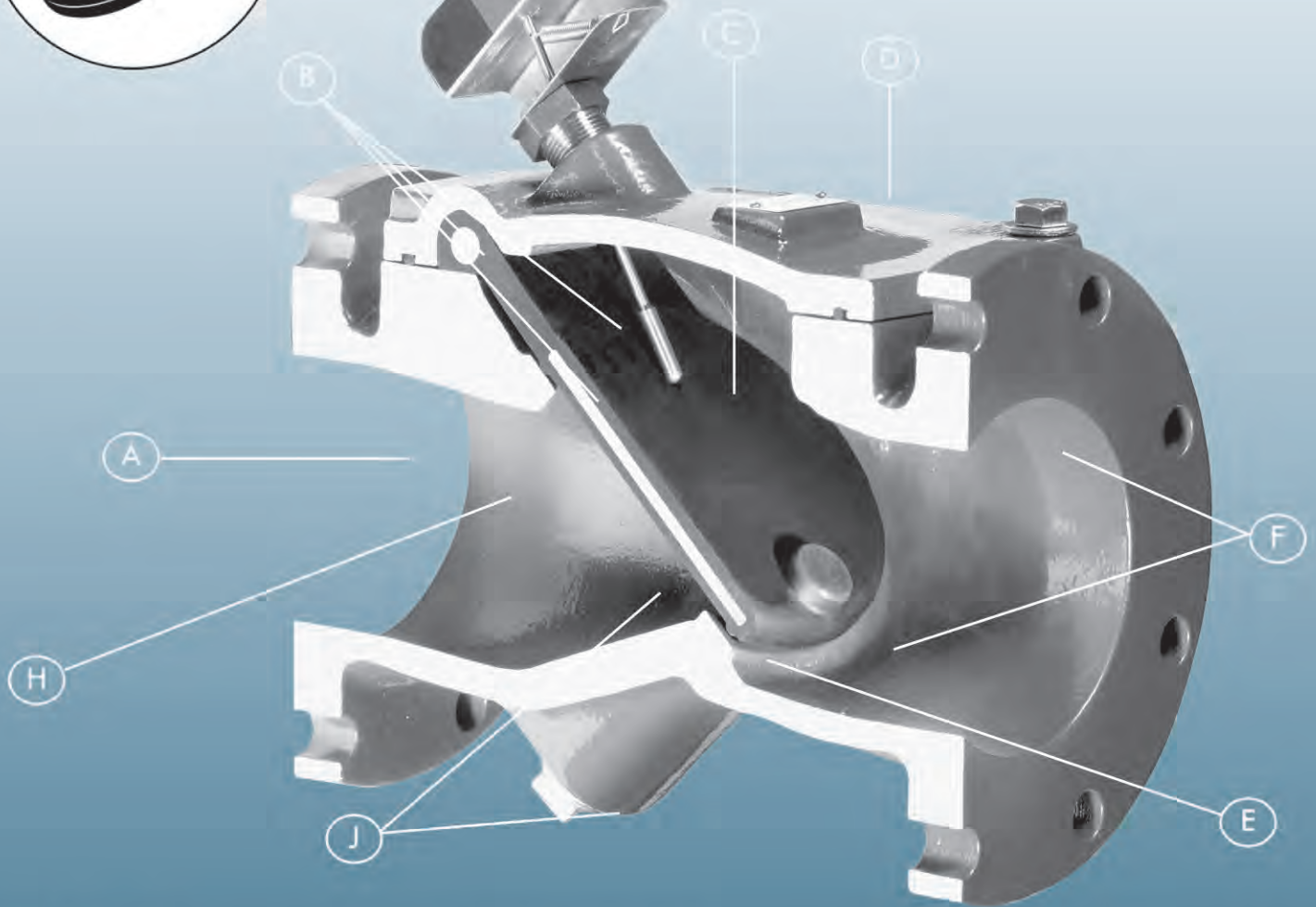


# VAL-MATIC®



**EFFICIENCY &  
RELIABILITY  
THROUGH  
SIMPLICITY  
OF DESIGN**

**Swing-Flex® Check Valve**



#### A. 100% FLOW AREA

For improved flow characteristics and lower head loss, the Val-Matic Swing-Flex® Check Valve provides 100% unrestricted flow area.

