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**Series 9310 V-Notch  
Ball Valves for  
ANSI 150-300 (PN10-25)**

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Specification**Series 9310 V-Notch  
Ball Valves for  
ANSI 150-300 (PN10-PN25)****Series 9310 Features****General**

Series 9310 Valve is top entry, full bore, trunnion, and stem ball type v-notched ball valve, which is exclusively designed for excellent proportional control as much as globe type control valves. Series 9310 has special shape of disc which is suitable for accurate throttling control and on-off service not only general fluids but also critical condition in powders, slurry, gummy, fibrous material and other fluids having special characteristics.

**Performance:**

- High Cv body size ratio (Full bore)
- Controls through 90° rotation
- Excellent flow control rangeability
- Easy maintenance
- ISO standard Mounting Hole

**Design Flexibility:**

- Direct Mounting Actuator Design Flexibility
- Control any fluids
- Flow push seat design
- Full range of body and trim material options with availability of hard facings
- Seat changeability
- Dual characteristics (Equal or Linear)
- Self-cleaning and tight seating
- Double-eccentric disc options



Figure 1. Series 9310 V-notched Ball valve

## V-notch Ball Valve Specifications

Valve Type	Diaphragm/Cylinder Operated V-notch Ball Control Valve														
Valve Model	Series 9310														
Valve Size (inch)	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16
(mm)	15	20	25	40	50	65	80	100	125	150	200	250	300	360	400
Pressure Rating	ANSI 150# ~ 300# (JIS 10K ~ 20K, PN 10~ 25)														
End Connection	RF, FF, SW, BW, RTJ														
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on														
Bonnet Type	Plain(-17°C to 230°C), Extension(-45°C to -17°C, over 230°C), Cryogenic(-196°C to -45°C)														
Packing	Graphite foil, Carbon fiber, Teflon fiber														
Gasket	Spiral Wound Metal gasket														
Guiding	Bushing														
Seat Type	Metal/Soft														
Valve Plug Shapes	V-port														
Plug Characteristic	Equal Percentage/Linear														
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B and so on														

### Standard Material of Construction:

Body: Carbon steel (ASTM A216 WCB)

Stainless steel (ASTM 351 CF8, CF8M)

Segmented ball: Stainless Steel (ASTM A351 CF8, CF8M)

Seat - Soft: Teflon, Reinforced Teflon

- Metal: Stainless steel (304SS, 316SS) with stellite

Stem: Stainless Steel (316SS, 17-4PH)

Inboard Bearing: Stainless Steel/Teflon

Packing: Teflon Fiber Graphite

Other materials: Combinations are available to suit more arduous or Corrosion resistant duties.

Please contact our factory.

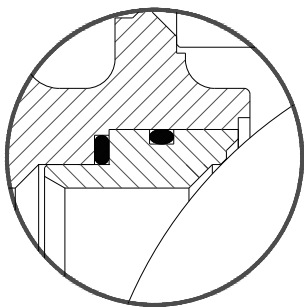
Flow characteristics: Inherent Equal percentage, Linear

### Actuation:

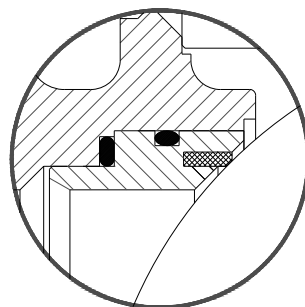
Various types of actuation are available including 6100 series spring opposed pneumatic diaphragm.

6200 series double acting, or spring opposed pneumatic piston.

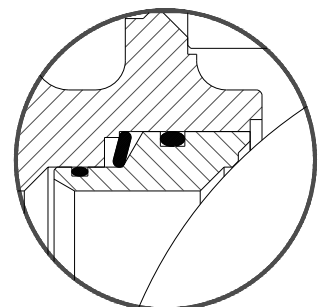
In addition electric, electro hydraulic, hydraulic and manually operated versions are available.



Soft Seat (Small Size)



Soft Seat (Large Size)



