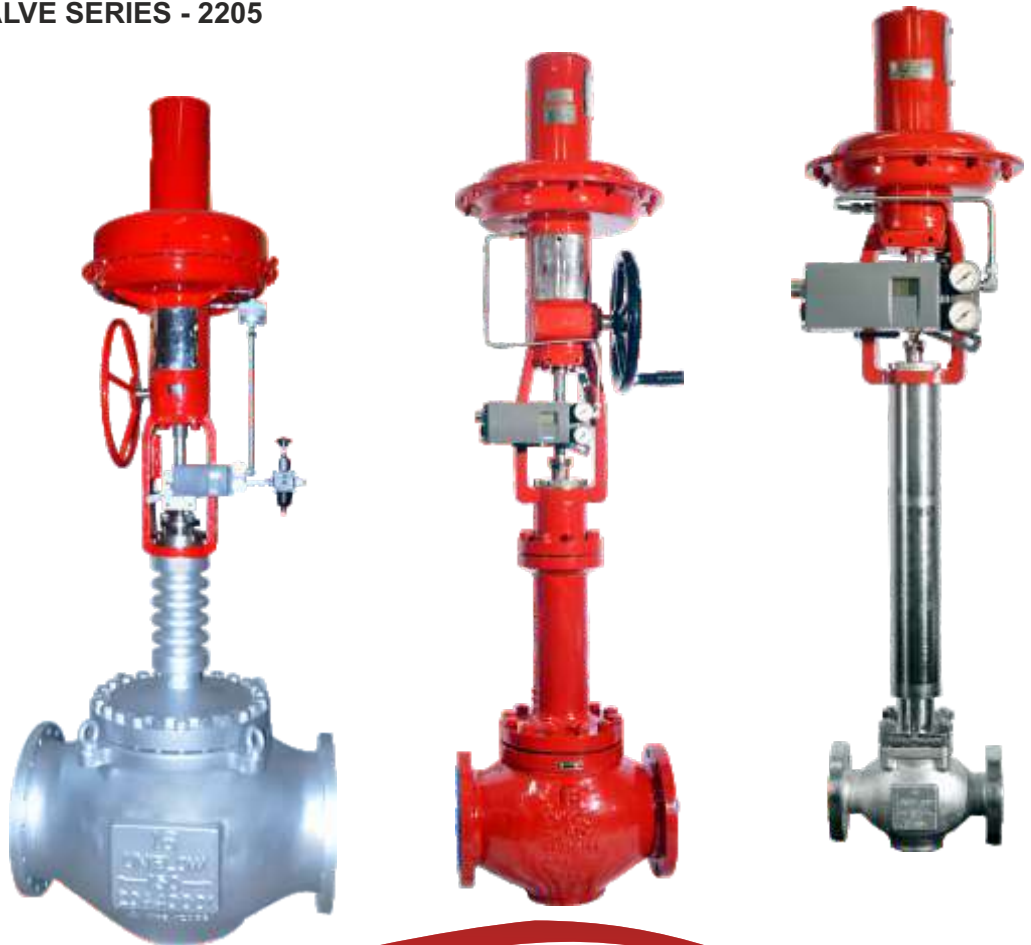


 **uniflow**TM

TRUST OF PERFORMANCE

- **GLOBE 2 WAY CONTROL VALVE SERIES - 2200**
- **GLOBE 2 WAY CONTROL VALVE (BELOW SEALED) SERIES - 2203**
- **CRYOGENIC CONTROL VALVE SERIES - 2205**





**Globe Single Seated
2 Way Control Valve**

SERIES - 2200

Introduction

This type of Valve with its classic globe body shape, which reflects its name, uses the variable area generated between the plug and seat to control fluid flow. It is very versatile offering reduced trim options as well as a variety of special trims for severe high pressure drop applications.

This style of valve is easily adapted for use on cryogenic temperatures and for high temperature duties. This valve is preferred for tight shut – off, positioning accuracy, high rangeability and simplified maintenance, satisfy the majority of control valve applications throughout the process and power industries in control of Air, Steam, Water, Gas, Chemicals etc.

Design Features

Precision Control

High flow capacity and rangeability

Large variety of Trim design

Top opening for easy trim inspection without disturbing insulation or piping connection

All internal parts, approachable from bonnet side, provides easy access for on-line inspection, maintenance and trim replacement without requiring re-calibration when assembled again.

Top and Cage guided Micro-Flow trims available for control of minute flow rates

Bolts located outside of the piping stress area to eliminate gasket crush problems, reducing down time

Range of supplementary noise control options

Tight Shut-off

End connection to suit any pipe work configuration as per standards

Wide selection of actuators to meet most system requirement

Rigorously proven on-site performance

Range of supplementary noise control options

Tight closing for reliable control even when changes in pressure / temperature are sudden and extreme



**Globe 2 Way Control Valve
(Bellow Sealed)
SERIES - 2203**

**Cryogenic Control Valve
SERIES - 2205**

Quality And Performance Guarantee

Produced with Quality Systems accredited to ISO 9001:2015 by TUV NORD.

Full material certification available for all major component parts.

Full guarantee on design and performance.

All testing performed to the requirement of ASME B 16.34, FCI 70-2.

