TILTED DISC CHECK VALVE

HIGH PERFORMANCE

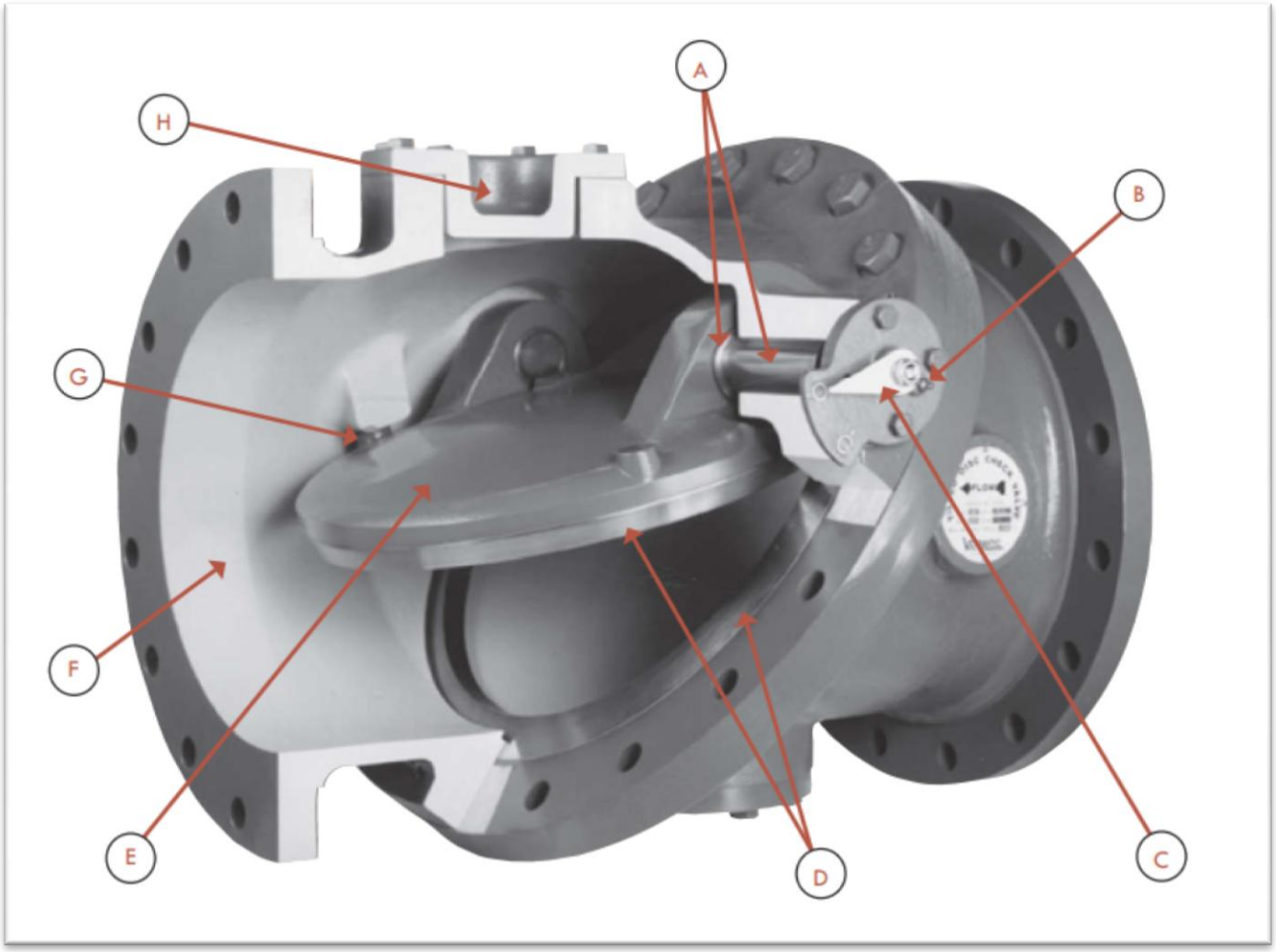
NON-SLAM CLOUSURE

ENERGY EFFICIENT

WEAR RESISTANCE

LEAK TIGHT SEATING

VERSATILITY OF OPERATION



A. PIVOT PINS AND BUSHINGS

Maximum strength is achieved by utilizing large diameter pins constructed of high tensile materials. These materials provide superior wear and gall resistance as a re- sult of their high Brinnell Hardness (BHN) together with a selected difference in hardness between mating parts.

