

# Proportional Ball Valves



SERIES: SP2  
 SIZES: 1/2" – 2"  
 ENDS: Threaded, Socket, Butt<sup>1</sup> or ChemFlare™<sup>2</sup>  
 SEATS: PTFE  
 O-RINGS: EPDM, FPM (Viton®)



**Integral 90° Scale with 5° Increments**  
 • Linear flow control and settable flow rates



Ball Detail

SP2 Series Proportional Ball Valve is designed for proportional (linear) flow control of chemicals or clean fluids. The ball is specially designed to provide linear characterized flow control 20° through 90° rotation of the handle. This valve is similar but not of the same design as other V-port ball valves. It offers excellent control and C<sub>v</sub> values higher or similar to those of diaphragm valves. With a positioning actuator, this becomes an inexpensive control valve.

## features

### Linear Flow Control

#### Full Size Range

- 6 valve sizes 1/2" to 2" offers a large selection of C<sub>v</sub> values

#### Integral Scale

- 5° increments from 0° to 90°

#### Top Quality Ball Valve Features

- Full Blocking design
- Double Stem O-Rings for safety
- PTFE seats with elastomer cushion
  - Automatically compensates for seat wear or expansion
- 230 psi pressure rated (PVC and PVDF)

#### Low Stem Torques

- Due to floating ball design and cushioned PTFE seats

#### Compact

- Space saving



**60° Position**  
 • Partially open

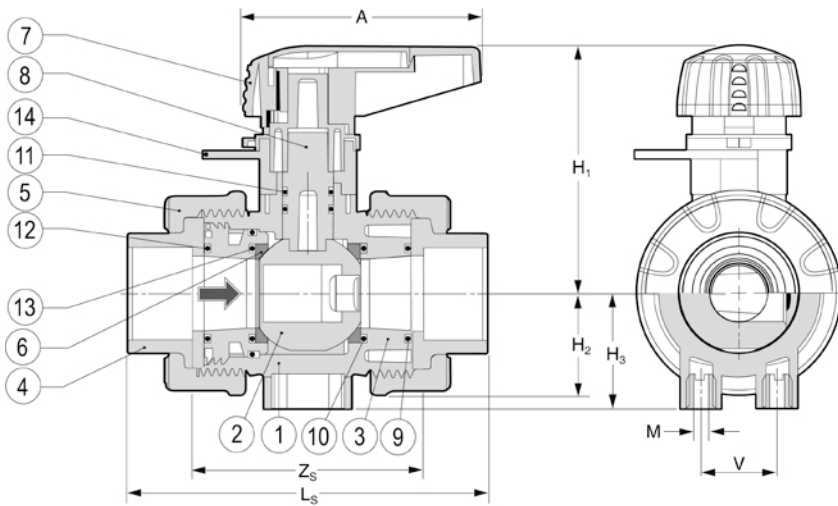


**90° Position**  
 • Fully open

<sup>1</sup>Butt ends for fusion to metric PP or PVDF piping  
<sup>2</sup>For ChemFlare™ end connectors, consult JJD



# SP2 Series Proportional Ball Valves



## PARTS

No.	Part	Pcs.	Materials
1	Body	1	PVC, PP, PVDF
2	Ball	1	PVC, PP, PVDF
3	Carrier	1	PVC, PP, PVDF
4	End Connector	2	PVC, PP, PVDF
5	Union Nut	5	PVC, PP, PVDF
6	Ball Seat	2	PTFE
7	Handle	1	PVC
8	Stem	1	PVC, PP, PVDF
9	Carrier Face O-Ring	1	EPDM, FPM(Viton®)
10	Carrier O-Ring	1	EPDM, FPM(Viton®)
11	Stem O-Ring <sup>1</sup>	2	EPDM, FPM(Viton®)
12	Face O-Ring	1	EPDM, FPM(Viton®)
13	Seat Cushion <sup>1</sup>	2	EPDM, FPM(Viton®)
14	Position Indicator Scale	1	PVC