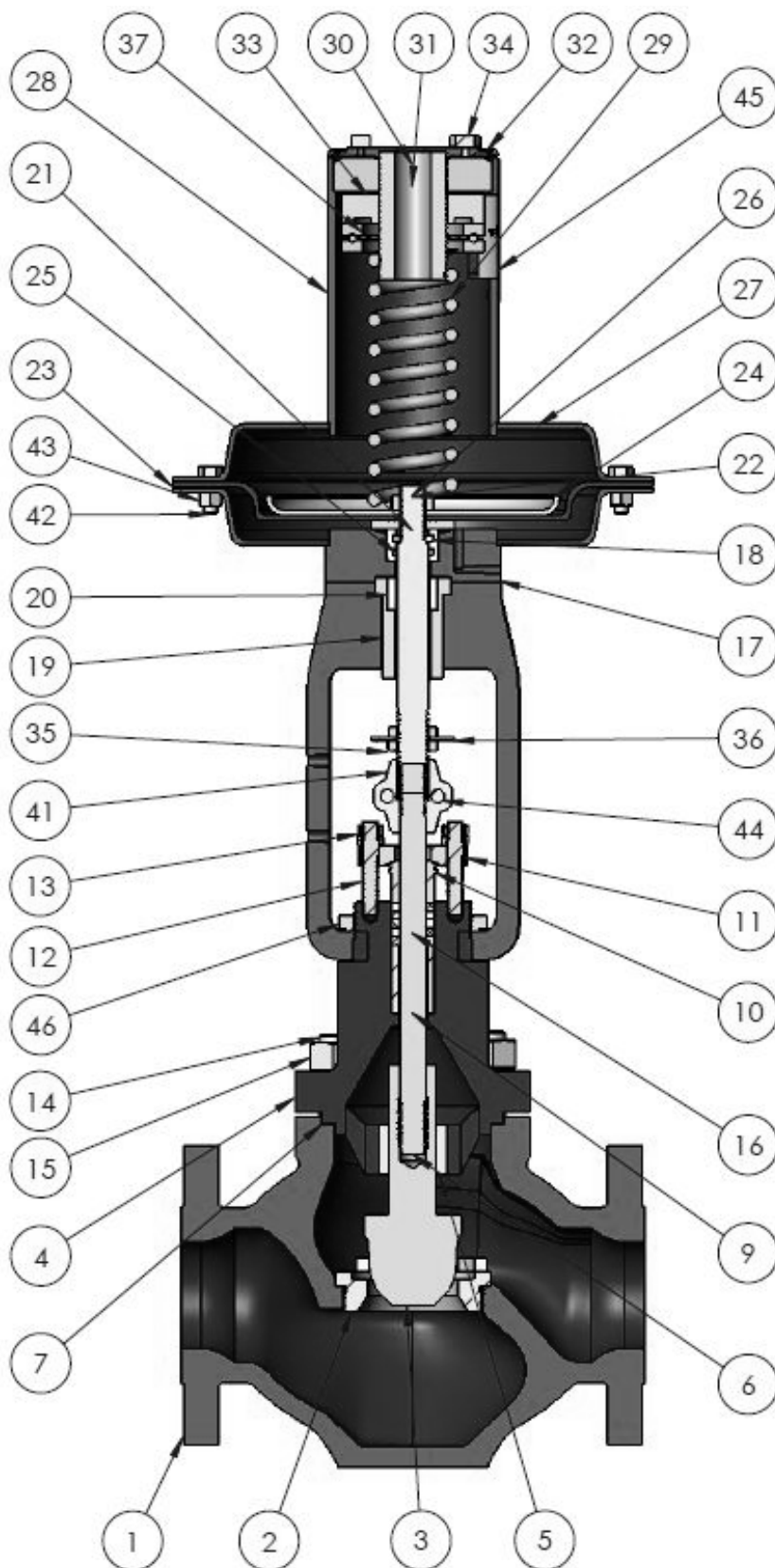
Specification

Design	ASME B16.34
Valve Size	15 to 450 mm (½" to 18")
Rating	ANSI 150 # to 2500# or Equivalents to BS, DIN, IS, JIS, etc.
Face to Face	ISA 75.03 1985 up to 600#, ISA S.75.16 900# and above
End Connection	Flanged, Screwed, Butt Weld, Socket weld, Tongue & Groove.
Body Material	Carbon Steel, Chrome- moly steel , Stainless Steel , Monel, Alloy 20, Hastelloy B/ C, Nickel
Type Of Bonnet	Standard between -20°C to 250°C , Normalizing (Finned) Between 250 °C to 500°C. Extended cold service -20°C to -200°C, Extended Bellow Sealed
Gland Packing	Grafoil / PTFE / PEEK.
Trim Design	Top Guided Contoured, Micro Splined Flow, V-Ported. (Balanced / Unbalanced), Low Noise (LN1, LN2, LN3, LN4)
Trim Material	Stainless Steel, Alloy 20, Monel, Hastelloy B/C, Stellite 6, Nickel.
Characteristic	Equal Percentage, Linear and Quick Opening.
Seat leakage	As per FCI -70-2 (ANSI B 16.104) Class III, IV,V and VI (Standard Leakage rates) Metal to Metal Seating Class IV, Less than 0.01% of rated CV. Metal to Soft Seating -Bubble Tight (Zero Leakage).
Actuator Type	Diaphragm, Cylinder or Electric
Actuator Action	Direct / Reverse Acting
Diaphragm	Nitrile / EPDM /Neoprene
Spring Range	3-15 psig (0.2 -1.0 kg/ cm²), 6-30 Psig (0.4-2.0 kg/ cm²)
Air supply	20-35 psig (1.4-2.5 kg/ cm²)
Air Connection	¼" or ½ " NPT
Hand wheel	Top or Side Mounted Handwheel
Accessories	Valve Positioner -Pneumatic, Electro Pneumatic & Smart Positioner
Optional	Air set , Solenoid Valve, Air lock , Volume Booster, I/P Converter, Position Transmitter, Limit Switches, Proximity Switches, Removable Blind Head, Optional Steam Jacketing etc.

Metallic Below Sealed Working Condition

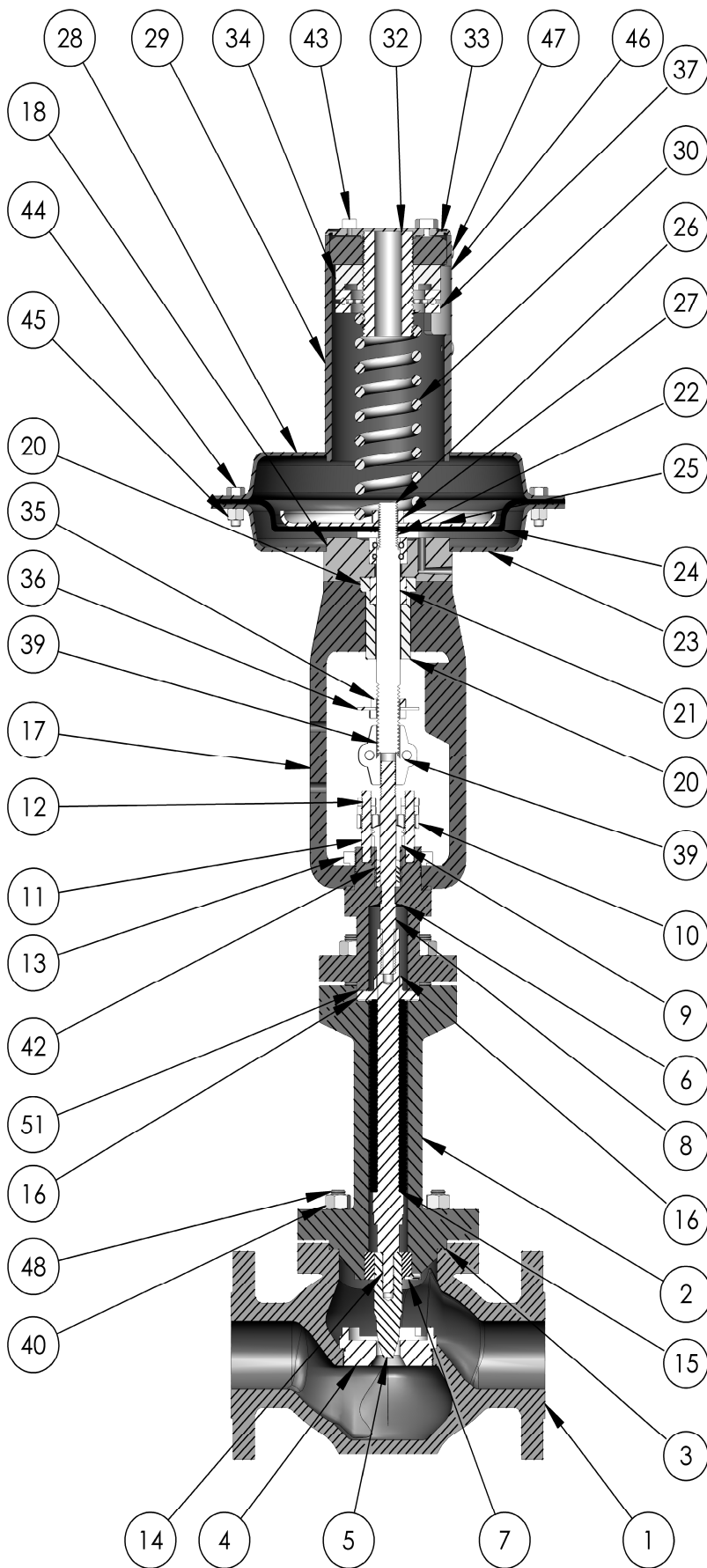
Valve Size		Travel		Maximum Working Pressure		Temperature Range
Inch	mm	Inch	mm	Psig	Kg/Cm²	
½ - 2	15 - 50	1.1/8	28	740	50	- 65°C (-85°F) to 427°C (800°F)
3 - 4	80 - 100	1.1/2	38	400	28	
6 - 8	150 - 200	2.1/4	57	345	24	
10- 12	250 - 300	2.1/2	90	300	21	