#### B. REINFORCED DISC

The one piece precision molded disc is steel and nylon reinforced to provide years of trouble free performance. It is backed by a 25 year warranty for the flex portion of the disc. (Tested for proof of design - see page 5.)

#### C. ONE MOVING PART

The Memory-Flex™ disc, the only moving part, assures long life with minimal maintenance. No packing or O-rings, mechanical hinges, pivot pins or bearings to wear out.

#### D. DOMED ACCESS PORT

Full size top access port allows removal of disc without removing valve from line. Access cover includes a drilled and tapped port for installation of optional Disc Position Indicator.

#### E. DROP TIGHT SEATING

The synthetic reinforced disc, with its integral O-ring type seal design assures positive seating at high and low pressures.

#### F. NON-SLAM CLOSURE

"Short Disc Stroke" combined with Memory-Flex™ Disc Action reduces potentially destructive water hammer.

#### G. BACKFLOW ACTUATOR (Not Shown)

Body is drilled and tapped for installation of optional backflow actuator (see options).

#### H. NON-CLOG DESIGN

The unrestricted full flow area combined with smooth streamlined contouring allows passage of large solids minimizing the potential for clogging.

#### I. MECHANICAL DISC POSITION INDICATOR\* (Optional)

Provides clear indication of the valve's disc position. Can also be provided with a SCADA compatible limit switch for off site monitoring (see options).

#### J. FUSION BONDED EPOXY

Fusion Bonded Epoxy (FBE) is provided standard on the interior and exterior of the valve. The FBE is ANSI/NSF 61 certified. Other coatings are available on request.

## EFFICIENCY..... RELIABILITY .....BY DESIGN!

Efficiency and reliability through simplicity of design is the key to the superior performance and long life of the Val-Matic **Swing-Flex**<sup>®</sup> Check Valve.

### ENERGY EFFICIENT BY DESIGN

The streamlined contour of the **Swing-Flex**<sup>®</sup> body provides 100% flow area with no restrictions at any point through the valve (Figure 1.) Flow tests performed by an independent laboratory have shown that this unique body design produces minimal head loss through the valve. Flow and head loss charts, developed from the test data, are shown on Page 4.

### DISC STABILIZATION BY DESIGN

In the full open position, the disc is stabilized by using body contouring to ease the direction of flow towards the disc assuring long disc life (Figure 1).

### NON-CLOGGING BY DESIGN

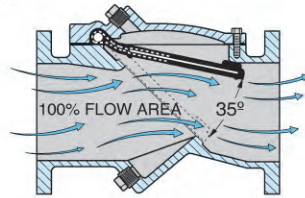
Clog resistant performance is achieved by maintaining an unobstructed 100% flow area, smooth streamlined body contouring and the simplicity of one moving part. The entrapment or hang-up of solids and stringy materials is minimized by the elimination of mechanical devices in the valve design. The standard 4" **Swing-Flex**<sup>®</sup> is designed to pass a 3" solid.

### NON-SLAM CLOSING BY DESIGN

The non-slam closing characteristic of the **Swing-Flex**<sup>®</sup> Check Valve is achieved by utilizing a "Short Disc Stroke" in conjunction with the unique "**Memory-Flex**"<sup>™</sup> action" of the valve's disc. The 35° stroke, a result of the angled seat, is less than half the typical 80° to 90° stroke of a conventional swing check valve. (Figures 1 & 2) The feature is similar to that found in high performance tilted disc check valves.

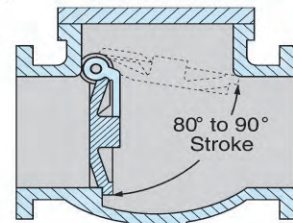
#### VAL-MATIC SWING-FLEX<sup>®</sup> VALVE

Figure 1



#### CONVENTIONAL SWING CHECK VALVE

Figure 2



The short disc stroke and "**Memory-Flex**"<sup>™</sup> action" (Figure 1) serve to reduce the closing time of the valve. This reduced closing time minimizes flow reversal and the resultant water hammer normally associated with the sudden stoppage of reverse flow.

### RELIABILITY BY DESIGN

Operational reliability is achieved by utilizing just one moving part, the **Memory-Flex**<sup>™</sup> disc. Extended life is --

designed into the disc by the inclusion of steel and nylon reinforcements. The steel and nylon are precision molded into the disc, providing a tough, durable disc with a 25-year warranty\*.