B. GREASE FITTINGS

Although lubrication is not essential to the operation of the Tilted Disc Check Valve, grease fittings are used to assure even longer life and greater dependability.

C. DISC POSITION INDICATOR

A unique connection provides an accurate indication of the disc position at all times. Standard on sizes 6” and larger.

D. DISC AND SEAT RINGS

Superior wear and gall resistance are achieved through the use of materials having a high Brinnell Hardness (BHN) together with a selected difference in hardness between the disc and seat rings. Leak tight seating is attained at all work- ing pressures by utilizing a 20º seating angle which provides excellent sealing characteristics. This angle, by its nature, is self releasing and therefore prevents any binding of the disc and seat.

E. DISC

A hydrodynamically balanced design provides minimum resistance to flow, lift and stabilization, and excellent flow characteristics.

F. BODY

Ultra low head loss is the result of streamlined body contouring and a flow area through the seat which is a minimum of 40% greater than nominal pipe size.

G. STOP LUGS

Positive stops are accurately positioned to prevent disc flutter at both high and low flow velocities, while maintaining ultra low head loss characteristics.

H. INSPECTION PORTS

Ports allow access to the upstream and downstream sides of the seat, and also serve as mounting ports for optional dashpots.

SAMPLE SPECIFICATION

SCOPE

1.1 This specification covers the design, manufacture, and testing of 3 in (80 mm) through 60 in (1500 mm) Tilted Disc Check Valves suitable for pressures up to 400 psig (2750 kPa) water service.

1.2 The Check Valves shall be of the Tilted Disc, metal seated, full body type capable of accepting optional bottom or top mounted oil dashpots.

STANDARDS, APPROVALS AND VERIFICATION

2.1 The valves 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.

2.2 A 20 in. valve or larger shall be proof of design cycle tested through 250,000 cycles in the horizontal position and leak tested at the rated pressure. The leakage rate shall be less than 1 fluid ounce per hour per inch of valve size after the test.

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 drilled flanges in accordance with ANSI B16.1 for Class 125 or Class 250 iron flanges and ANSI B16.42 for Class 150 ductile iron flanges. Iron flanges shall be flat faced.

3.2 Flanged inspection ports shall be provided upstream and downstream of the valve disc for inspection or use with optional dashpots on 6 in (150 mm) and larger valves.

DESIGN

4.1 The valve body shall consist of two sections bolted together as a central diagonal flange inclined at an angle of 55 degrees. The inlet body section shall contain a seat ring positioned and captured by the diagonal flange. The outlet body section shall accept eccentrically located pivot pin trunnions with sealed covers and lubrication grease fittings.

4.2 The eccentric pivot trunnions shall be located to divide the disc into approximately 1/3 and 2/3 proportions and also allow the seating surface of the disc to rotate away from the seating surface of the seat ring without contact. Clearance shall be provided between the pivot pin and bushing when the disc is seated to prevent binding and to ensure a tight seal.

4.3 The flow area through the valve body inlet and outlet shall be equal to the nominal pipe size and gradually increase to an area 40 percent greater at the valve seat.

4.4 A position indicator shall be supplied on 6 in. and larger valves and visually show disc position at all times.

4.5 The valve disc and seat shall have a seating surface finish of 32 micro-inch or better to ensure positive seating at all pressures. The leakage rate shall not exceed one-half of the allowable rate allowed by AWWA Standard C508 or 0.5 oz (15 ml) per hour per inch (mm) of valve size.