Globe 2 Way with valve Actuator



ITEM NO.	PART NUMBER
1	BODY
2	SEAT RING
3	PLUG
4	STANDARD BONNET
5	PLUG GUIDE
6	PLUG STEM
7	GASKET
8	GLAND PACKING
9	SPACER
10	GLAND
11	GLAND PUSHER
12	GLAND STUD
13	GLAND STUD NUT
14	BODY STUD
15	BODY STUD NUT
16	yoke
17	CASING END CAP
18	SEAL BOX
19	TRAVEL STOPPER
20	BUSH
21	DIAPHRAGM WASHER
22	BOTTOM CASING
23	DIAPHRAGM
24	AREA PLATE
25	STEM
26	STEM LOCK NUT
27	BOTTOM CASING
28	PIPE
29	SPRING
30	PLATE
31	SPRING ADJUSTER
32	SPINDLE COVER
33	RETAINER
34	HFBOLT 0.4375-20x1x1-C
35	INDICATOR LOCK NUT
36	TRAVEL INDICATOR
37	BEARING
38	HEX BOLT
39	HEX BOLT
40	TRAVEL PLATE
41	COUPLING
42	HEX BOLT FOR CASING
43	HEX NUT FOR CASING
44	SCREW FOR COUPLING
45	PIPE COVER
46	LOCKING RING

Bellow Seal Globe 2 way Valve with Actuator



ITEM NO.	PART NUMBER
1	BODY
2	LOWER BELLOW BONNET
3	GASKET
4	SEAT RING
5	PLUG
6	UPPER BELLOW BONNET
7	PLUG GUIDE
8	STEM FOR ACT & BELOOW JOINT
9	GLAND
10	GLAND PUSHER
11	GLAND STUD
12	GLAND STUD NUT
13	LOCKING RING
14	BELLOW STEM
15	BELLOW
16	BELLOW STEM GUIDE
17	YOKE
18	CASING END CAP
19	SEAL BOX
20	TRAVEL STOPPER
21	BUSH
22	DIAPHRAGM WASHER
23	BOTTOM CASING
24	DIAPHRAGM
25	AREA PLATE
26	STEM
27	STEM LOCK NUT
28	BOTTOM CASING
29	PIPE
30	SPRING
31	PLATE
32	SPRING ADJUSTER
33	SPINDLE COVER
34	RETAINER
35	INDICATOR LOCK NUT
36	TRAVEL INDICATOR
37	BEARING
38	TRAVEL PLATE
39	COUPLING
40	BODY STUD NUT
41	SCREW FOR COUPLING
42	GLAND PACKING
43	HEX BOLT FOR SPINDLE COVER
44	HEX BOLT FOR SPINDLE COVER
45	HEX NUT FOR CASING
46	PIPE COVER
47	HEX BOLT FOR PIPE COVER
48	BODY STUD
49	BODY STUD
50	HEX NUT
51	GASKET
52	ANTI ROTATION PLATE
53	HEX NUT
54	HEX NUT

Rangeability

The Inherent rangeability of 'Uniflow' standard trims is as given under

Trim Size		Standard Rangeability	
		Contoured	Low Noise Range
Inch	mm		
1/2 and 3/4	15 and 20	40 : 1	35 : 1
1 to 3	25 to 80	55 : 1	50 : 1
4 to 18	100 to 450	70 : 1	70 : 1
Microsplines		Upto 400 : 1	

Maximum Recommended Valve Body Velocity For Liquid Flows

Valve Size		Valve Body Material	
		Carbon Steel	Alloy Steel
Inch	mm	m/s	m/s
1/2 to 2	15 to 50	12.5	14.0
3 to 6	80 to 150	10.4	10.4
8 to 14	200 to 350	8.0	8.0
16 and 18	400 and 450	7.0	7.0

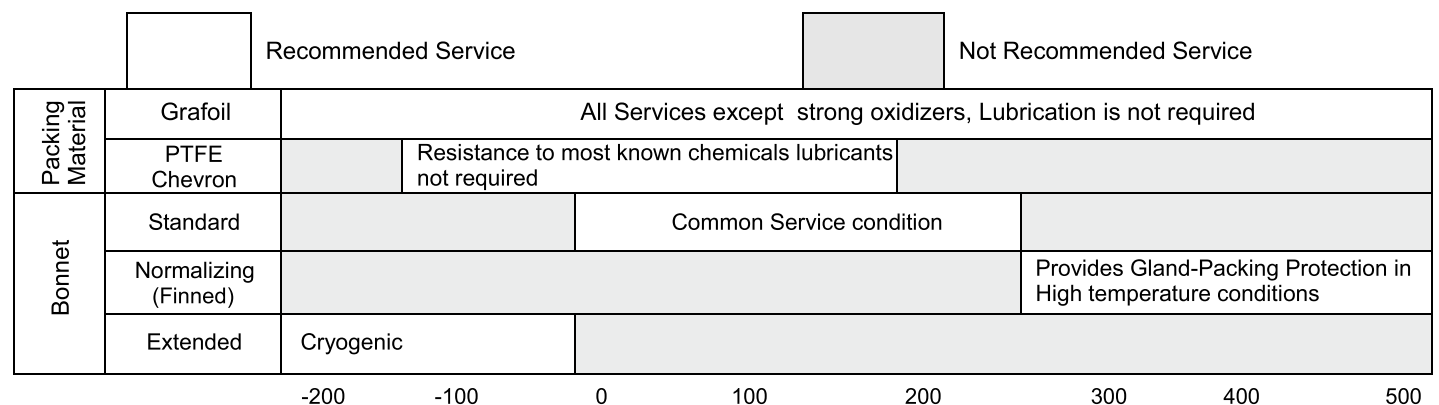
Maximum Recommended Valve Body Velocity for Gas / Vapour Flows

Valve Size		Maximum	Maximum	Maximum Outlet Mach No. For		
		Inlet Velocity	Outlet Velocity	Predicted Noise Level		
Inch	mm	m /s	m /s	>95dba	<95dba	<85dba
1/2 to 2	15 to 50	105	253	0.65	0.5	0.3
3 and 4	80 and 100	90	253	0.65	0.5	0.3
6 and 8	150 to 200	85	253	0.65	0.5	0.3
10 to 14	250 to 350	68	253	0.65	0.5	0.3
16 and 18	400 and 450	60	253	0.65	0.5	0.3