(Figure 3) Unlike a conventional horizontal swing check valve, the **Swing-Flex**<sup>®</sup> has no packing or O-rings, mechanical hinges, shafts, pivot pins, or bearings to wear out (Figure 3.) Upon conclusion of a 1,000,000 (one million) cycle test, an independent testing laboratory reported that the valve had no visible signs of wear and remained drop tight. (See Page 5.)

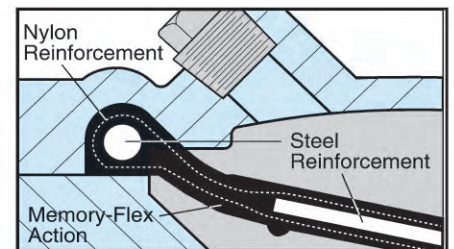


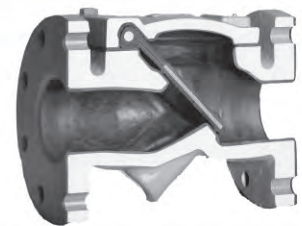
Figure 3

### POSITIVE SHUT OFF BY DESIGN

The **Memory-Flex**<sup>™</sup> disc with its integral O-ring type seal design assures drop tight seating at both high and low working pressures. Each and every valve is tested to this standard. A certified report is available upon request.

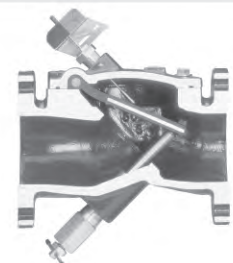
## OPTIONAL ACCESSORIES

**RUBBER LINING** -- Unlike conventional swing check valves, the **Swing-Flex**<sup>®</sup> Check Valve is designed to accept synthetic or natural rubber lining. Body lining coupled with synthetic **Memory-Flex**<sup>™</sup> discs makes the **Swing-Flex**<sup>®</sup> ideally suited for systems containing abrasive or corrosive fluids.



**DISC POSITION INDICATOR** -- The cover mounted disc position indicator provides clear indication of the valve's disc position. A SCADA compatible limit switch can also be provided. Both can be provided at the time of valve purchase or for field installation at a later date.

**BACKFLOW ACTUATOR** -- Available for use when manual backflow operation is required. Most commonly used for priming pumps, back flushing, draining lines, and system testing. The Val-Matic Backflow Actuator can be provided at the time of valve purchase or for field installation at a later date.

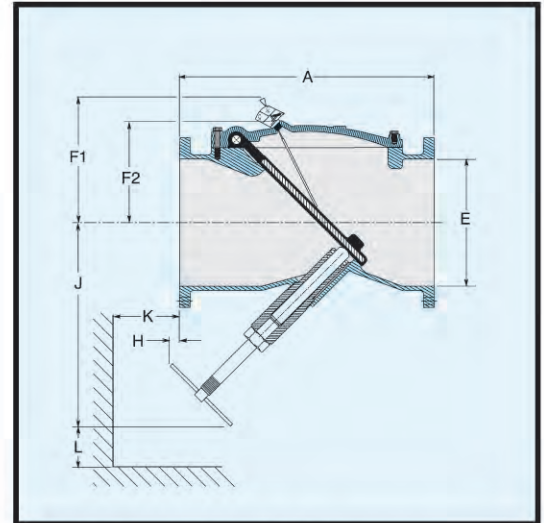


\* The Val-Matic warranty and its remedies are available for 25 years covering the flex portion of the disc.

# INSTALLATION DIMENSIONS AND CONSTRUCTION

VALVE SIZE	MODEL #	A	E	F1	F2	H	J	K	L
2	502A	8.00	2.00	N/A	3.38	-0.50	6.75	1.50	1.50
2 1/2	525A	8.50	2.50	N/A	3.38	-0.50	7.00	1.50	1.50
3	503A	9.50	3.00	8.69	5.12	-0.38	7.50	1.50	1.50
4	504A	11.50	4.00	10.63	5.75	3.38	10.75	2.50	2.50
6	506A	15.00	6.00	11.69	6.88	1.38	11.38	3.00	3.00
8	508A	19.50	8.00	13.25	8.38	2.00	15.75	5.75	5.75
10	510A	24.50	10.00	15.63	10.75	0.50	17.00	5.75	5.75
12	512A	27.50	12.00	17.19	12.50	3.50	22.50	6.50	6.50
14	514A	31.00	14.00	17.81	13.00	4.00	26.25	6.50	6.50
16	516A	32.00	16.00	19.06	14.25	4.63	30.00	6.50	6.50
18	518A	36.00	18.00	20.25	15.25	5.25	33.75	6.50	6.50
20	520A	40.00	20.00	21.69	16.88	5.88	37.50	8.00	8.00
24	524A	48.00	24.00	24.50	19.25	1.81	45.00	8.00	8.00
30	530A	56.00	30.00	27.81	23.00	-0.63	41.25	8.00	8.00
36	536A	63.00	36.00	32.63	27.38	-0.38	49.00	9.75	9.75
42	542A	70.00	42.00	39.63	36.88	-5.50	53.50	9.75	9.75
48	548A	76.00	48.00	43.41	40.66	-2.90	41.98	10.00	10.00