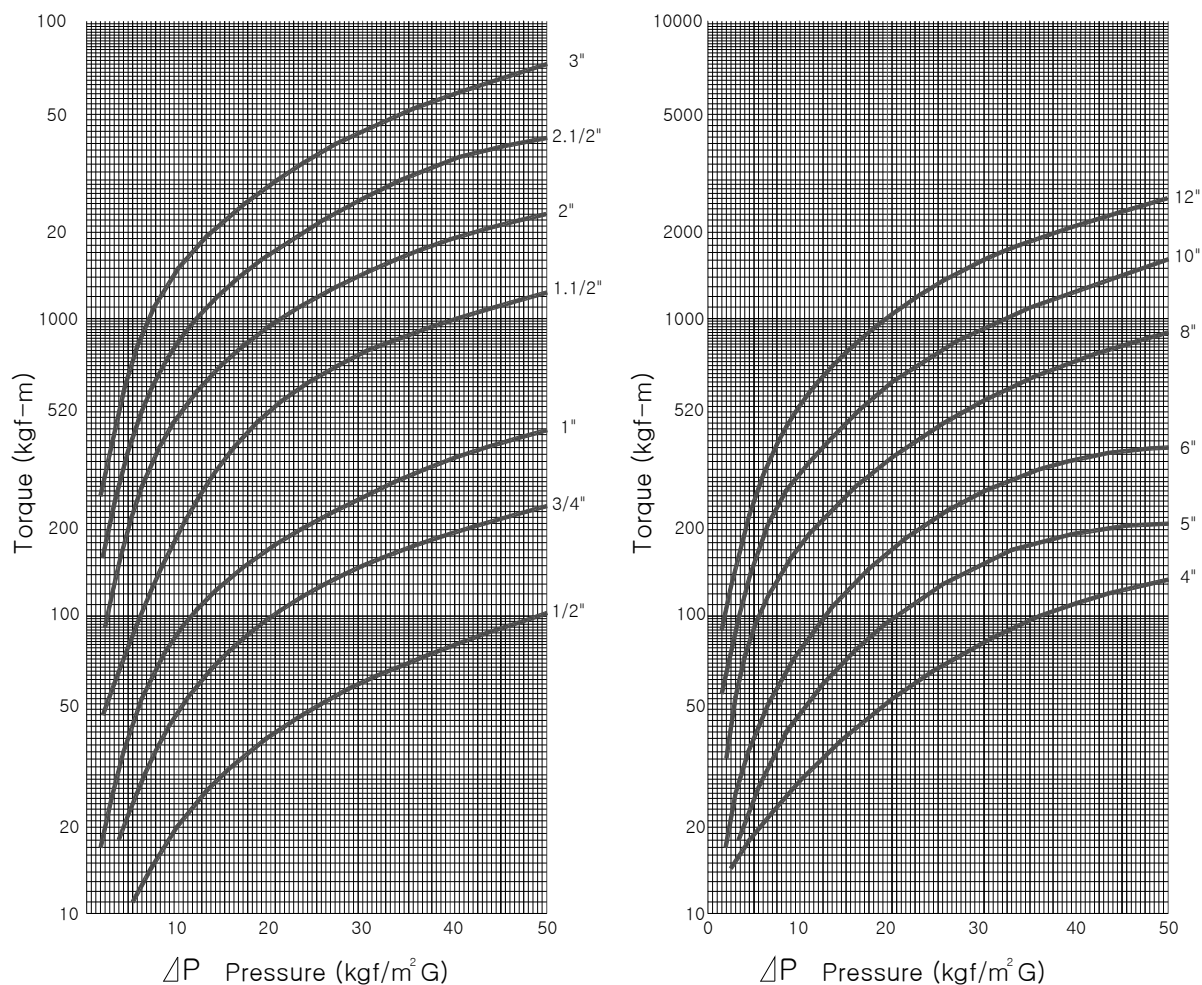
Metal Seat

The Cv value detailed in the table 1. The figures by definition are related to the flow of water (SG=1) through the valve in US gallons per minute with a pressure drop of 1 lb/in<sup>2</sup>.

Table 1 Flow Coefficient (Cv)

Valve Size		Reactive Travel (%)						Valve Size		Reactive Travel (%)					
inch	mm	10	30	50	70	90	100	inch	mm	10	30	50	70	90	100
1/2	15	0.22	0.49	1.06	2.32	5.07	7.50	5	125	22.18	48.50	106.07	231.94	507.2	750.0
3/4	20	0.50	1.10	2.40	5.26	11.50	17.00	6	150	31.94	89.85	152.74	333.99	730.3	1080.0
1	25	0.89	1.94	4.24	9.28	20.29	30.00	8	200	56.78	124.17	271.53	593.76	1298.4	1920.0
1 1/2	40	2.00	4.37	9.55	20.87	45.65	68.00	10	250	88.73	194.02	424.26	927.75	2028.7	3000.0
2	50	3.55	7.76	16.97	37.11	81.1	120.0	12	300	127.76	279.39	610.94	1336.0	2921.4	4320.0
2 1/2	65	5.55	12.13	26.52	57.98	126.8	188.0	14	350	173.89	380.28	831.56	1818.44	3976.35	5880.0
3	80	7.99	17.46	38.18	83.50	182.6	270.0	16	400	227.13	496.69	1086.12	2375.11	5193.6	7680.0
4	100	14.20	31.04	67.88	148.44	324.6	480.0								

Table 2 Torque Curve (kgf-m)



## Actuator Sizing for V-Ball Valve

Series 6100 Diaphragm Actuator Mounting (ANSI 150#/300#)

Size	Actuator	Size	Actuator
1/2"	T-3	5"	T-4
3/4"	T-3	6"	T-4
1"	T-3	8"	T-4
1 1/2"	T-3	10"	T-5
2"	T-3	12"	T-5
2 1/2"	T-3	14"	T-5
3"	T-3	16"	*
4"	T-3		

\* 16" V-notch valve needs larger size actuator.

