



45° Flexible Swing Disc **Rubber Flapper Check Valve**

Design Features

- Non Slam Closure
- 100% Unrestricted Flow Area
- Drop Tight Seating
- 2" to 48" Size Range
- ANSI/AWWA C508 Standards
- Streamlined Contoured Body
- 45° Seating Surface; 35° Stroke
- Non Clog Design – 4" Valve passes a 3" spherical solid
- Ductile Iron Body and Cover
- Ductile Iron Disc – Buna N Encapsulated Rubber – Nylon Reinforced
- Fusion Bonded Epoxy Coating

Available Options

- EPDM and other Rubber Materials
- Backflow Actuator-Positive Backflush
- Accelerated Disc Close Spring Assist
- Valve Disc Position Indicator
- Synthetic Liners
- Limit Switch for Remote Signal
- Special Alloy Construction SS and Other



July 30th, 2015

WTR 45° Flexible Disc Swing Check Valve

Materials of Construction

Valve Body	Ductile Iron ASTM A536 Grade 64-45-12 Rated 250 psig-CWP
Valve Cover	Ductile Iron ASTM A536 Grade 65-45-12 Rated 250 psig-CWP
Disc	Ductile Iron provide with Buna-N Rubber Encapsulation And Nylon/Steel Reinforcement
Cover Seal	Buna-N Rubber ASTM D2000
Bolts & Nuts	316 Stainless Steel
Washers	316 Stainless Steel
Disc Accelerator	316 Stainless Steel
Mechanical Position Indicator	Aluminum Bronze & 17-4 Stainless Steel

WATER TECHNOLOGY RESOURCES - WTR VALVES

Notations:

1. All Valves are Factory Tested at 1.5x Valve Design Pressure Rating.
2. All Valves are manufactured with Flange to Flange face dimensions are the same as other Check Valve Designs such as AWWA 90° Swing Checks and Ball Check Valves – Example the 20" ID Valve has a 40" FF lay length 90° Design.
3. WTR 45° Flexible Disc Check Valves are NSF51 Approved and Certified.
4. All Valves are provided with a High Grade Epoxy Resin Protective Coating Inside and Outside per NSF61 and C500 Standards

Optional Features

Backflow/Backflush Stem Actuator

Disc Position Indicator – Aluminum Bronze 17-4 SS

Materials of Construction – Special Alloys and Synthetic Disc Coatings

Glass Lining/Rubber Lining

Limit Switch – For remote signal

Mill Test Certificate AWWA C508

Order No: PO298 (Invoice no.GH14301)

Page 1/1

Product Name		Model	Size	Working pressure	Suitable Temp.	Quantity	Testing result
45 DEGREE FLEXIBLE DISC SWING CHECK VALVES AWWA C508			20"	200PSI	-4~158°F	3	OK
Check and Test							
Pressure Test				Coating test			
Shell Hydrostatic		Result	Seat Hydrostatic		Result		
Test Pressure 200 PSI		No leakage	Test Pressure 400 PSI		Dupont powder coating, RAL5010		
Test Medium Water			Water				
Time 300 S			Time 300 S				
					Which suitable for NSF 61		
					Thickness: 10 Dry mills		
Physical & Chemical Test							
Part name		Material	Main Chemical Composition				MAT
			C.%	Si.%	Mn.%	P.%	S.%
Body, bonnet, Wedge		Ductile iron ASTM A536 65-45-12	3.78	2.323	0.49	0.03	0.013
Part name		Material	Main Chemical Composition				Elongation %
			C%	Si%	Ni%	P%	S%
Plug		Stainless steel SS304	0.05	0.69	9.7	0.022	0.018
Part name		Material	Main Chemical Composition				Elongation %
			C%	Si%	Ni%	P%	S%
Bolts		Stainless steel SS316	0.04	0.59	12.45	0.021	0.016

WATER TECHNOLOGY RESOURCES – WTR VALVES

March, 2015

45° Flexible Disc Check Valves

AWWA C-508

Flex Disc Check Valves are designed for tough pumping applications where performance, reliability, and minimal maintenance are of utmost importance. This design has particularly good performance in applications having high discharge pressures in which reverse flows could cause excessive surging, severe slamming of the Disc resulting in water hammer.

The Valve is designed with a 45° angle valve seat and a short disc stroke of 35° to achieve rapid closure, and positive seating at high or low pressures. This reduced closing time results in minimizing the impact of flow reversal and resultant slamming and water hammer.

The Valve design provides positive, tight seating and is provided with a smooth, contoured, streamline design providing 100% unrestricted full flow with minimal head loss, while allowing a clear passageway for large size solids.

