057	1057	1057	1108	1108	340	370	370	-	790	-

ANSI Class 900-2500 LBS

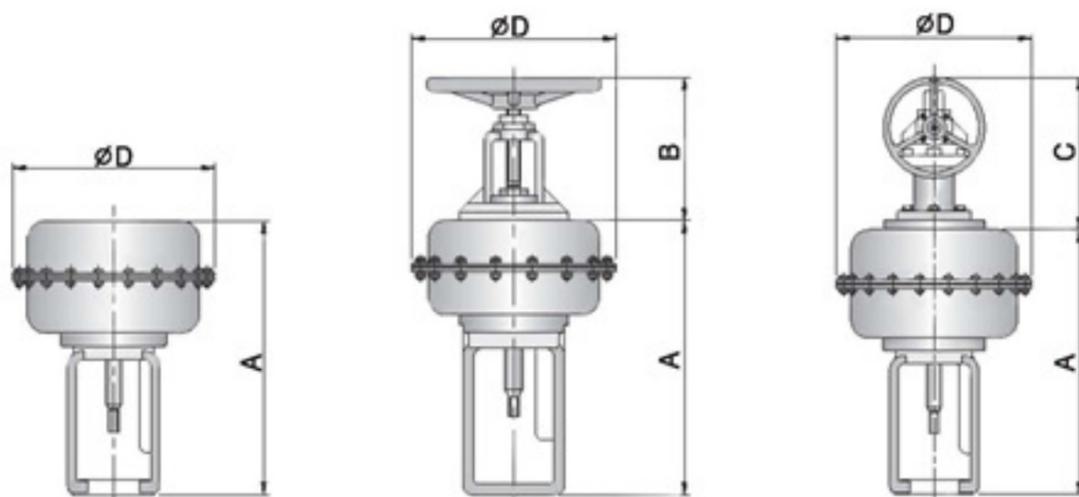
unit/ mm

Valve Size (IN)	A						B		H			
	ANSI Class 900		ANSI Class 1500		ANSI Class 2500		ANSI Class 900~1500	ANSI Class 2500	ANSI Class 900~1500		ANSI Class 2500	
	Rf	Welding	Rf	Welding	Rf	Welding			Standard Bonnet	Extension Bonnet	Standard Bonnet	Extension Bonnet
1-1/2"	333	330	333	330	381	381	80	100	268	390	320	474
2"	375	375	375	375	400	400	100	120	280	440	355	515
2.5"	410	410	410	410	441	441	120	135	324	480	380	568
3"	441	460	460	460	660	660	140	150	360	540	446	630
4"	551	530	530	530	737	737	170	185	405	636	498	715
6"	714	768	768	768	864	864	220	230	510	720	562	850
8"	972	972	972	972	1022	1029	265	298	540	780	640	-
10"	991	991	991	991	1270	1270	310	350	590	860	690	-
12"	1130	1130	1130	1130	1321	1321	368	-	650	-	-	-



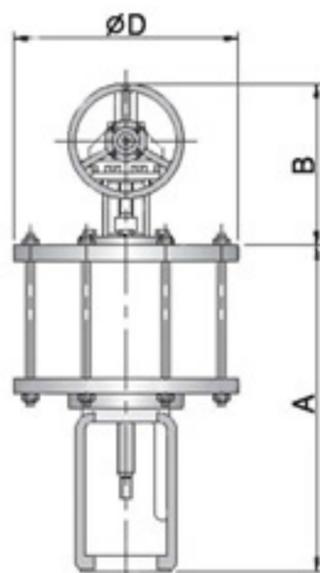
Dimensions

Dimension- Diaphragm Actuator



ACTUATOR SIZE	D	A	B	C
S1	220	300	250	-
S2	290	350	250	-
S3	370	470	250	-
S4	480	655	-	380
S5	550	700	-	400

Dimension-Cylinder (Option)



ACTUATOR SIZE	D	A	B
TA	400	700	600
TB	450	900	700
TC	550	1000	800
TD	600	1100	900
Special	Custom	Engineered	

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