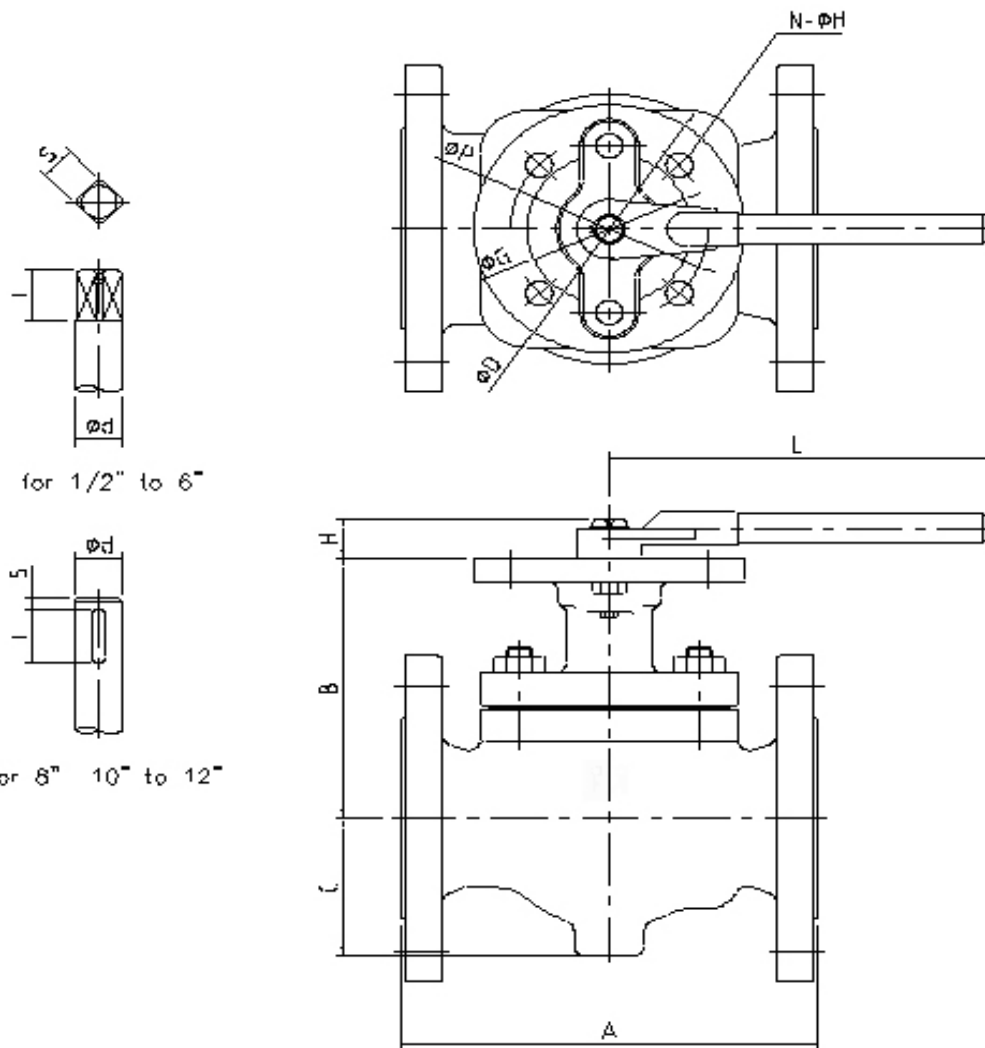
Series 6200 Cylinder Actuator

Body Size	Seat	150# (10K)		300# (20K)		Body Size	Seat	150# (10K)		300# (20K)	
		Spring Return	Double Acting	Spring Return	Double Acting			Spring Return	Double Acting	Spring Return	Double Acting
1/2"	Metal	AC06S	AC06D	AC06S	AC06D	4"	Metal	AC14S	AC10D	AC16S	AC14D
	Soft	AC06S	AC06D	AC06S	AC06D		Soft	AC12S	AC10D	AC14S	AC12D
3/4"	Metal	AC08S	AC06D	AC08S	AC06D	5", 6"	Metal	AC20S	AC14D	AC20S	AC16D
	Soft	AC06S	AC06D	AC08S	AC06D		Soft	AC16S	AC14D	AC16S	AC14D
1"	Metal	AC08S	AC06D	AC10S	AC08D	8"	Metal	AC25S	AC20D	AC30S	AC20D
	Soft	AC06S	AC06D	AC08S	AC06D		Soft	AC25S	AC16D	AC25S	AC16D
1 1/2"	Metal	AC08S	AC06D	AC10S	AC08D	10"	Metal	AC30S	AC20D	-	AC25D
	Soft	AC08S	AC06D	AC10S	AC06D		Soft	AC30S	AC20D	-	AC20D
2"	Metal	AC10S	AC08D	AC10S	AC08D	12"	Metal	AC30S	AC20D	-	AC25D
	Soft	AC08S	AC06D	AC10S	AC08D		Soft	AC30S	AC20D	-	AC20D
2 1/2"	Metal	AC10S	AC08D	AC12S	AC08D	14"	Metal	-	AC30D	-	AC30D
	Soft	AC10S	AC08D	AC10S	AC08D		Soft	-	AC25D	-	AC25D
3"	Metal	AC12S	AC08D	AC12S	AC10D	16"	Metal	-	AC30D	-	AC30D
	Soft	AC10S	AC08D	AC12S	AC10D		Soft	-	AC30D	-	AC30D

Actuator Type Verification

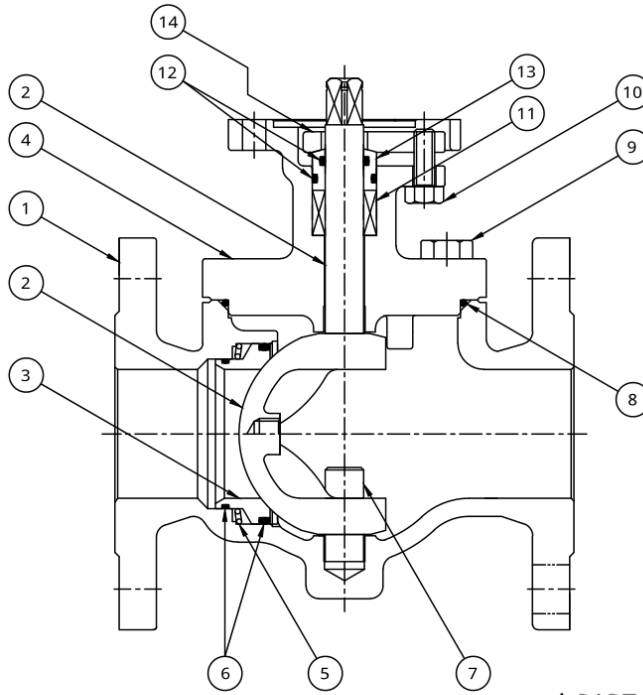
Code	Actuator Type
S	Spring Return Single Cylinder
