

VAL-MATIC®

Lever & Weight

Air Cushion

Lever & Spring

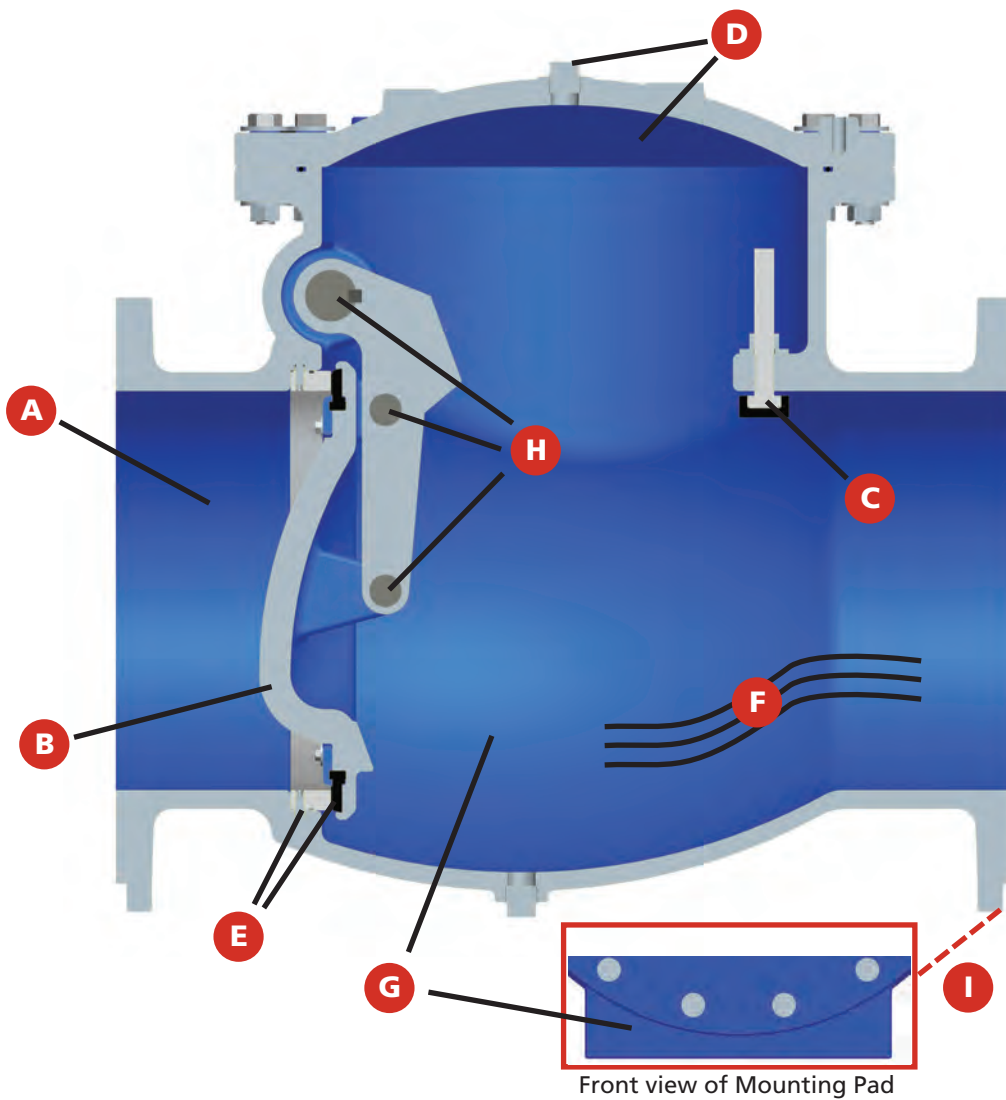


AWWA
Swing Check
Valve



www.valmatic.com

Feature Highlights



A. 100% Flow Area

Energy savings provided with 100% unrestricted flow area.

B. Disc Stabilization

The fluid dynamic convex disc provides for lift, stabilization and strength.

C. Adjustable Stop

Adjustable resilient open stop to prevent disc flutter for applications outside the typical flow ranges.

D. Full Domed Access Cover with Vent Port

Full domed access cover allows for ease of maintenance without removing the valve from the line.