4.6 6 in. and larger valves shall be capable of accepting a field installed Bottom Mounted Oil Dashpot.

4.7 The valve flow way shall be contoured and unrestricted to provide full flow areas at all locations within the valve. Full flow shall be based on an open stroke of 40 degrees to assure stabilization of the disc when open. Cv flow coefficients shall be verified by an independent testing laboratory.

MATERIALS

5.1 The valve body shall be constructed of ASTM A126 Class B cast iron for Class 125 and Class 250 valves up to 10 in (250 mm). 12 in (300mm) and larger Class 250 and Class 150 valves shall be constructed of ductile iron ASTM A536 Grade 65-45-12.

5.2 The disc in sizes up to 10 in (250mm) shall be one-piece construction with integral seat and constructed of ASTM B271 Alloy C95400 aluminum bronze. 12 in (300mm) and larger discs shall be ASTM A126 Class B cast iron. Discs furnished for 12 in (300mm) and larger valves with top oil dashpots shall be constructed of ASTM A536 Grade 65-45-12 ductile iron. The disc seating ring shall be ASTM B271 Alloy C95500 centrifugally cast aluminum bronze. The mating seat ring located in the body shall be ASTM B271 Alloy C95400 centrifugally cast aluminum bronze.

5.3 The pivot pins shall be ASTM B505 Alloy C95500 aluminum bronze and shall be guided by a bushing constructed of ASTM B505 Alloy C95400 aluminum bronze (12 in. and larger valves).

OPTIONS

6.1 Single or double By-Pass piping shall be provided when specified.

6.2 A Nema-4 machine tool type limit switch with DPDT contacts shall be provided when specified. The switch shall be mounted to the inspection cover and have an adjustable trip arm for sensing the closed position.

6.3 A (bottom mounted) (top mounted) oil dashpot shall be provided when specified.

6.4 The valve interiors and exteriors shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWA C550 when specified.

MANUFACTURE

7.1 The valves shall be hydrostatically tested at 1.5 times their rated cold working pressure. Additional tests shall be conducted per AWWA, ANSI, MSS or API standards when specified. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.

7.2 The exterior of the valve shall be coated with a universal alkyd primer. The valve interior shall be coated with an epoxy coating approved for potable water.

PRESSURE / TEMPERATURE RATINGS

The Tilted Disc is offered in three different flange classes: 125, 250, and 150. This chart indicates the maximum non-shock pressures for each flange class.

NOTE: The Ductile Iron 9600 series, Class 150 is rated for 285 PSI and can be bolted directly to flanges with 150 or 125 ANSI class drilling.

MAXIMUM NON-SHOCK PRESSURE - PSI							
TEMP. ºF	SERIES 9800			SERIES 9700			SERIES 9600
	CLASS 125			CLASS 250			CLASS 150
	CAST IRON			DUCTILE IRON			DUCTILE IRON
	2" - 12"	14" - 24"	30" - 72"	2" - 12"	14" - 24"	30" - 72"	2" - 72"
	50 - 300mm	350 - 600mm	800 - 1800mm	50 - 300mm	350 - 600mm	800 - 1800mm	50 - 1800mm
100º	200	150	150	400	300	300	285
150º							270
200º	190	135	115	370	280	250	260
250º	*	*	*	355	270	225	250
HYDROSTATIC TEST PRESSURE	300	230	230	600	450	450	450

* For service above 200º F use series 9700 or 9600.

QUALITY ASSURANCE

Quality assurance is the sum of imaginative design, solid engineering, precise manufacturing and dedicated people.