Component Related Features

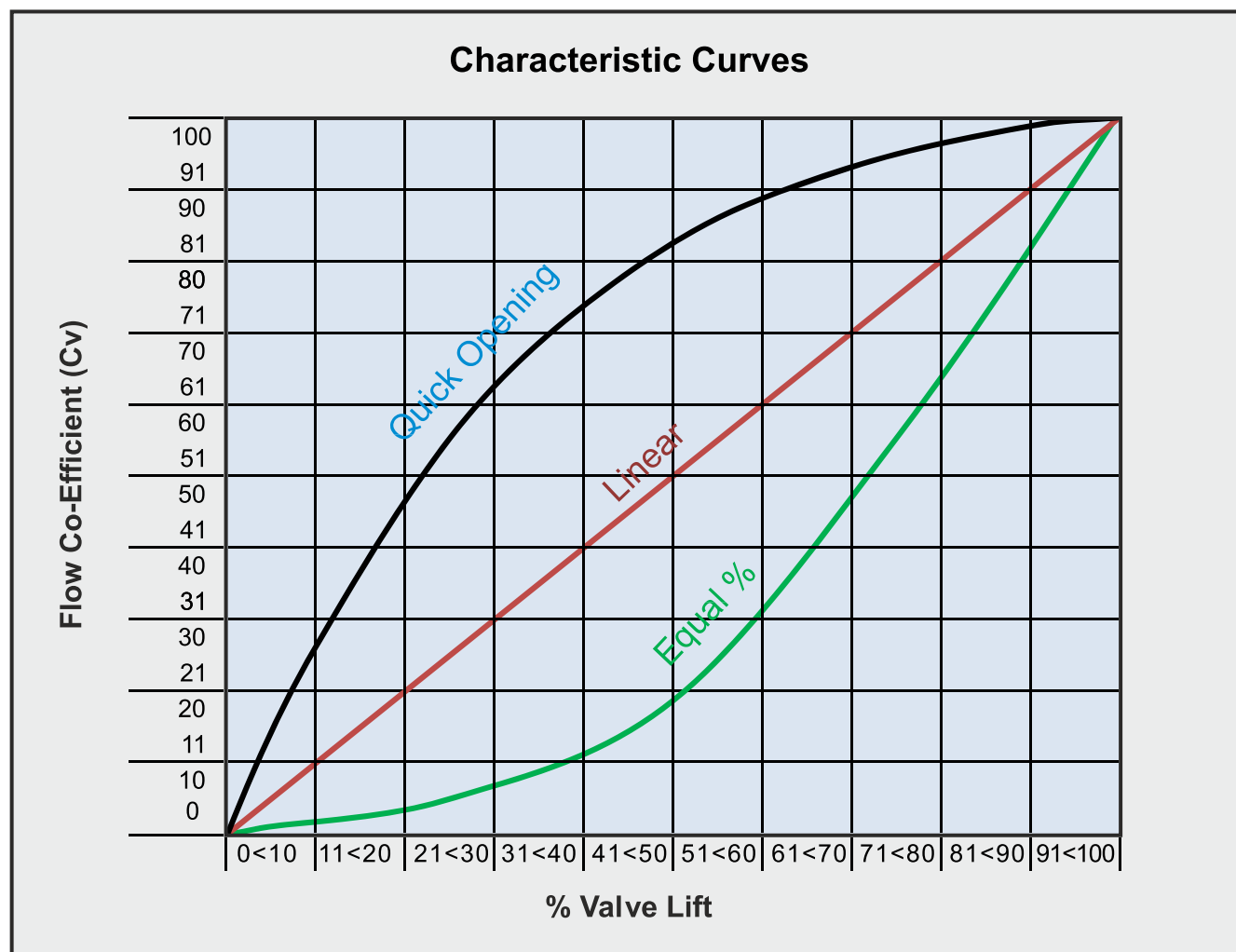
Component	Temperature Range °C (°F)			
	-240 to -100 (-400 to -148)	-100 to -20 (-148 to - 4)	-20 to 250 (4 to 482)	250 to 450 (482 to 842)
Bonnet	Cryogenic	Extended	Standard	Normalizing Finned
Packings	Teflon/Chevron	Teflon/Chevron	Teflon/Chevron	Grafoil
Sealing Ring	PTFE	PTFE	PTFE/CFT	Grafoil

Bonnet And Gland Packing Selection Guide



Characteristic Curves

The Inherent flow characteristic of a control valve is the relationship between the flow and the lift of the plug at constant pressure drop. As with all caged multihole trims the actual characteristic may vary slightly from the true curve. The characteristic normally available are shown as below.



Linear

Flow is directly proportional to valve lift.