The 45° Valve seat angle design provides full flow capability equal to the nominal Valve inlet/outlet size. A 4" Valve is capable of passing a 3" diameter sphere. A plugged opening in the top access cover allows for clean water flush.

The Valve disc is one piece, constructed of ductile iron, fully encapsulated in an elastomer rubber and provided with a strong nylon reinforcement.

The Flex Disc Check Valve has advantages over conventional Swing Checks which have a 90° stroke and which are typically fitted with an outside weight and lever or spring mechanism to assist in closing the Disc. However, the 90° design takes longer for the disc to close. The 90° design also involves increased head loss, extra maintenance, and reduced service life. The closing action pulls the disc down into the flow path to close off the flow and tends to create turbulence causing it to oscillate in the flow, subjecting the bearings, shaft and shaft seal to additional stress and strain.

The Swing Flex Valve design reduces the impact of reverse flow by achieving a rapid close of approximately one half the time of the 90° design. Quick closing action is assisted by an optional Stainless Steel Spring Assist.

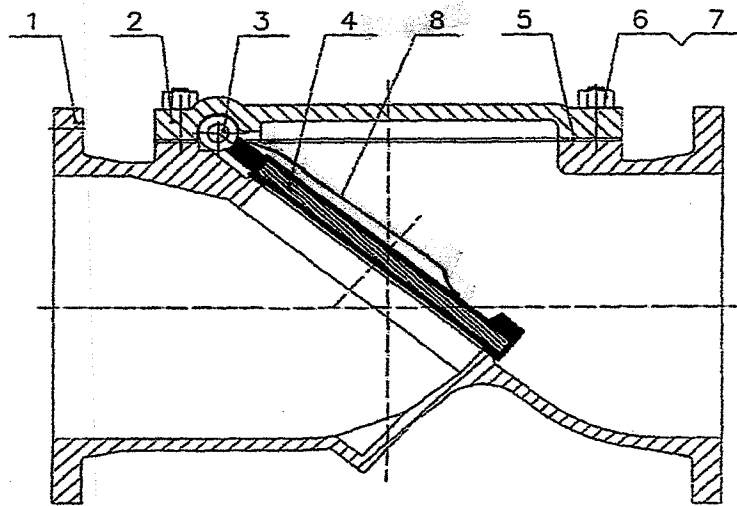
Options include: Backflow Actuator, Stainless Steel Spring Assist, Valve Disc Position Indicator, Synthetic Liners, Different Alloy Materials of Construction, and Limit Switch for remote signal.

Swing Flex Valves are designed, manufactured and tested in accordance with AWWA C-508. Standards dimensions and face to face lay lengths to match AWWA Full Flow Check Valve Standards, i.e. 6" = 14" FF

9201 E Bloomington Fwy Suite Z Bloomington MN 55420

PH: 952-641-9004 Fax: 952-885-9173 E-mail: contact@wtrvalves.com

Water Technology Resources



Materials of Construction

Part	Description	Material
1	Body	Ductile Iron
2	Bonnet	Ductile Iron
3	Stem	Stainless Steel
4	Disc	Carbon Steel Encapsulated with EPDM or Neoprene
5	Gasket	NBR
6	Bolt	Stainless Steel
7	Nut	Stainless Steel
8	Disc Close - Spring Assist	Stainless Steel

Table 2. Valve Construction Materials

Maintenance

Due to the simplicity of the 45° Flex Disc Check Valve design, no scheduled maintenance or lubrication is necessary. The only moving part of the valve is the rubber encapsulated disc. The 45° Flex Disc Check Valve can be inspected internally and serviced without removal from the line following the steps for disassembly.