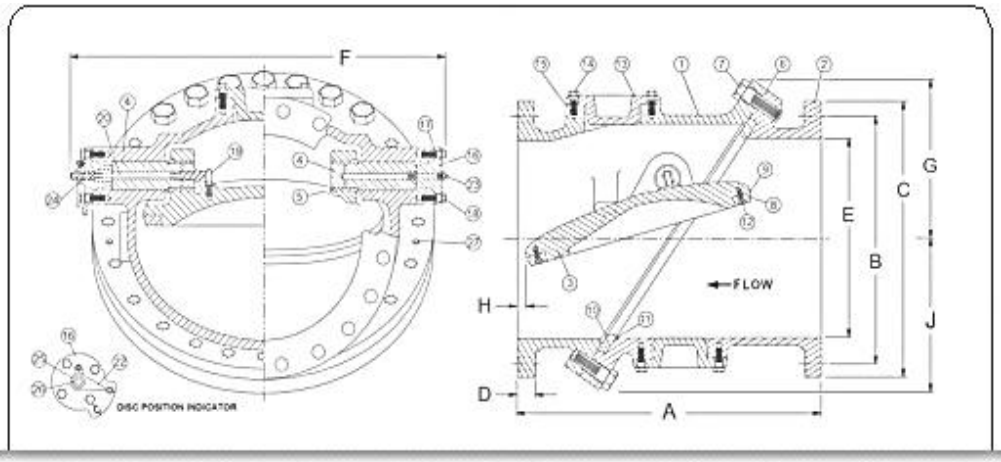
These all combine to ensure total customer satisfaction. We recognize the need for, and encourage, individual pride and the self-satisfaction which is gained in producing reliable, quality valves.

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

Testing is the backbone of our quality assurance. Every Tilted Disc Check Valve is 100% tested including hydrostatic testing to assure the integrity of the casting and seating compositing.

For sea water and other media, the surface of all parts such as valve body flow channel, disc and shaft can be tightly wrapped with rubber to prevent the media from contacting any metal part, and service life can be up to 20 years.

INSTALLATION DIMENSIONS AND CONSTRUCTION



Size	ANSI Class	Model No.	A	B	C	D	F	G	J	Wt. Lbs.
2	125	9802	9.5	4.75	6	.75	11	4.25	3.75	50
	250	9702		5	6.5	.88				60
	150	9602		4.75	6	.75				55
3	125	9803	9.5	6	7.5	.94	12	4.75	4.25	65
	250	9703		6.63	8.25	1.13				75
	150	9603		6	7.5	.94				70
4	125	9804	11.5	7.5	9	.94	13	5.25	4.75	80
	250	9704		7.88	10	1.25				97
	150	9604		7.5	9	.94				87
6	125	9806	15	9.5	11	1	16	6.5	6.5	156
	250	9706		10.63	12.5	1.44				206
	150	9606		9.5	11	1				169
8	125	9808	19.5	11.75	13.5	1.13	19	8	8	295
	250	9708		13	15	1.63				331
	150	9608		11.75	13.5	1.13				312
10	125	9810	24.5	14.25	16	1.19	23	9.5	8.5	432
	250	9710		15.25	17.5	1.88				557
	150	9610		14.25	16	1.19				472
12	125	9812	24	17	19	1.25	26	11	10	622
	250	9712		17.75	20.5	2				790
	150	9612		17	19	1.25				673
14	125	9814	30	18.75	21	1.38	29	12	11.5	890
	250	9714		20.25	23	2.13				1,110
	150	9614		18.75	21	1.38				955
16	125	9816	30	21.25	23.5	1.44	32	14	14	1,160
	250	9716		22.5	25.5	2.25				1,447
	150	9616		21.25	23.5	1.44				1,256
18	125	9818	33	22.75	25	1.56	36	15	15	1,408
	250	9718		24.75	28	2.38				1,770
	150	9618		22.75	25	1.56				1,509