E. Drop Tight Seating

The field replaceable synthetic seat, with integral O-ring assures positive seating at high and low pressures. Body seats are stainless steel to extend the life of the valve and are also field replaceable.

F. Non-Clog Design

The unrestricted full flow area combined with smooth streamline contouring allows for passage of large solids to prevent potential clogging.

G. Fusion Bonded Epoxy

Fusion Bonded Epoxy (FBE) is provided standard on the interior and exterior of the valve. The FBE is NSF/ANSI 61 certified and complies with AWWA C550.

H. Heavy Duty Disc Connections

Heavy duty shaft and disc retaining pins constructed of high tensile 300 series stainless steel for superior strength, wear resistance and extended life.

I. Integral Mounting Pads

Integral mounting pads for ease of installation and support. Standard on 3" and larger.

J. Closure Versatility

The AWWA Swing Check Valve is available with three field adjustable closure options: Lever and Weight, Air Cushion and Lever and Spring.

Features & Benefits

The Val-Matic Swing Check Valve incorporates many design features and characteristics that will provide energy savings, ease of maintenance and extended valve life. The valve is designed for municipal and industrial water and wastewater applications.

Closure Versatility

Swing Check Valves can be supplied with Lever & Weight, Air Cushion or Lever & Spring for positive control in closing the disc. The Lever & Weight or Lever & Spring designs are suitable for installation in horizontal or vertical pipelines and are easily adjustable in the field. When rapid flow reversal occurs, the Swing Check Valves can be supplied with dual lever arms. A fully enclosed and adjustable Air Cushion can be added to the standard Lever & Weight to cushion valve closure. The Air Cushion allows unrestricted opening and cushioned closure of the valve disc.

Drop Tight Seating

The body is fitted with a 300 series stainless steel seat that is raised from the body to assure sealing in applications with high solids. A molded resilient seat mounted on the disc has integral O-ring sealing surfaces for drop tight sealing at high and low pressures. Both seats are secured with stainless steel fasteners and are field replaceable without removing the valve from the line. (See Figure 1)

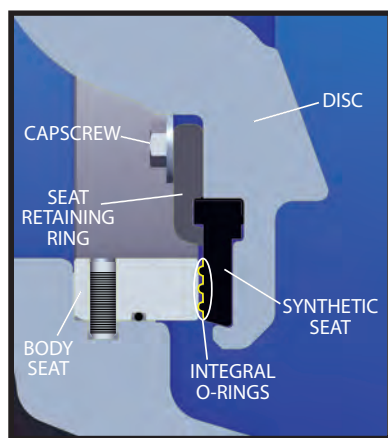


Figure 1 - Drop Tight Seating System

Ductile Iron Construction

Val-Matic provides standard swing check valves with ductile iron construction rated to 250 psig Cold Working Pressure (CWP). Ductile iron provides a greater strength and toughness than conventional gray iron materials. With ductile iron construction, the body, disc, and disc arm can safely withstand high stresses and shock loads.

Disc Pivot Action

The disc arm is designed with dual precision pins to secure the disc and reduce vibration. The arm includes specified clearances to center the disc in the seat yet provide a pivot action to allow self-adjusting seating at all pressures. (See Figure 2)

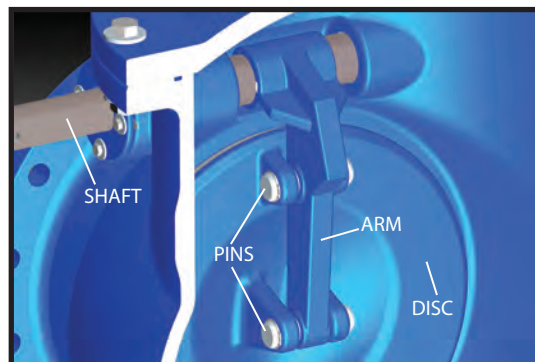


Figure 2 - Disc Pivot Action

Shaft Seal System

Val-Matic has enhanced the traditional design of V-Type packing system to prevent over load of the follower, the most common reason for packing leakage and failure. To prevent the packing from being over tightened, the shaft seal incorporates POP™ (Packing Overload Protection) Shims. Adjustment is easily accomplished by removing shims as necessary by utilizing the pull tab feature. (See Figure 3)