Dimensions "L" and "K" represent the clearance required to remove backflow actuator.



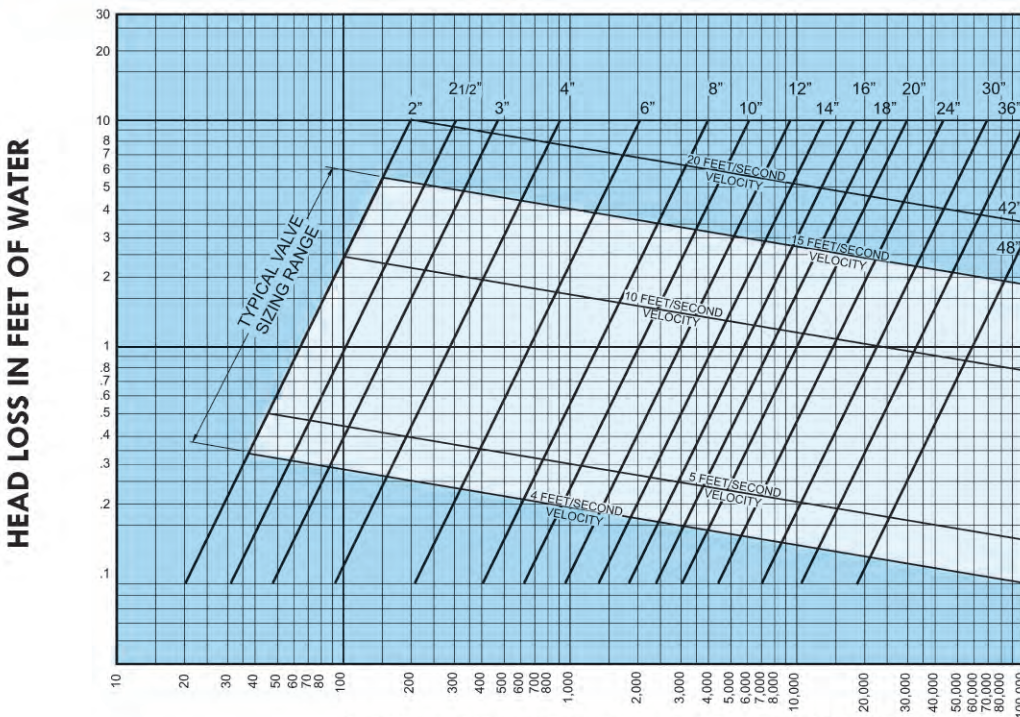
\*Dimension "E" represents nominal valve size.  
Note: Flanged ends conform to ANSI B16.1 Class 125.

MATERIALS OF CONSTRUCTION		
Component	Standard	Optional
Body and Cover	Ductile Iron ASTM A536 Grade 65-45-12	Stainless Steel, Bronze
Disc	Buna-N (NBR), ASTM D2000-BG	Viton (FKM), ASTM D2000-HK
Coatings	Interior	Fusion Bonded Epoxy*
	Exterior	Fusion Bonded Epoxy*
		Rubber Lining
		Consult Factory

Consult factory for additional material and coating options.  
\*ANSI/NSF 61 Certifications

ANSI MAXIMUM PRESSURE-TEMPERATURE RATING		
Maximum Non-Shock Working Pressure (P.S.I.) ANSI Class 125		
Temperature °F	2" - 48"	30" - 48"
100°	250	150
150°		
200°	235	135
Hydrostatic Test Pressures	500	300

## HEAD LOSS CHART



FLOW OF WATER IN GALLONS PER MINUTE

Consult factory for Digester Gas Service

Flow Tests performed by the Utah Water Research Laboratory of Utah State University.