Size	ANSI Class	Model No.	A	B	C	D	F	G	J	Wt. Lbs.
20	125	9820	32	25	27.5	1.69	39	16	16	1,718
	250	9720		27	30.5	2.5				1,970
	150	9620		25	27.5	1.69				1,860
24	125	9824	38	29.5	32	1.88	46	19	18	2,698
	250	9724		32	36	2.75				3,402
	150	9624		29.5	32	1.88				2,925
30	125	9830	52	36	38.75	2.13	55	23	22	4,900
	250	9730		39.25	43	3				5,962
	150	9630		36	38.75	2.13				5,310
36	125	9836	59.5	42.75	46	2.38	65	27	24	7,500
	250	9736		46	50	3.38				9,003
	150	9636		42.75	46	2.38				8,138
42	125	9842	62.5	49.5	53	2.63	73	32	27	10,500
	250	9742		52.75	57	3.69				12,510
	150	9642		49.5	53	2.63				11,400
48	125	9848	65	56	59.5	2.75	82	37	32	13,800
	250	9748		60.75	65	4				16,770
	150	9648		56	59.5	2.75				15,000
54	125	9854	78	62.75	66.25	3	90.88	39	36	17,500
	250	9754		*	*	*				21,600
	150	9654		62.75	66.25	3				19,000
60	125	9860	87	69.25	73	3.13	92	44.25	42	23,000
	250	9760		*	*	*				28,258
	150	9660		69.25	73	3.13				25,000
66	125	9866	96	71.65	76.00	3.19	98	47.41	45.51	40,700
	250	9766		*	*	*				35,370
	150	9666		73.23	77.76	3.19				32,530
72	125	9872	102	79.53	83.85	3.54	105	50.77	48.82	51,233
	250	9772		*	*	*				46,490
	150	9672		81.50	86.42	3.54				43,570

TILTED DISC CHECK VALVE
SPECIFICATION

1.SCOPE

1.1 This specification covers the design, manufacture, and testing of 3 in. (80 mm) through 60 in. (1500mm) tilted Disc Check Valves suitable for pressures up to 400 psig (2750 kPa) water service.

1.2 The Check valves shall be of the Tilted Disc metal seated, full body type capable of accepting optional bottom or top mounted oil dashpots.

2.Standards, Approvals and Verification

2.1 The valves 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.

2.2A 20 in. valve or larger shall be proof of design cycle tested through 250,000 cycles in the horizontal position and leak tested at the rated pressure. The leakage rate shall be less than 1 fluid ounce per hour per inch of valve size after the test.

2.3 Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

3.Connections

3.1 The valves shall be provided with drilled flanges in accordance with ANSI B16.1 for Class 125 or Class 250 iron flanges and ANSI B16.42 for Class 150 ductile iron flanges. Iron flanges shall be flat faced.

3.2 Flanged inspection ports shall be provided upstream and downstream of the valve disc for inspection or use with optional dashpots on 6 in. and larger valves.

4.Design

4.1 The valve body shall consist of two sections bolted together as a central diagonal flange inclined at an angle of 55 degrees. The inlet body section shall contain a seat ring positioned and captured by the diagonal flange. The outlet body section shall accept eccentrically located pivot pin trunnions with sealed covers and lubrication grease fittings.

4.2 The eccentric pivot trunnions shall be located to divide the disc into approximately 1/3 and 2/3 proportions and also allow the seating surface of the disc to rotate away from the seating surface of the seat ring without contact. Clearance shall be provided between the pivot pin and bushing when the disc is seated to prevent binding and to ensure a tight seal. The minimum pivot pin diameter shall be as shown below.

4.3 The flow area through the valve body inlet and outlet shall be equal to the nominal pipe size and gradually increase to an area 40 percent greater at the valve seat.

4.4 A position indicator shall be supplied on 6 in. and larger valves and visually show disc position at all times.

4.5 The valve disc and seat shall have a seating surface finish of 32 micro-inch or better to ensure positive seating at all pressure. The leakage rate shall not exceed one-half of the allowable rate allowed by AWWA Standard C508 or 0.5 oz (15 ml) per hour per inch (mm) of valve size.