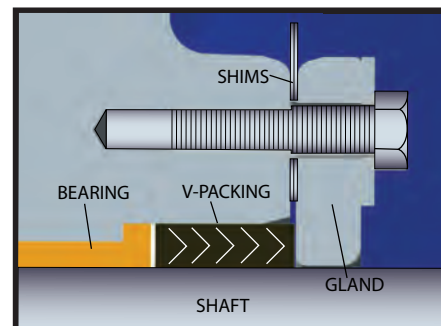


Figure 3 - Shaft Seal System

Corrosion Resistance

The body and disc are fully encapsulated with NSF/ANSI 61 certified fusion bonded epoxy per AWWA C550 to prevent corrosion and provide an extended service life. The shaft, disc pins, and seat hardware are constructed of 300 series stainless steel for the maximum corrosion resistance in severe service. Lead-Free Bronze bushings are provided in the body to provide smooth and reliable disc closure.

Limit Switch

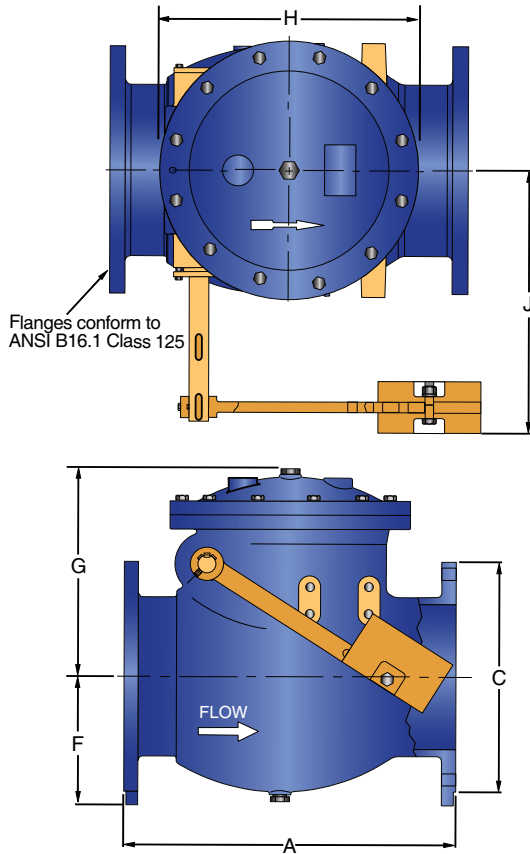
In addition to the many features and characteristics of the Swing Check Valve, an optional SCADA compatible limit switch can be utilized for remote panel read outs and/or secondary system operations indicating the open or fully closed position of the valve.

Advanced Technology

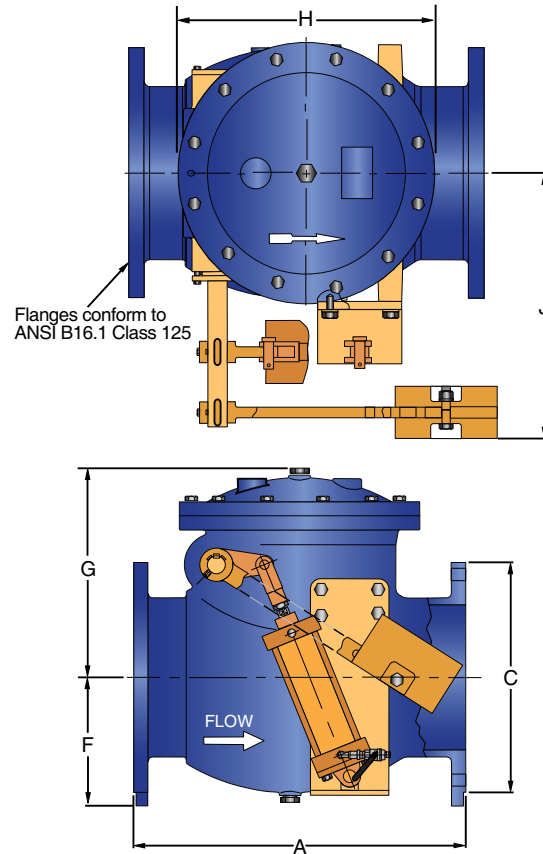
Incorporating the latest in valve technology assures a high-quality valve that will provide long service. The design process utilized Solid Modeling and Finite Element Analysis (FEA) of the key structural components. Manufacturing technology uses automated process control in the foundry and ISO 9001 controlled manufacturing processes. Every valve is tested on automated hydraulic test rigs with calibrated gauges.