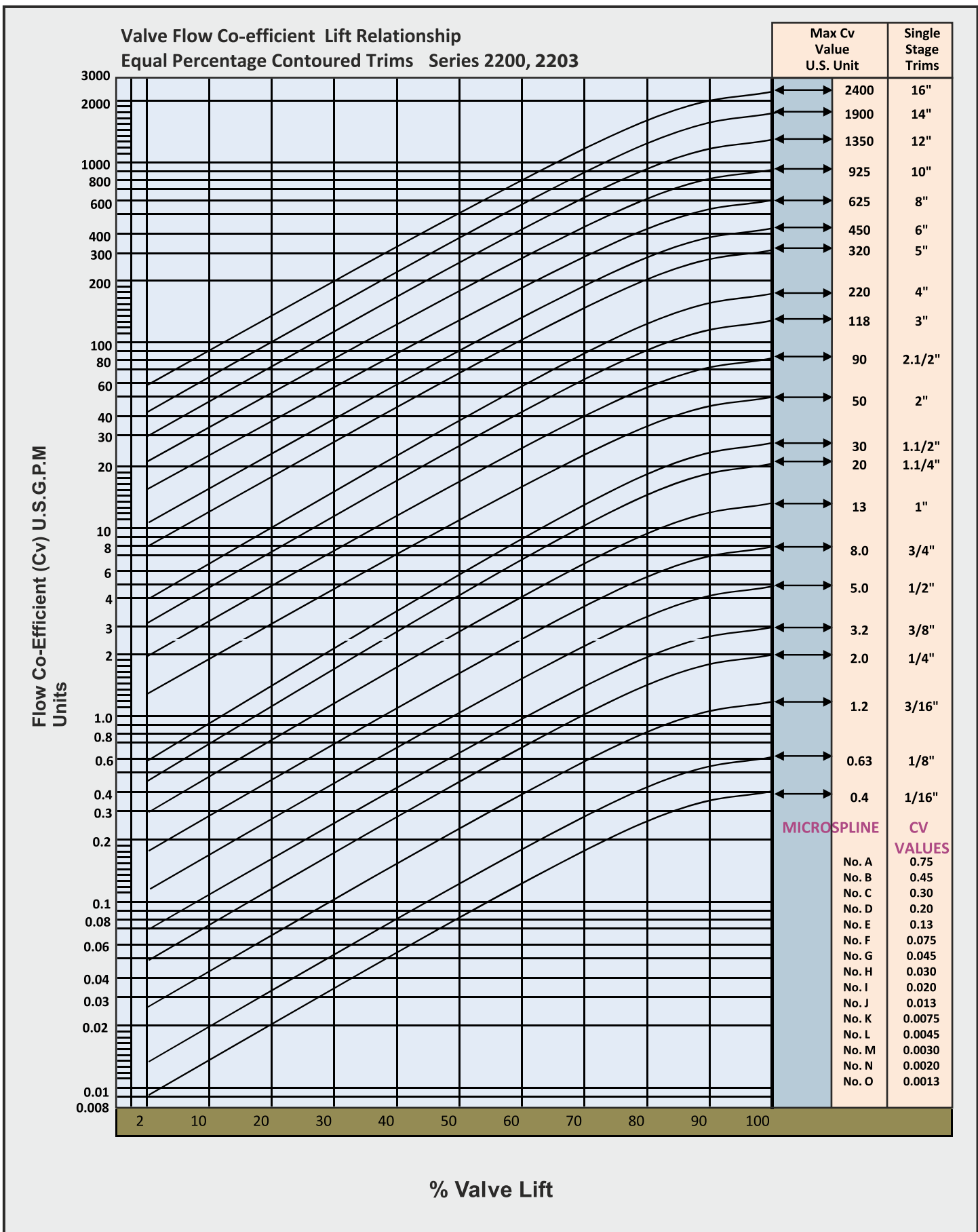
Equal%

Flow change by a constant percentage of its instantaneous value for each unit of valve lift.

Quick Opening

Flow increases rapidly with initial travel reaching near its maximum at a low lift.

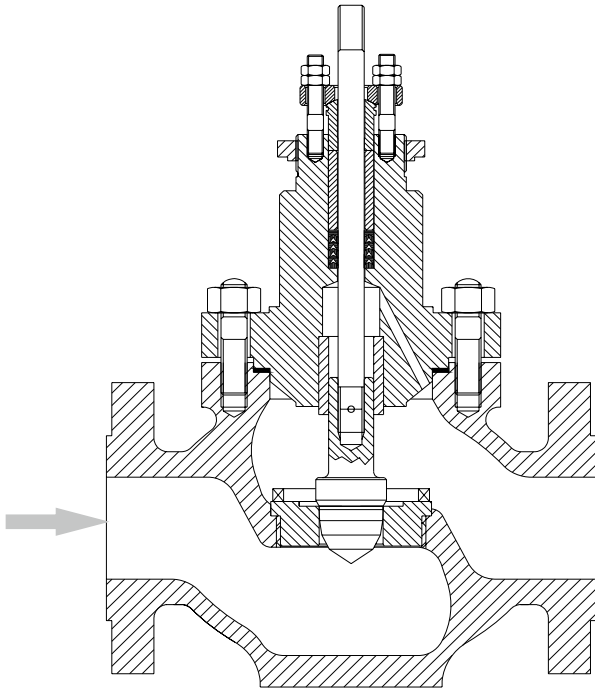
Valve Flow Co-efficient Vs % Valve Lift Relationship for Equal % Contoured Trims



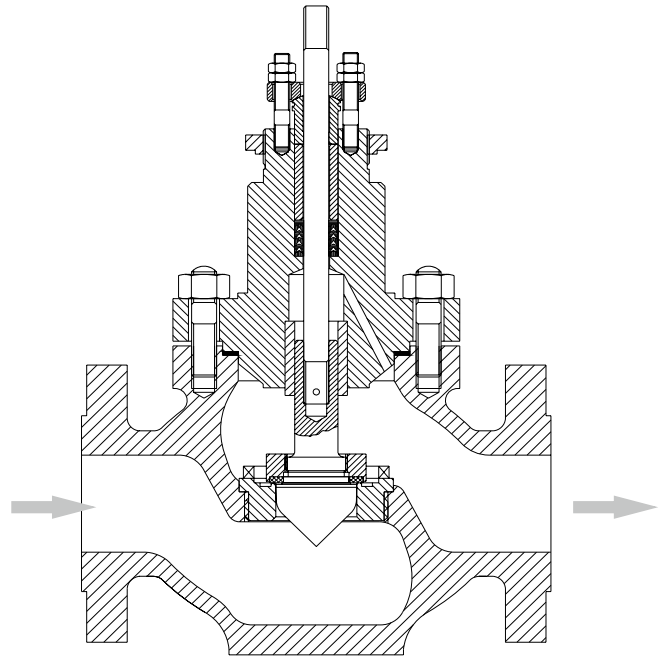
Valve Sizing Co-efficient Cv Rating

Valve Size		Trim Size		Contoured Trim		Low Noise Trim
Inch	mm	Inch	mm	Equal & Linear	Quick Opening	Equal & Linear
1	25, 20 & 15	1	25	13	13	13
		3/4	20	8	8	8
		1/2	15	5	5	5
		3/8	9	3.2	--	3.2
		1/4	6	2	--	2
		3/16	5	1.2	--	1.2
		1/8	3	0.63	--	0.63
		1/16	2	0.4	--	0.4
		A	Micro Spline Trim (Port Dia. = 8 mm)	0.75	--	--
		B		0.45	--	--
		C		0.30	--	--
		D		0.20	--	--
		E		0.13	--	--
		F		0.075	--	--
		G		0.045	--	--
		H		0.030	--	--
		I		0.020	--	--
		J		0.0130	--	--
		K		0.0075	--	--
		L		0.0045	--	--
		M		0.0030	--	--
		N		0.0020	--	--
		O		0.0013	--	--
1½	40	1½	40	30	35	25
		1¼	32	20	20	15
		1	25	13	13	13
2	50	2	50	50	55	45
		1¾	45	--	--	35
		1½	40	30	35	25
2½	65	2½	65	90	95	55
		2	50	50	55	45
		1¾	45	--	--	35
3	80	3	80	118	125	95
		2½	65	90	95	55
		2	50	50	55	45
4	100	4	100	220	225	180
		3½	90	--	--	130
		3	80	118	125	95
6	150	6	150	450	470	350
		5	125	320	335	250
		4	100	220	225	180
8	200	8	200	625	700	550
		7	175	--	--	470
		6	150	450	470	350
10	250	10	250	925	930	800
		9	225	---	---	675
		8	200	625	550	550
12	300	12	300	1350	1420	1150
		11	275	---	---	1020
		10	250	925	990	800
14	350	14	350	1900	2250	1650
		13	325	1400	1650	1550
16	400	16	400	2400	3000	2100
		15	380	1850	2250	2000

Valve Trims

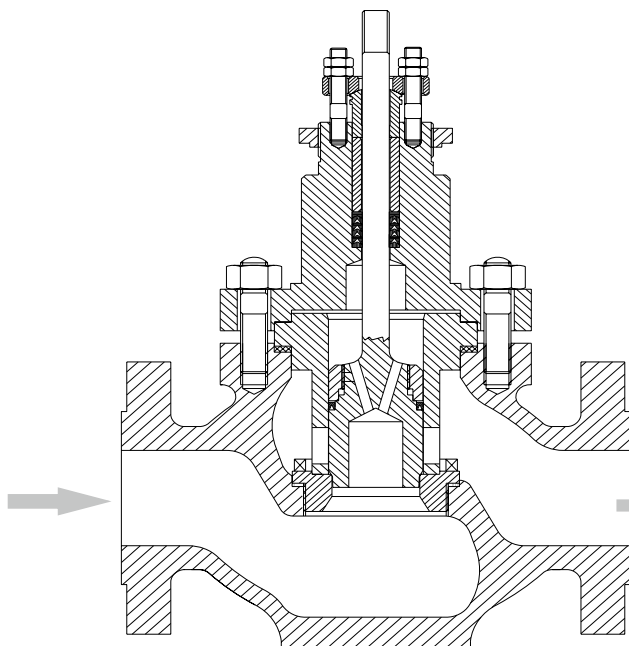


Contoured Trim
(Metal to Metal)