4.6 6" and larger valves should be capable of accepting a field installed Bottom Mounted Oil Dashpot.

4.7 The valve flow way shall be contoured and unrestricted to provide full flow areas at all locations within the valve. Full flow shall be based on an open stroke of 40 degrees to assure stabilization of the disc when open. Cv flow coefficients shall be equal to or greater than specified below and verified by an independent testing laboratory.

VALVE SIZE (IN):	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48
CV FACTOR:	248	475	1160	2200	3600	5400	7600	10300	13200	16800	25500	42000	63000	90000	119000
PIN DIAMETER (IN):	9/16	5/8	1 1/8	1 3/8	1 5/8	1 7/8	2 1/8	2 3/8	2 1/2	2 3/4	3 1/4	3 3/4	4 1/4	4 7/8	5 1/2

5.Materials

5.1The valve body shall be constructed of ASTM A126 Class B cast iron for Class 125 and Class 250 valves up to 10 in. (250mm). 12 in. (300mm) and larger Class 250 and Class 150 valves shall be constructed of ductile iron ASTM A536 Grade 65-45-12.

5.2 The disc in sizes up to 10 in. (250mm) shall be one-piece construction with integral seat and constructed of ASTM B271 Alloy C95400 aluminum bronze. 12 in. (300mm) and larger discs shall be ASTM A125 Class B cast iron. Discs furnished for 12" (300mm) and larger valves with top oil dashpots shall be constructed of ASTM A536 Grade 65-45-12 ductile iron. The disc seating ring shall be ASTM B271 Alloy C95500 centrifugally cast aluminum bronze. The mating seat ring located in the body shall be ASTM B271 Alloy C95400 centrifugally cast aluminum bronze.

TILTED DISC CHECK VALVE
SPECIFICATION

5.3 The pivot pins shall be ASTM B505 Alloy C95500 aluminum bronze and shall be guided by a bushing constructed of ASTM B505 Alloy C95400 aluminum bronze (12 in. and larger valves).

6.Options

6.1Single or double bypass piping shall be provided when specified with piping and valves in sizes shown below

VALVE SIZE:	6-8 in.	10-14 in.	16-24 in.	30-60 in.
By-Pass Size:	1.5 in.	2 in.	3 in.	4 in.

6.2A NEMA-4 machine tool type limit switch with DPDT contacts shall be provided when specified. The switch shall be mounted to the inspection cover and have an adjustable trip arm for sensing the closed position.

6.3A bottom mounted oil dashpot shall be factory installed (12" and larger) in the upstream inspection port when specified to provide hydraulic control of the final 10% of valve closure and reduce water hammer normally associated with rapid flow reversal conditions on pump shut down. The dashpot shall consist of a high pressure hydraulic cylinder with a minimum bore size as shown below, adjustable external flow control valve, pressurized oil reservoir and piping designed to control the closing speed of the last 10% of travel in 1-5 seconds. A dashpot spacer which connects the cylinder to the valve shall have an air gap to prevent hydraulic fluid from entering the valve and contaminating the water system. A snubber rod fitted with O-ring seals and rod wiper scrapers shall make contact with the lower portion of the disc during closure.

VALVE SIZE:	6-10 in.	12-14 in.	16-24 in.	30-36 in.	42-48 in.	54-60 in.
Cylinder Size:	1.5 in.	2 in.	2.5 in.	3.25 in.	4 in.	5 in.