Installation Dimensions

Series 7000LW Lever and Weight



Series 7000AC Air Cushion

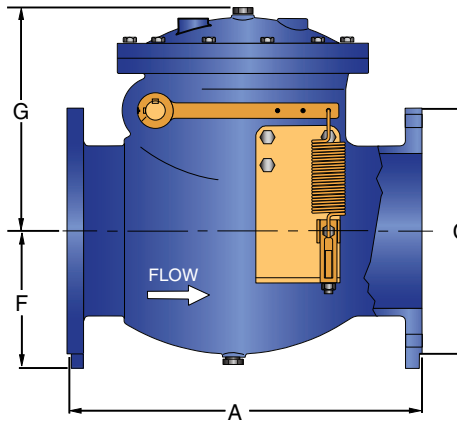
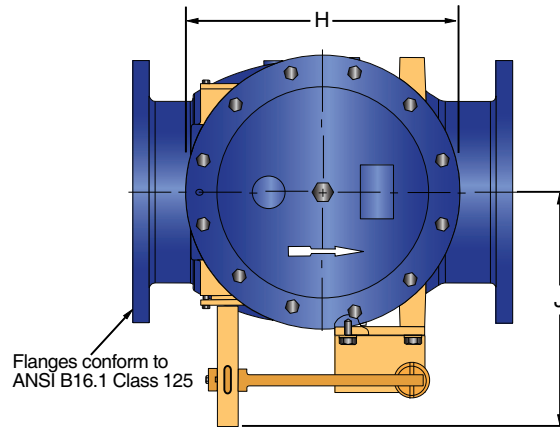


Dimensions in Inches

Valve Size	CWP (psig)	A	C	F	G	H	J	LW Valve Weights	AC Valve Weights
2	250	8.00	6.00	-	4.34	5.39	4.38	104	-
2 1/2	250	8.50	7.00	-	4.34	5.78	7.00	115	-
3	250	9.50	7.50	3.75	6.69	7.01	7.38	123	133
4	250	11.50	9.00	4.50	7.60	7.87	8.63	165	180
6	250	14.00	11.00	6.69	10.53	12.60	12.50	256	276
8	250	19.50	13.50	8.46	12.80	15.75	15.75	375	400
10	250	24.50	16.00	8.66	14.33	17.52	17.38	535	570
12	250	27.50	19.00	10.63	17.32	19.88	17.88	810	850
14	250	31.00	21.00	12.50	19.96	23.88	23.13	1064	1114
16	250	36.00	23.50	13.75	21.22	26.50	25.00	1253	1303
18	250	40.00	25.00	15.00	23.22	27.88	26.38	1521	1571
20	250	40.00	27.50	16.00	24.94	30.44	28.25	1890	1940
24	250	48.00	32.00	18.50	30.34	36.63	32.75	3052	3112
30	150	56.00	38.75	22.00	38.47	43.81	40.75	5514	5574
	250								
36	150	63.00	46.00	25.50	43.22	51.41	45.06	8151	8211
	250								
42	150	70.00	53.00	29.25	49.80	59.88	50.00	11380	11460
	250								
48	150	76.00	59.50	32.75	56.38	68.38	55.13	16780	16860
	250								