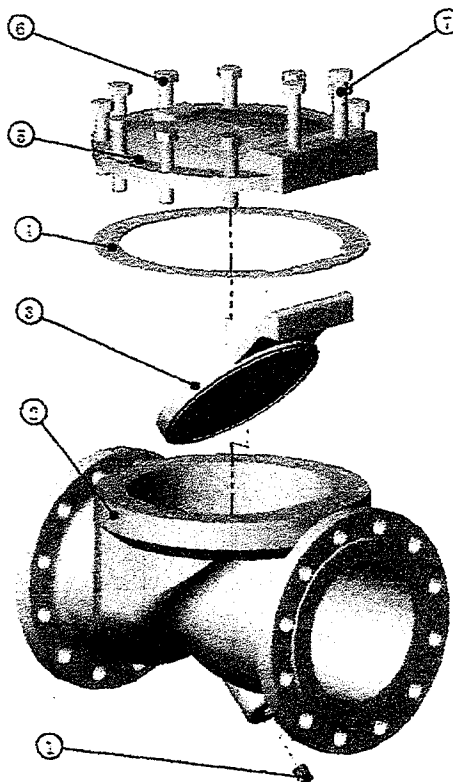
WATER TECHNOLOGY RESOURCES – WTR VALVES

January, 2014

Flexible Swing Disc Rubber Flapper Check Valve

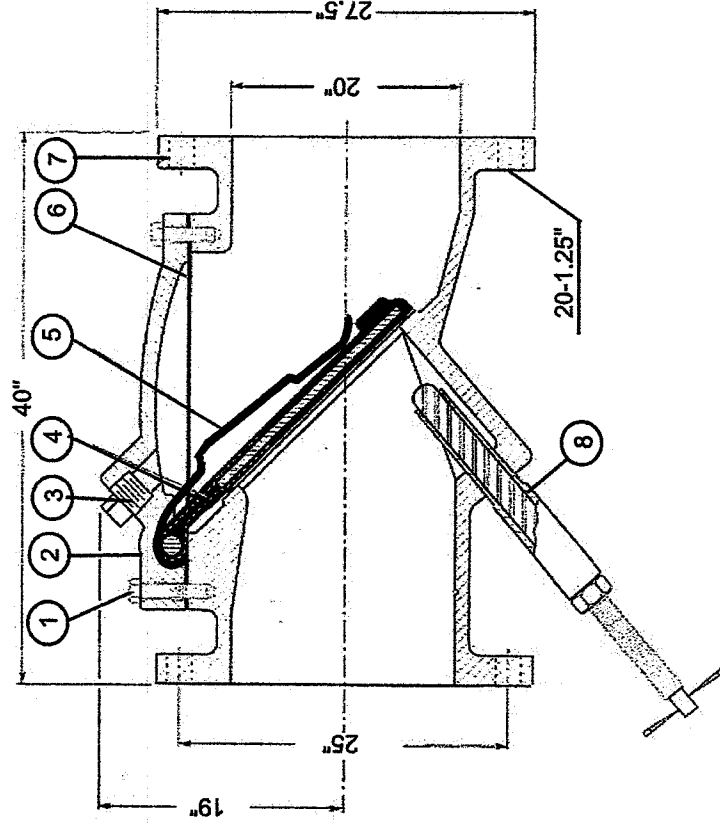
Series 3100

Item	Component	Material	Specification
1	Plug	Malleable Iron	Commercial
2	Body	Ductile Iron	A536-65-45-12
3	Disc	DI+Elastomer coating	NBR / EPDM
4	Gasket	Elastomer	NBR / EPDM
5	Cover	Ductile Iron	A536-64-45-12
6	Bolts	Stainless Steel	316-SS
7	Bolts	Stainless Steel	316-SS
8	Spring Assist	Stainless Steel	316-SS



9201 E Bloomington Fwy Suite Z, Bloomington, MN 55420

PH: 952-641-9004 Fax: 952-885-9173 E-mail: contact@wtrvalves.com



Parts

No.	Parts name	Material
1	Bolts	Stainless steel SS316
2	Bonnet	Ductile iron ASTM A536 65-45-12
3	1" NPT Plug	Stainless steel SS304
4	Disc	Steel with NBR vulcanized
5	SS Leaf Spring Assist	Stainless steel SS304
6	Gasket	EPDM
7	Body	Ductile iron ASTM A536 65-45-12
8	Back flush actuator devices	Stainless steel SS304

45° FLEXIBLE DISC SWING CHECK VALVES, AWWA C508

Water Technology Resources
 9201 E. Bloomington Freeway Suite Z
 Bloomington, MN 55420
 Phone: 952-641-9004 Fax: 952-885-9173

45° Flexible Swing Disc Check Valves

Partial Installation List

Bridge City, Louisiana

Jefferson Parish Wastewater Dept.

(3) 12" (1) 14"

Fort Payne, Alabama

Wastewater Treatment Plant

(3) 20" – 250 psi

NSF61

Backflush Actuator

SS Spring Disc Close Acceleration

British Columbia, Canada

Pumping Stations

(6) 6" (4) 10" (2) 12"

Bucksport, South Carolina

Wastewater Treatment Facility

(4) 4" (3) 6" (1) 10" (3) 12" (1) 16"

NSF61

Backflush Actuator

SS Spring Disc Close Acceleration

Las Virgenes, Calabasas, California

Water District – AE Com-Consulting Engineer

(3) 12" – 300 psi rating

Los Angeles, California
Leon Road Pump Station

(3) 16"

NSF61
Backflush Actuator
SS Spring Disc Close Acceleration

Houma, Louisiana
Terrebonne Parish
Pollution Control Treatment Division

(2) 12" (6) 14"

NSF61
Backflush Actuator
SS Spring Disc Close Acceleration

Minnesota
Pumping Stations – Wastewater

Approx (50) 45° Check Valves 4"-16"