## DIMENSIONS INCHES

Size							PVC			PP			PVDF		
	A	H <sub>1</sub>	H <sub>3</sub>	H	M	V	Z <sub>s</sub>	L <sub>s</sub>	H <sub>2</sub>	Z <sub>s</sub>	L <sub>s</sub>	H <sub>2</sub>	Z <sub>s</sub>	L <sub>s</sub>	H <sub>2</sub>
1/2"	2.62	2.48	1.10	2.50	M5	0.98	2.48	3.74	0.99	2.64	3.74	1.06	2.60	3.64	1.06
3/4"	3.21	3.03	1.20	2.70	M5	0.98	2.83	4.33	1.16	3.03	4.29	1.18	3.03	4.21	1.18
1"	3.21	3.39	1.60	3.00	M6	1.02	3.11	4.84	1.39	3.27	4.69	1.57	3.27	4.69	1.57
1-1/4"	3.60	4.33	1.80	3.40	M8	1.77	3.70	5.75	1.69	3.94	5.55	1.81	3.92	5.44	1.81
1-1/2"	3.60	4.57	2.20	3.60	M8	1.77	3.78	6.22	1.96	4.17	5.98	2.17	4.15	5.85	2.17
2"	5.63	5.94	2.80	4.30	M8	1.77	4.25	7.24	2.48	4.61	6.73	2.76	4.61	6.59	2.76

## ELECTRICALLY OR PNEUMATICALLY ACTUATED

The metering ball valve becomes a proportional control valve with the addition of a Q or E Series electric or P Series pneumatic actuator with 4-20 mA positioner

- Thermoplastic housing and mounting bracket
- Manual override
- Position indication
- Mechanical travel stops
- Different voltages are available



Q Series Electric

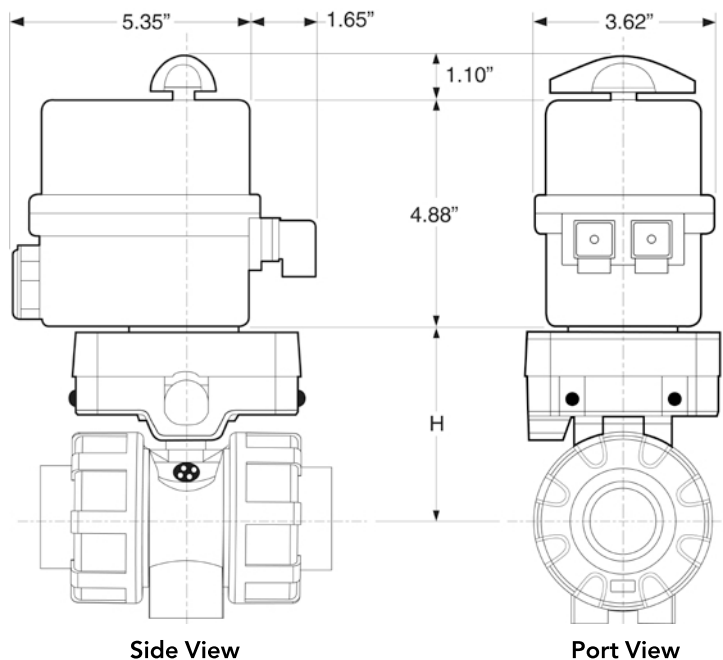


E Series Electric



P Series Pneumatic

## E Series Electric Actuator on a SP2 Valve



Side View

Port View



JJ DOWNS INDUSTRIAL PLASTICS INC.

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Toronto, ON

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# SP2 Series Proportional Ball Valves