Installation Dimensions

Series 7000LS Lever and Spring



Dimensions in Inches								
Valve Size	CWP (psig)	A	C	F	G	H	J	LS Valve Weights
2	250	8.00	6.00	-	4.34	5.39	4.21	102
2 1/2	250	8.50	7.00	-	4.34	5.78	6.77	112
3	250	9.50	7.50	3.75	6.69	7.01	6.97	119
4	250	11.50	9.00	4.50	7.60	7.87	8.23	154
6	250	14.00	11.00	6.69	10.53	12.60	12.22	240
8	250	19.50	13.50	8.46	12.80	15.75	15.16	335
10	250	24.50	16.00	8.66	14.33	17.52	16.61	491
12	250	27.50	19.00	10.63	17.32	19.88	17.32	756
14	250	31.00	21.00	12.50	19.96	23.88	22.63	1011
16	250	36.00	23.50	13.75	21.22	26.50	24.25	1177
18	250	40.00	25.00	15.00	23.22	27.88	25.63	1431
20	250	40.00	27.50	16.00	24.94	30.44	27.50	1764
24	250	48.00	32.00	18.50	30.34	36.63	32.13	2837
30	150	56.00	38.75	22.00	38.47	43.81	39.81	5134
	250							
36	150	63.00	46.00	25.50	43.22	51.41	43.81	7693
	250							
42	150	70.00	53.00	29.25	49.80	59.88	48.50	10680
	250							
48	150	76.00	59.50	32.75	56.38	68.38	53.00	15940
	250							