6.4 A top mounted oil dashpot shall be factory installed in the downstream inspection port when specified to provide independent hydraulic control of the valve opening and closing strokes to reduce water hammer normally associated with pump operation. The dashpot shall consist of a high pressure hydraulic cylinder with a minimum bore size as shown below and with internal cushion adjustment, two external flow control valves, a pressurized oil reservoir with a minimum size as shown below, a stainless steel non-pressurized reservoir, and piping. The unit shall independently control the opening and closing stroke in the range of 5-30 seconds. Additionally, the closing stroke shall be two-stage with the last 10% of closing travel dampened with the internal cylinder cushion. A dashpot spacer which connects the cylinder to the valve shall have an air gap to prevent hydraulic fluid from entering the valve and contaminating the water system. A connecting rod with a minimum diameter as shown below and fitted with O-ring seals and rod wiper scrapers shall be linked to an integrally cast clevis on the disc. The connecting rod shall be attached to the cylinder rod with a quick change coupling constructed of17-4 PH stainless steel. The cylinder rod, connecting rod, and coupling shall be held in place by coupling retainer to allow decoupling of the cylinder while the check valve is under pressure.

VALVE SIZE:	6 in.	8-10 in.	12-14 in.	16-18 in.	20-24 in.	30 in.	36-42 in.	48-60 in.
Cylinder Size:	2.5 in.	3.25 in.	4 in.	5 in.	6 in.	7 in.	8 in.	10 in.
Reservoir Size:	.1 gal	.3 gal.	.6 gal.	1.1 gal.	2.5 gal.	6 gal.	6 gal.	10 gal.
Rod Diameter:	1 in.	1.375 in.	1.75 in.	2 in.	2.5 in.	3.5 in.	4 in.	5 in.

6.5Thevalve interiors and exteriors shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWA C550 when specified.

7. Manufacture

7.1The valves shall be hydrostatically tested at 1.5 times their rated cold working pressure. Additional tests shall be conducted per AWWA, ANSI, MSS or API standards when specified. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.

7.2The exterior of the valve shall be coated with a universal alkyd primer. The valve interior shall be coated with an epoxy coating approved for potable water.

TILTED DISC CHECK VALVE

2" - 10" SERIES NO. 9800 ANSI CLASS 125

STANDARD MATERIALS OF CONSTRUCTION

PART NO.	PART NAME	MATERIAL
1	PIVOT BODY HALF	CAST IRON ASTM A126, CLASS B
2	SEAT BODY HALF	CAST IRON ASTM A126, CLASS B
3	DISC	ALUMINUM BRONZE ASTM B148, ALLOY C95400
4	PIVOT PIN	ALUMINUM BRONZE ASTM B505, ALLOY C95500
6	BODY GASKET	COMPRESSED NON-ASBESTOS FIBER
7	BODY FLANGE BOLT	ALLOY STEEL SAE, GRADE 5
10	SEAT RING	ALUMINUM BRONZE ASTM B271, ALLOY C95500
11	SEAT RING GASKET	COMPRESSED NON-ASBESTOS FIBER
13 *	INSPECTION HOLE COVER	CAST IRON ASTM A126, CLASS B
14 *	INSPECTION HOLE COVER BOLT	ALLOY STEEL SAE, GRADE 5
15 *	INSPECTION HOLE GASKET	COMPRESSED NON-ASBESTOS FIBER
16 **	PIVOT PIN COVER	CAST IRON ASTM A126, CLASS B
17	PIVOT PIN COVER GASKET	COMPRESSED NON-ASBESTOS FIBER
18	PIVOT PIN COVER BOLT	ALLOY STEEL SAE, GRADE 5
19 *	INDICATOR PIN	STAINLESS STEEL T304, ASTM A276
20 *	INDICATOR SHAFT ASSEMBLY	STAINLESS STEEL T304, ASTM A276
21 *	INDICATOR SHAFT WASHER	STAINLESS STEEL T304, ASTM A240
22 *	INDICATOR POINTER	LOW CARBON STEEL
23	GREASE FITTING	STAINLESS STEEL T304, ASTM A276
24 *	INDICATOR O-RINGS	BUNA-N 70 DUROMETER
25 *	INDICATOR LOCK WASHER	STAINLESS STEEL T304, ASTM A240
26 *	INDICATOR JAM NUT	STAINLESS STEEL T304, ASTM F594
27	LOCATING PINS	SPRING STEEL-ZINC PLATED

* NOT FURNISHED ON VALVE SIZES 2" THRU 4".