D	Double Acting Single Cylinder

## Dimension



Unit : mm

SIZE	A		B	C	$\phi d$	H	I	S	KEY	L	MOUNTING FLANGE				
	150#	300#									$\phi D$	$\phi G$	$\phi P$	N- $\phi H$	No.
1/2"	108	140	90	32	12	16	18	9		130	65	35	50	4-7	F05
3/4"	117	152	95	38	12	16	18	9		130	65	35	50	4-7	F05
1"	127	165	95	42	12	16	18	9		130	90	55	70	4-9	F07
1.1/2"	165	190	112	58	15	16	18	11		160	90	55	70	4-9	F07
2"	178	216	122	64	15	16	18	11		160	90	55	70	4-9	F07
2 1/2"	190	241	135	72	15	16	18	11		160	90	55	70	4-9	F07
3"	203	283	155	88	20	20	22	14		230	125	70	102	4-11	F10
4"	229	305	168	100	20	20	22	14		230	150	85	125	4-14	F12
5"	356	381	210	130	25	28	30	17		400	175	100	140	4-18	F14
6"	394	403	225	140	25	28	30	17		400	175	100	140	4-18	F14
8"	457	502	290	180	30	40	30		8 x 7		300	200	254	8-18	F25
10"	533	568	340	220	35	50	40		10 x 8		300	200	254	8-18	F25
12"	610	648	395	250	40	60	50		12 x 8		350	230	298	8-22	F30



**\* PART LIST \***

NO.	NAME	Q'TY
1	BODY	1
2	STEM BALL	1
3	SEAT RING	1
4	BONNET	1
5	SEAT SPRING	1
6	O-RING	2
7	BOTTOM STEM	1
8	O-RING	1
9	HEX. HEAD BOLT	4 ~ 12
10	GLAND BOLT	2
11	GLAND PACKING	1
12	GLAND O-RING	2
13	GLAND FOLLOWER	1
14	GLAND FLANGE	1

Figure 2. Body Assembly Diagram

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