Valve Construction

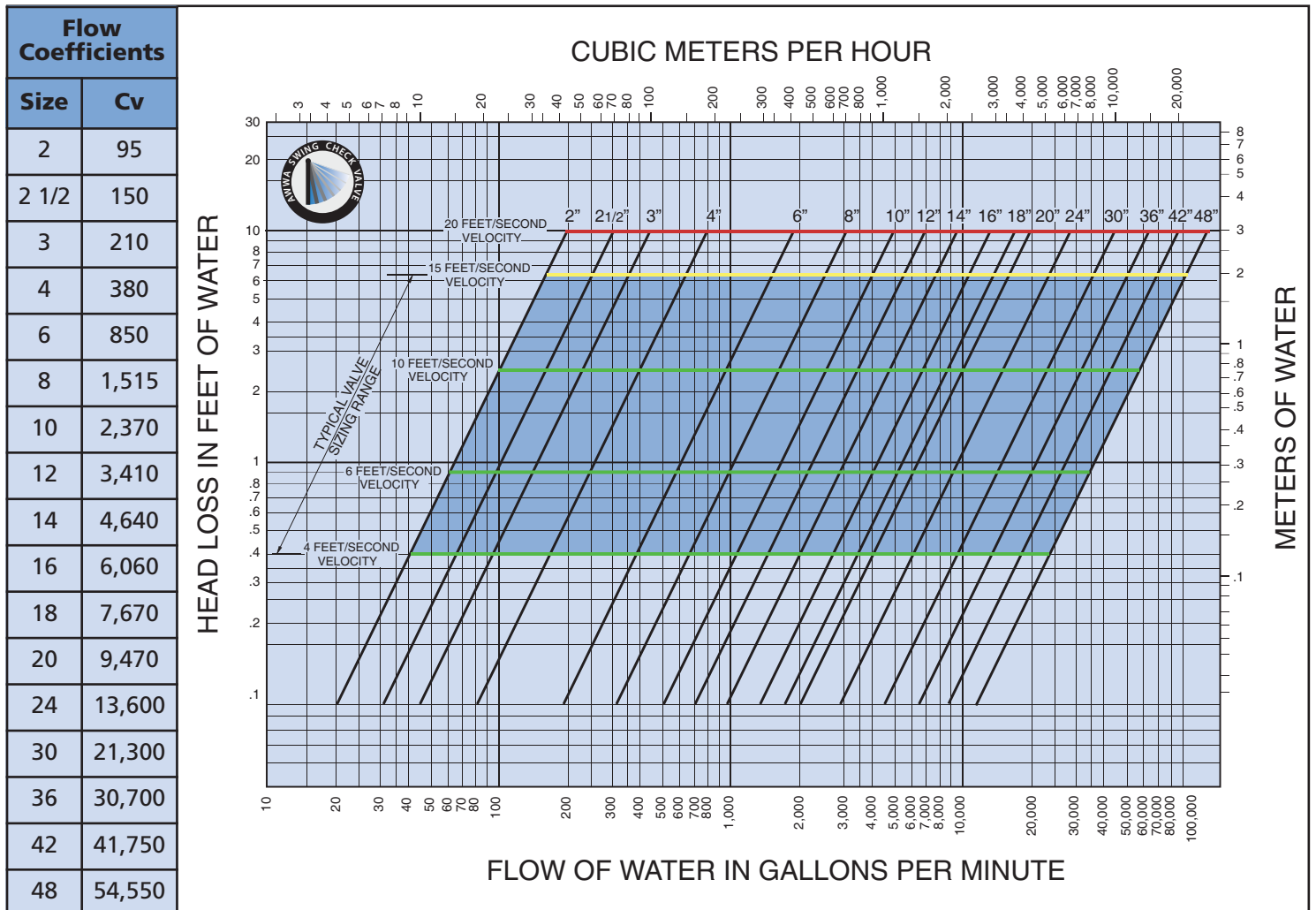
PRESSURE RATINGS

MAXIMUM PRESSURE RATINGS				
SERIES	DESCRIPTION	SIZE RANGE	FLANGE CONNECTION	CWP (psig)
7800LW	Lever & Weight	2" - 48"	Class 150 Ductile Iron	250
7800AC	Air Cushion	3" - 48"		
7800LS	Lever & Spring	2" - 48"		
7700LW	Lever & Weight	30" - 48"	Class 125 Gray Iron	150
7700AC	Air Cushion	30" - 48"		
7700LS	Lever & Spring	30" - 48"		

MATERIALS OF CONSTRUCTION

COMPONENT	STANDARD	OPTIONAL
Body and Cover 2" - 24"	Ductile Iron ASTM A536 Gr 65-45-12	N/A
Body and Cover 30" - 48"	Gray Iron ASTM A126 Class B	Ductile Iron ASTM A536 Gr 65-45-12
Disc and Disc Arm	Ductile Iron ASTM A536 Gr 65-45-12	N/A
Hinge Pin Seal	V-Packing Buna-N	Cartridge O-Ring EPDM
Removable Body Seat	Stainless Steel ASTM A276 Type 304	Stainless Steel ASTM A276 Type 316
Molded Resilient Seat	Buna-N	EPDM
Interior Hardware	T304 Stainless Steel	T316 Stainless Steel
Exterior Hardware 2" - 12"	T304 Stainless Steel	T316 Stainless Steel
Exterior Hardware 14" - 48"	Alloy Steel, Plated	T316 Stainless Steel
Interior/Exterior Coating System	Fusion Bonded Epoxy NSF/ANSI 61	N/A

Headloss Chart



SCOPE

- 1.1 This specification covers the design, manufacture, and testing of 2 in. (50 mm) through 48 in. (1200 mm) Swing Check Valves suitable for cold working pressures of 250 psig, 150 psig for 30 in. (800mm) and larger in water and wastewater service.
- 1.2 The check valve shall be of the full flow body type, with a domed access cover and vent port.
- 1.3 The check valve shall be capable of accepting lever and weight, air cushion or lever and spring.

STANDARDS AND APPROVALS

- 2.1 The valves shall be designed, manufactured and tested in accordance with American Water Works Association Standard ANSI/AWWA C508.
- 2.2 The valves used in potable water service shall be certified to NSF/ANSI 61, Drinking Water System Components – Health Effects, and certified to be Lead-Free in accordance with NSF/ANSI 61, Annex G.
- 2.3 Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

CONNECTIONS

- 3.1 The Valves shall be provided with flanges in accordance with ANSI B16.1, Class 125 iron flanges or ANSI B16.42, Class 150 for ductile iron flanges.