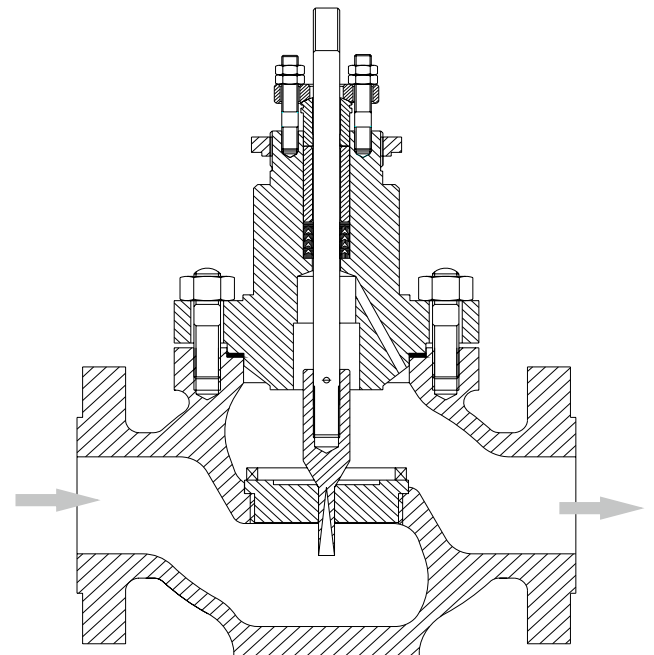
Contoured Trim
(Soft Seated)

The Contoured Trim is the standard Top Guided top entry, which provides sure, economical Control for intermediate pressure drop service. A large diameter, precision machined plug and a pressed in, hardened guide bushing constitute the basic elements of a plug guidance system. Contoured trim available for both modulating duty and on/off duty. The contoured trim configuration available for both metal to metal contact and soft seat to metal contact to give leakage rate in accordance to FCI-70.02 class VI (ANSI B 16.104 class VI.)



Cage Guided Trim
(Metal To Metal)

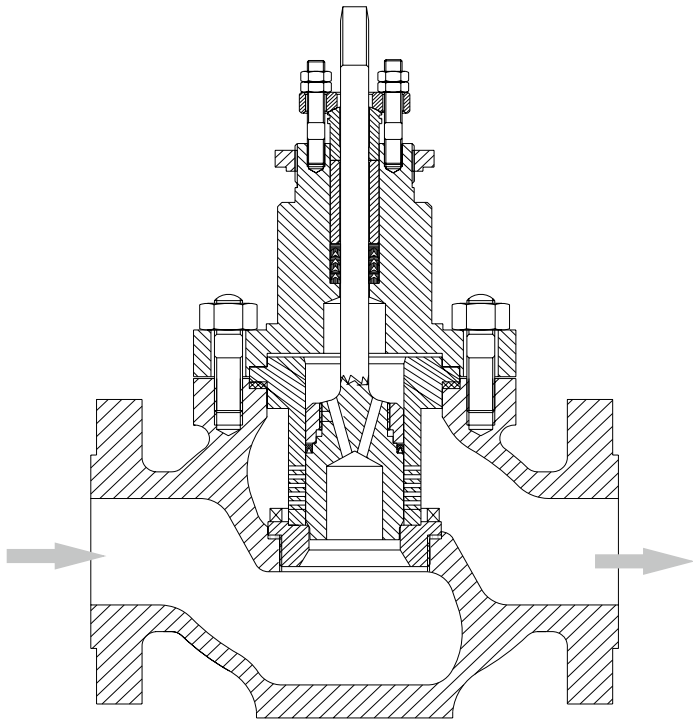
Heavy duty cage guided design with pressure balance operation against high pressure with exceptional shut-off.



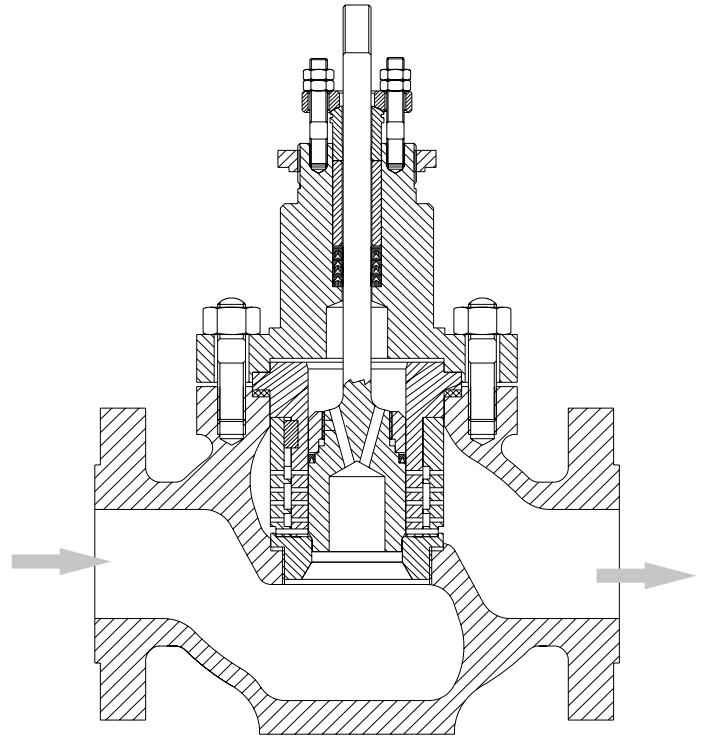
Micro Flow Splined Trim
(Metal To Metal or Soft Seated)

This design of trim with varying curve in spline is seat guided having high rangeability and most suitable for the accurate control of minute flow rates