## SAMPLE SPECIFICATIONS

The check valve shall be of the **Swing-Flex**® full body flanged type, with a domed access cover and only one moving part - the valve disc.

The valve body shall have full flow equal to nominal pipe diameter at any point through the valve. The seating surface shall be on a 45° angle to minimize disc travel. The top access port shall be full size, allowing removal of the disc without removal of the valve from the pipeline and shall include a port for installation of an optional mechanical position indicator.

The disc shall be of one piece construction, precision molded with an integral O-ring type sealing surface and contain steel and nylon reinforcements in both the **Memory Flex**™ and central disc areas. The flex portion of the disc shall be warranted for 25 years. Non-slam closing characteristic shall be provided through a short 35° disc stroke and a

**Memory-Flex**™ disc return action.

A mechanical indicator shall be provided when specified to provide disc position indication on valves 3" and larger. The indicator shall have continuous contact with the disc under all operating conditions to assure accurate disc position indication.

A 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 position indicator. The switch shall be rated for NEMA 4, 6, or 6P and shall have U.L. rated 5 amp, 125, or 250 VAC contacts.

Backflow capabilities shall be available by means of an optional screw type backflow actuator. Both the disc position indicator and backflow actuator shall be capable of installation without special tools.

The valve body and cover shall be ASTM A536 Grade 65-45-12, Class B Ductile Iron. The disc shall be Buna-N (NBR), ASTM D2000-BG.

The interior and exterior of the valve shall be coated with an ANSI/NSF 61 approved Fusion Bonded Epoxy.

The valve shall be proof of design cycle tested 1,000,000 times with no signs of wear or distortion to the valve disc or seat and shall remain drop tight at both high and low pressures. The test results shall be independently certified.

The manufacturer shall have a minimum of five years experience in the manufacture of flexible disc type check valves.

The valve shall be Val-Matic **Swing-Flex**® series 500 and shall be designed, manufactured and tested in accordance with ANSI/AWWA Standard C508.

## INDEPENDENT PROOF OF DESIGN TEST

In the case of the Val-Matic **Swing-Flex**® Check Valve, we have taken quality assurance one step further by having the valve cycle tested. Utilizing an eight-inch **Swing-Flex**® with optional signal switch, the valve was cycled over 1,000,000 (one million) times.

To place one million cycles in perspective, it would take an average of 100 cycles per day for more than 27 years

to equal the 1,000,000 cycles. Upon conclusion, PSI/Pittsburgh Testing Laboratory Division reported the following results:

1. After 1,000,000 cycles the valve's disc showed no signs of fatigue or stress cracks.
2. After 1,000,000 cycles the valve seating areas showed no signs of wear

or distortion. The valve seating remained drop tight during the low and high pressure hydrostatic tests.

3. After 1,000,000 cycles the signal switch continued to function as designed.

Copies of the PSI/Pittsburgh Testing Laboratory Division report are available upon request.

## QUALITY ASSURANCE

Val-Matic's Quality Assurance is the sum of imaginative design, solid engineering, careful manufacturing and dedicated people.

These all combine to ensure total customer satisfaction. We recognize the need for, and encourage, individual pride and the self-satisfaction, which is gained in producing reliable and quality valves.

This quality attitude permeates through the corporation from the president to our newest employee.

Testing (right) is the backbone of our quality assurance. Every **Swing-Flex**® Check Valve is 100% tested including a seat test to assure drop tight sealing and hydrostatic testing to assure the integrity of the casting.



Swing-Flex® Valve at test.



# Make the change to **QUALITY!** Specify **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 Type 316 stainless steel trim as standard on Air Release, Air/Vacuum and Combination Air Valves...combined resilient/metal to metal seating for Silent Check® Valves...stabilized components that provide extended life of the Dual Disc® Check Valves...high strength and wear resistant aluminum bronze trim as standard for Tilted Disc® Check valves...unrestricted full flow area through Swing-Flex® Check Valves...heavy duty stainless steel screened inlet on Sure Seal® Foot Valves...a Cam-Centric®

Plug Valve with more requested features than any other eccentric plug valve, and the American-BFV® Butterfly Valve that provides a field replaceable seat without the need for special tools. 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.

**VAL-MATIC®**

**VAL-MATIC VALVE AND MANUFACTURING CORP.**

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