DESIGN

- 4.1 The valve body shall be full flow equal to nominal pipe diameter at all points through the valve and shall be equipped with a threaded adjustable open stop. The body seat shall be o-ring sealed and field replaceable without removing the valve from the line. The end flanges shall contain integrally cast mounting pads on sizes 3" and larger.
- 4.2 The top access port shall be full size, allowing removal of the disc without removing the valve from the line. The access cover shall be domed in shape to provide flushing action over the disc for operating in lines containing high solids content.
- 4.3 The disc shall be of one-piece construction and connected to the shaft with a disc arm and two pivot pins to provide pivot action to allow self-adjusting seating at all pressures. 14" and larger discs shall be convex shape for lift, stabilization and strength.
- 4.4 The disc seat shall be resilient with integral o-ring type sealing surface for drop tight shut-off at high and low pressures and for easy replacement in the field without removing the valve from the line.
- 4.5 The shaft seals shall consist of V-type packing in a fixed gland with an adjustable follower designed to prevent over compression of the packing and to meet design parameters of the packing manufacturer. Removable, slotted shims shall be provided under the follower flanges to provide for adjustment and prevent over loading of the packing.
- 4.6 When specified, the valve shall be factory equipped with a lever and weight assembly. The lever shall be equipped with three holes for adjusting the bolted weight assembly. When the valve is closed, the lever and weight shall be located 30 degrees below horizontal.

- 4.7 When specified, the valve shall be factory equipped with a lever and air cushion assembly mounted between the weight assembly. The air cushion assembly shall consist of a clevis mounted tie-rod type closed cylinder with the exhaust port piped to a brass flow control valve and the inlet port piped to a breather/filter.
- 4.8 When specified, the valve shall be factory equipped with a lever and spring assembly. The spring shall be mounted to a bracket on the side of the valve body with a bolt assembly to adjust the spring tension.

MATERIALS

- 5.1 The valve body, cover and disc shall be constructed of ASTM A536 Grade 65-45-12 ductile iron for sizes 2 in. (50 mm) through 24 in. (600 mm) and ASTM A126 class B, gray iron for sizes 30 in. (800mm) through 48 in. (1200mm), with optional body material ASTM A536 Grade 65-45-12 ductile iron.
- 5.2 The exterior and interior of the valve shall be coated with an NSF/ANSI 61 approved fusion bonded epoxy coating.
- 5.3 The removable body seat shall be constructed of ASTM A276, Type 304 stainless steel. Optional body seat material includes ASTM A276, Type 316 stainless steel.
- 5.4 The removable resilient seat shall be precision molded Buna-N (NBR), ASTM D2000-BG. When specified, optional seat material includes EPDM.
- 5.5 The disc, arm, and external levers shall be ductile iron.

OPTIONS

- 6.1 A pre-wired limit switch will be provided (when specified) to indicate open/closed position to a remote location. The mechanical type limit switch shall be activated by the external arm and rated for NEMA 4, 6, or 6P and shall have U.L. rated 5 amp, 125 or 250 VAC contacts.

MANUFACTURE

- 7.1 Manufacturer shall demonstrate a minimum of five (5) years' experience in the manufacture of swing check valves.
- 7.2 All valves shall be hydrostatically and seat tested per AWWA C508 to demonstrate zero leakage and structural integrity. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.
- 7.3 Swing Check Valves shall be Series #7000LW (lever and weight), 7000AC (air cushion and weight) or 7000LS (lever and spring) as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL USA or approved equal.

VAL-MATIC®

Val-Matic's quality of design and meticulous workmanship has set the standards by which all others are measured. Quality design features such as the AWWA **Ener•G® Ball Valve** with its energy efficient design, fusion bonded epoxy and adjustable resilient seating....**Cam-Centric® Plug Valves** have more requested features than any other eccentric plug valve....**American-BFV® Butterfly Valves** include a field replaceable seat without the need for special tools....**Tilted Disc® Check Valves** with high strength and wear resistant aluminum bronze trim as standard....**Silent Check Valves** featuring combined resilient/metal-to-metal seating....**Sure Seal Foot Valves** provided with a heavy duty stainless steel screened inlet....**Swing-Flex® and Surgebuster® Check Valves** designed with an unrestricted full flow area....**Dual Disc® Check Valves** utilizing stabilized components to provide extended life....**Air Release, Air/Vacuum and Combination Air Valves** provided standard with Type 316 stainless steel trim....**VaultSafe®** family of products includes the **FloodSafe® Inflow Preventer**, **FrostSafe®** two-way damper and the **VentSafe®** vent pipe security cage. These features coupled with our attention to detail put Val-Matic Valves in a class by themselves.

Val-Matic is totally committed to providing the highest quality valves and outstanding service to our customers. Complete customer satisfaction is our goal.

Make the Change to Quality!

Specify

VAL-MATIC®

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