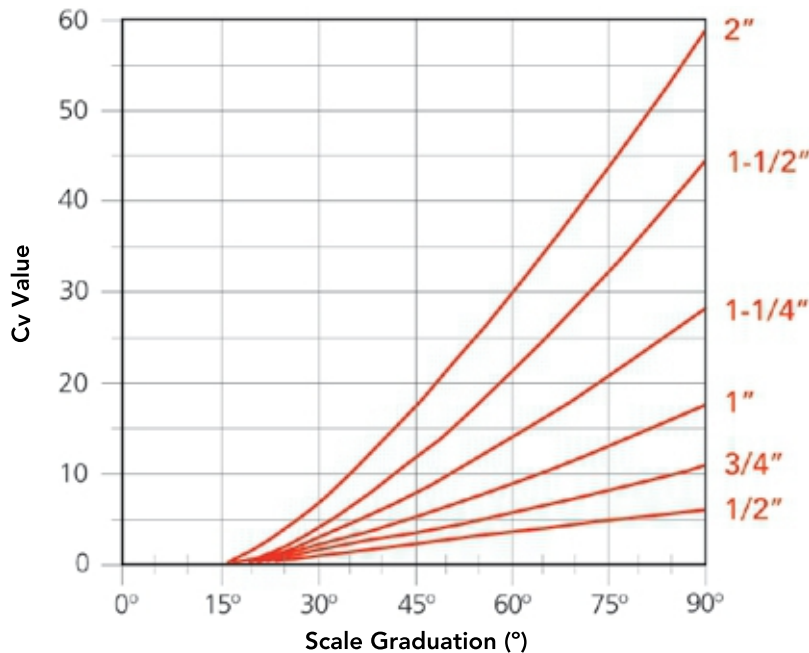
WORKING PRESSURES PSI

Cv  
NET WEIGHTS LB. VALUES

Size	PVC			PP				PVDF						PVC	PP	PVDF	USGPM Flow at 1 psi ΔP	
	20°C 68°F	40°C 104°F	60°C 140°F	20°C 68°F	40°C 104°F	60°C 140°F	80°C 176°F	20°C 68°F	40°C 104°F	60°C 140°F	80°C 176°F	100°C 212°F	120°C 248°F					140°C 284°F
1/2"	230	130	30	150	100	65	29	230	190	150	116	87	65	50	0.35	0.29	0.50	6.0
3/4"	230	130	30	150	100	65	29	230	190	150	116	87	65	50	0.62	0.55	0.70	11.0
1"	230	130	30	150	100	65	29	230	190	150	116	87	65	50	0.80	0.77	1.06	17.5
1-1/4"	230	130	30	150	100	65	29	230	190	150	116	87	65	50	1.58	1.25	1.98	28.0
1-1/2"	230	130	30	150	100	65	29	230	190	150	116	87	65	50	2.20	1.43	2.90	44.0
2"	230	130	30	150	100	65	29	230	190	150	116	87	65	50	3.75	2.84	4.54	59.0

Temperature Ranges: PVC 0 to 60°C (32 to 140°F), PP 10 to 80°C (50 to 176°F), PVDF -30 to 140°C (-22 to 284°F).

## Cv VALUE vs. VALVE OPENING



## SAMPLE SPECIFICATION

1. All flow control valves, 1/2" to 2", will be SP2 Series proportional ball valves.
2. Body material will be PVC, PP or PVDF, and o-rings will be EPDM or FPM (Viton®).
3. Body will be full blocking design with double stem o-rings for safety, rated at 230 psi maximum working pressure for PVC and PVDF and 150 psi for PP material.
4. Ball will be floating design for low stem torque, molded solid with a special patented profile for linear flow control over a 90° range of handle rotation.
5. Seats will be PTFE with elastomer cushions for positive closure with minimum stem torques and automatic compensation for seat wear and expansion.
6. Position indicating scale will be 0° to 90° with 5° increments for fine flow control and settable flow rates.
7. End connections will be 1/2" to 2" ANSI socket or FNPT threaded or 150 lb flanged or butt fusion for metric PP, PVDF or ECTFE (Halar®) pipe or ChemFlare™ for PFA tubing.

## ORDERING EXAMPLE

Proportional Ball Valves			SP2	A	010	E	S
Valve Material	A – PVC	B – PP	K – PVDF				
Size	005 – 1/2"	007 – 3/4"	010 – 1"				
	012 – 1-1/4"	015 – 1-1/2"	020 – 2"				
Seals	E – EPDM		V – FPM (Viton®)				
Ends	S – Socket	T – Threaded	B – Butt <sup>1</sup>	CF – ChemFlare™			

Example: SP2 Series Ball Valve, PVC, 1", EPDM seals, socket ends.

<sup>1</sup> PP and PVDF metric butt fusion ends connect to PP and PVDF piping systems.

## VACUUM RATING

- 29.9 inches mercury

## OPTIONS & ACCESSORIES

- **Reduced Ends**
- **Electric or Pneumatic Actuator with Positioner**
  - Operates as a linear control valve



# JJD



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