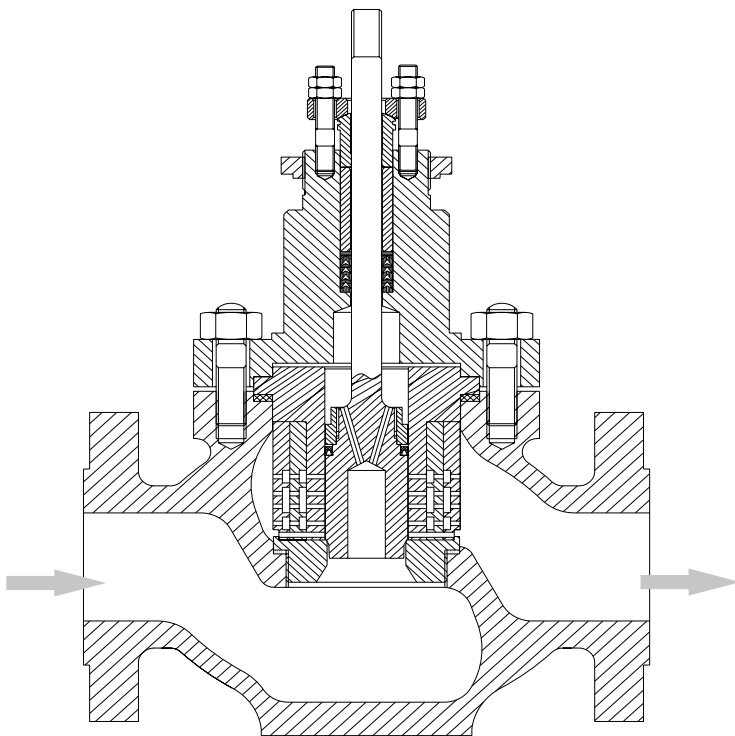
Valve Trims



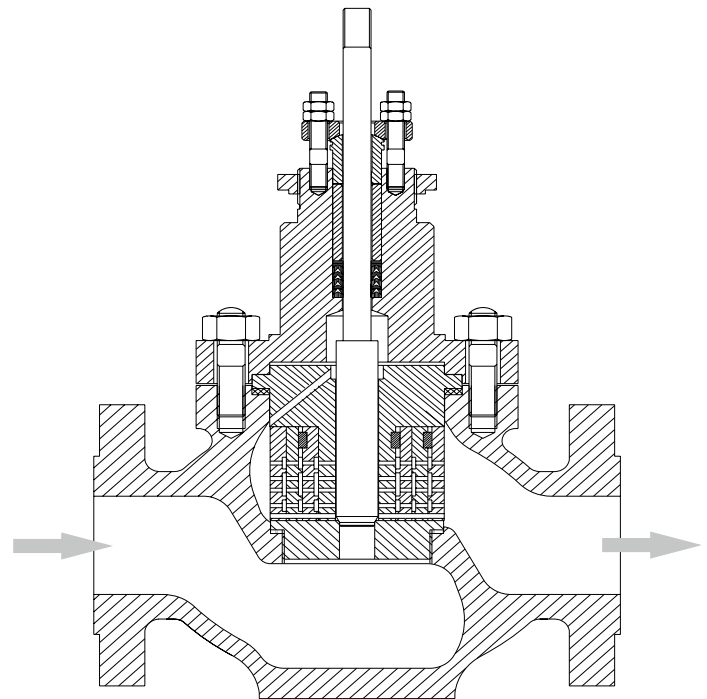
LN 1
Single Stage Low Noise



LN 2
Double Stage Low Noise



LN 3
Triple Stage Low Noise



LN 4
Four Stage Low Noise

Offer all the advantage of V- Ported trims and in addition features multiple drilled orifices of special size and spacing resulting in reduction of operating noise level contrasted to that generated by conventional valve trims. The trim offers added advantage on liquid duty valves by preventing cavitations damages.

Note: For liquid service, flow direction shall be flow to close (FTC) i.e. over the plug

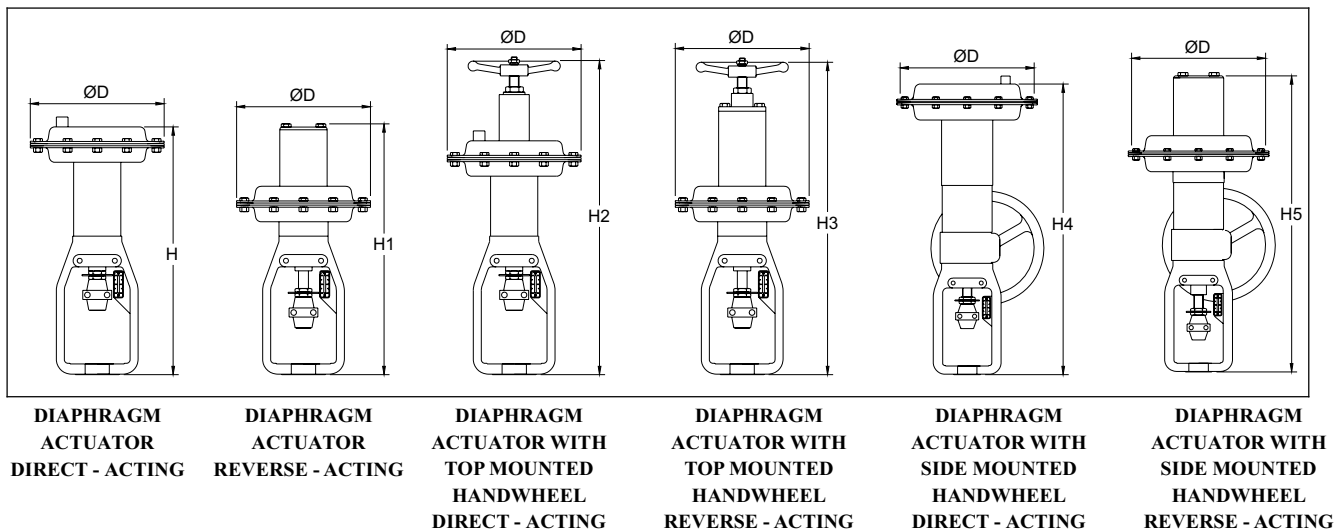
Actuator Selection Guide

Valve Size	Inches		1/2			3/4 & 1	1½ & 2				3			4			6 & 8				10 & 12				
	mm		15			20 & 25	40 & 50				80			100			150 & 200				250 & 300				
Trim Size	Inches		3/16	¼	⅜ & ½	¾ & 1	1	1¼	1 ½	2	2	2 ½	3	2 ½	3	4	4	5	6	8	6	8	10	12	
	mm		4.5	6	10&15	20&25	25	32	40	50	50	65	80	65	80	100	100	125	150	200	150	200	250	300	
Act. Size	Load		Shut-off Pressure in Kg/Cm²																						
	Kg/cm²																								
020	0.2	UB	80	49	15	7.8																			
		B	N/A	N/A	N/A	N/A																			
	0.4	UB	180	115	36	20																			
		B	N/A	N/A	N/A	N/A	1.1/8"/28mm Travel																		
	0.6	UB	280	182	57	30																			
		B	N/A	N/A	N/A	N/A																			
	0.8	UB	380	249	79	42																			
		B	N/A	N/A	N/A	N/A																			
021	0.2	UB					12	7.5	4.5	2.5	1.2	0.5	0.4												
		B					N/A	21	21	19	3.5	1.4	0.1												
	0.4	UB					34	20	12	7.5	6	3.5	2.8												
		B					N/A	78	78	75	39	37	36												
	0.6	UB					55	32	21	12	11	6.5	5	1 ½" / 38 mm Travel											
		B					N/A	134	134	131	75	73	71												
	0.8	UB					76	45	29	17	16	9	7				2 ¼" / 57 mm Travel								
		B					N/A	190	190	187	111	109	107												
022	0.2	UB									4.8	2.8	2	2	1.5	0.6									
		B									29	27	26	13	12	9	N/A	N/A	N/A	N/A					
	0.4	UB									13	7.8	6	7	5.5	2.5									
		B									91	89	88	56	55	52	22	21	19	17					
	0.6	UB									22	13	10	12	9	4.4									
		B									153	151	150	99	98	85	47	46	44	41					
	0.8	UB									30	18	14	17	13	6.3					3 ½" / 90 mm Travel				
		B									215	213	212	142	141	138	71	70	68	65					
023	0.2	UB									9	5	4	4	3	1.5	1	0.8	0.3	0.1					
		B									59	56	55	33	32	29	10	9	7	4	N/A	N/A	N/A	N/A	
	0.4	UB									21	13	10	11	9	4.3	3.5	2.9	1.5	0.8					
		B									150	148	147	96	95	92	45	45	43	40	23	21	18	17	
	0.6	UB									34	20	15	19	15	7	6.5	5	2.9	1.5					
		B									241	239	238	160	159	156	81	80	78	74	45	44	41	40	
	0.8	UB									46	28	21	26	20	9.5	9	7	4	2.2					
		B									333	330	329	223	222	219	117	116	114	111	68	66	64	63	
024	0.2	UB															4	3	1.8	0.9	1.5	0.8	0.4	0.3	
		B															50	50	48	45	27	24	22	20	
	0.4	UB											3 ½" / 90 mm Travel				10	7.5	4.5	2.4	4.3	2	1.2	0.9	
		B															127	126	124	121	75	73	71	69	
	0.6	UB															16	12	7	3.8	7	3.5	2	1.5	
		B															204	203	201	198	124	122	120	118	
	0.8	UB															22	17	10	5.3	9.7	5	2.8	2.1	
		B															280	280	278	275	173	171	169	167	