** PIVOT PIN COVER MATERIAL IS BRASS ASTM B16 ON VALVE SIZES 2" THRU 6" AND PART NUMBERS 17 AND 18 ARE NOT FURNISHED.

*** **FOR VALVES USED IN SEAWATER AND OTHER CORROSION-RESISTANT MEDIA, ALL THE PARTS ABOVE IN CONTACT WITH THE MEDIA SHALL BE TIGHTLY WRAPPED WITH RUBBER. RUBBER AND PARTS ARE FORMED BY HEAT VULCANIZATION PROCESS**.

MATERIALS OF CONSTRUCTION

DRWG. NO.

VM-9802-M

TILTED DISC® CHECK VALVE

3 " - 72" SERIES NO. 9800 ANSI CLASS 125

STANDARD MATERIALS OF CONSTRUCTION

PART NO.	PART NAME	MATERIAL
1	PIVOT BODY HALF	CAST IRON ASTM A126, CLASS B
2	SEAT BODY HALF	CAST IRON ASTM A126, CLASS B
3	DISC (12” SIZE)	DUCTILE IRON ASTM A536 GRADE 65-45-12
3	DISC (14” & LARGER)	CAST IRON ASTM A126, CLASS B
4	PIVOT PIN	ALUMINUM BRONZE ASTM B505, ALLOY C95500
5	PIVOT PIN BUSHING	ALUMINUM BRONZE ASTM B505, ALLOY C95400
6	BODY GASKET	COMPRESSED NON-ASBESTOS FIBER
7	BODY FLANGE BOLT	ALLOY STEEL SAE, GRADE 5
8	DISC RING	ALUMINUM BRONZE ASTM B271, ALLOY C95500
9	DISC RING GASKET	COMPRESSED NON-ASBESTOS FIBER
10	SEAT RING	ALUMINUM BRONZE ASTM B271, ALLOY C95400
11	SEAT RING GASKET	COMPRESSED NON-ASBESTOS FIBER
12	DISC RING RETAINING SCREW	STAINLESS STEEL T304, ASTM A276
13	INSPECTION HOLE COVER	CAST IRON ASTM A126, CLASS B
14	INSPECTION HOLE COVER BOLT	ALLOY STEEL SAE, GRADE 5
15	INSPECTION HOLE GASKET	COMPRESSED NON-ASBESTOS FIBER
16	PIVOT PIN COVER	CAST IRON ASTM A126, CLASS B
17	PIVOT PIN COVER GASKET	COMPRESSED NON-ASBESTOS FIBER
18	PIVOT PIN COVER BOLT	ALLOY STEEL SAE, GRADE 5
19	INDICATOR PIN	STAINLESS STEEL T304, ASTM A276
20	INDICATOR SHAFT ASSEMBLY	STAINLESS STEEL T304, ASTM A276
22	INDICATOR POINTER	LOW CARBON STEEL
23	GREASE FITTING	STAINLESS STEEL T304, ASTM A276
24	INDICATOR O-RINGS	BUNA-N 70 DUROMETER
25	INDICATOR LOCK WASHER	STAINLESS STEEL T304, ASTM A240
26	INDICATOR JAM NUT	STAINLESS STEEL T304, ASTM F594
27	LOCATING PINS	SPRING STEEL-ZINC PLATED

* **FOR VALVES USED IN SEAWATER AND OTHER CORROSION-RESISTANT MEDIA, ALL THE PARTS ABOVE IN CONTACT WITH THE MEDIA SHALL BE TIGHTLY WRAPPED WITH RUBBER. RUBBER AND PARTS ARE FORMED BY HEAT VULCANIZATION PROCESS**.

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