UB: ΔP Shut-off Values for Contoured

B: ΔP Shut-off Values for Low Noise / V-Ported Balanced Trim

Actuator Dimension



ACTUATOR MODEL	EFFECTIVE Inch ²	BONNET MOUNT Dia.	TRAVEL	ΦD	H	H1	H2	H3	H4	H5
RC – 020	30	54	28	218	--	375	--	505	--	650
DC - 020	30	54	28	218	400	--	575	--	650	--
RC – 021	55	54	28	286	--	510	--	600	--	700
DC – 021	55	54	28	286	510	--	750	--	700	--
RC – 021	55	71.5	38	286	--	560	--	650	--	750
DC – 021	55	71.5	38	286	560	--	800	--	750	--
RC – 022	95	54	28	371	--	550	--	650	--	750
DC – 022	95	54	28	371	550	--	800	--	750	--
RC – 022	95	71.5	38	371	--	600	--	700	--	800
DC – 022	95	71.5	38	371	600	--	850	--	800	--
RC – 023	140	71.5	38	443	--	650	--	750	--	900
DC – 023	140	71.5	38	443	650	--	950	--	900	--
RC – 023	140	90.5	57	443	--	780	--	900	--	1030
DC – 023	140	90.5	57	443	780	--	1100	--	1030	--
RC – 023	300	71.5	38	616	--	850	--	--	--	1200
DC – 024	300	71.5	38	616	850	--	--	--	1200	--
RC – 024	300	90.5	57	616	--	900	--	--	--	1250
DC – 024	300	90.5	57	616	900	--	--	--	1250	--
RC – 024	300	90.5	90	616	--	1050	--	--	--	1400
DC – 024	300	90.5	90	616	1050	--	--	--	1400	--
RC – 024	300	90.5	102	616	--	1200	--	--	--	1550
DC - 024	300	90.5	102	616	1200	--	--	--	1550	--

DC - Direct Acting Actuator (Used on supply failure Valve – Opens)

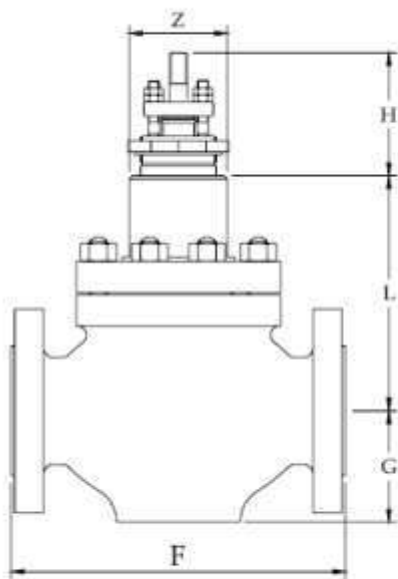
RC – Reverse Acting Actuator (Used on supply failure Valve – Closes)

All dimensions in mm.

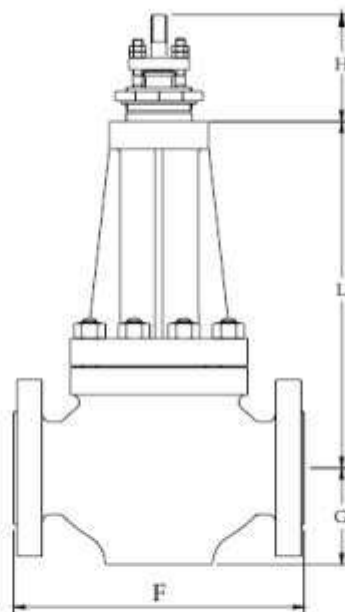
The Company's policy is one of continuous product improvement and the right is reserved to modify the specifications contained herein without notice.

Field Reversible Actuator and Higher Size Actuator are available as per requirement.

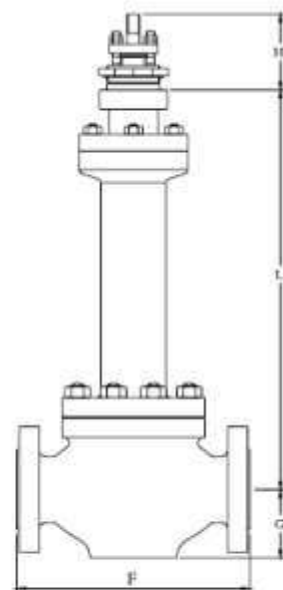
Mounting Dimension



**VALVE WITH
STANDARD BONNET**



**VALVE WITH
NORMALIZING BONNET**



**VALVE WITH
BELLOW SEAL BONNET**

VALVE SIZE		ANSI 150 NP 10,16 BS-10-D,E	ANSI 300 NP 25,40 BS-10-F,H,J	ANSI 600 NP 64,100 BS-10-K,R	STEM IN UP POSITION	BONNET MOUNT DIA	HEIGHT FROM CENTER LINE			CENTER LINE TO BASE	STEM TRAVEL
							STANDARD	NORMALIZING	BELLOW SEALED		
Inch	mm	FACE TO FACE (F)			H	Z	L			G	
½	15	184	190	203	117	53.97	140	222	324	67	28
¾	20	184	194	206	117	53.97	140	222	324	67	28
1	25	184	197	210	117	53.97	140	222	324	67	28
1½	40	223	235	251	117	53.97	159	292	353	83	28
2	50	254	267	286	117	53.97	168	284	362	86	28
2½	65	276	292	311	143	71.44	203	327	467	111	38
3	80	299	318	337	143	71.44	203	327	467	111	38
4	100	352	368	394	143	71.44	206	357	467	146	38
6	150	451	473	508	197	90.42	276	391	676	171	57
8	200	543	568	610	197	90.42	292	435	686	203	57
10	250	673	708	752	229	90.42	390	632	--	238	90
12	300	737	775	819	229	90.42	390	673	--	251	90
14	350	890	927	972	339	90.42	490	822	--	292	100
16	400	1016	1057	1108	244	90.42	622	927	--	343	100
18	450	1153	1194	1251	325	146	700	1005	--	512	125

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