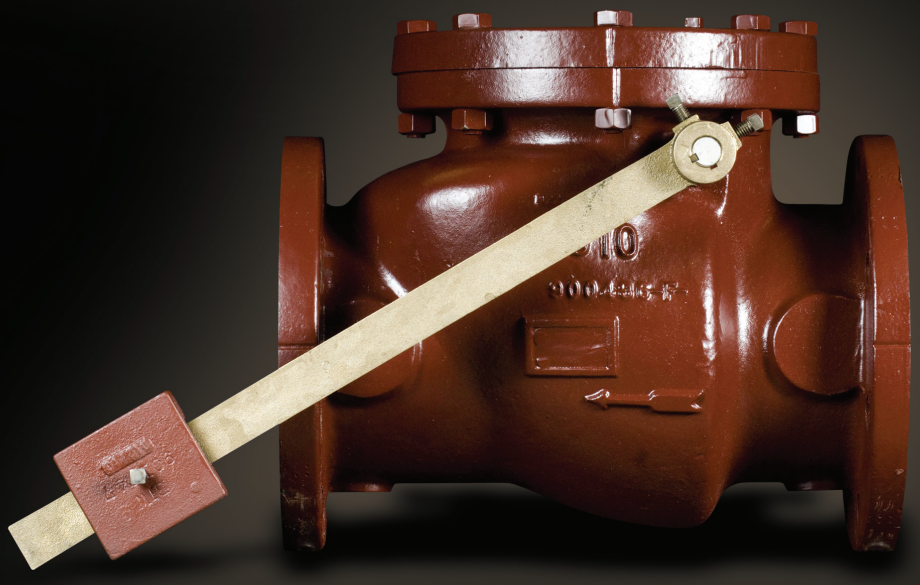
SWING CHECK VALVES

SERIES 52-SC



SERIES 600

AMERICAN

FLOW CONTROL

THE RIGHT WAY

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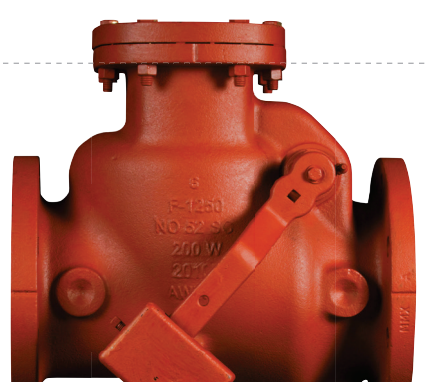
FLOW CONTROL
THE RIGHT WAY

FEATURES/BENEFITS/SPECIFICATIONS

AMERICAN Flow Control Series 52-SC Swing Check Valves incorporate design features to help increase service life for water and wastewater applications.



SERIES 52-SC FEATURES AND BENEFITS

AMERICAN's Series 52-SC Swing Check Valves incorporate the following design features to help increase service life.

BODIES AND BONNETS
Valve bodies and bonnets are made of gray iron. Generous clearances are provided between the disc circumference and body, as well as the clapper hub and body, which help prevent the possibility of binding. Internal contours are specifically designed to provide a smooth flow passage and reduce head loss through the valve. The entire clapper arm and disc assembly are easily removed through the bonnet opening while the valve is installed in the line.

CLAPPER ARMS
The clapper arms are made of ductile iron. The clapper arm shaft hole and disc stud hole are bushed for wear and corrosion resistance.

CLAPPER ARM SHAFTS
Clapper arm shafts are made of high tensile strength, corrosion-resistant stainless steel.

RETAINING PLUGS
Clapper arm shafts are retained and located in retaining plugs made of bronze. These plugs act as bearings for the clapper arm shaft. The plug design incorporates straight threading, gasketing, and a hexagon hold to allow easy removal in the field for disassembly of internal parts from the valve.

DISCS
Discs on check valves 4 in. and larger are made of gray iron with bronze disc rings securely fastened into grooves machined in the disc. The connection between the disc and clapper arm is designed with sufficient clearance to allow the disc to adjust to the seat.

AMERICAN Flow Control Series 52-SC Swing Check Valves have these features:

- Compliance with ANSI/AWWA C508
- Certified to NSF/ANSI 372
- Stainless Steel Clapper Arm Shafts
- Full Diameter Waterway
- Solid Ductile Iron Clapper Arm
- Bronze Retaining Plugs
- Optional Fusion-Bonded Epoxy Coating Inside and Out.

SPECIFICATIONS

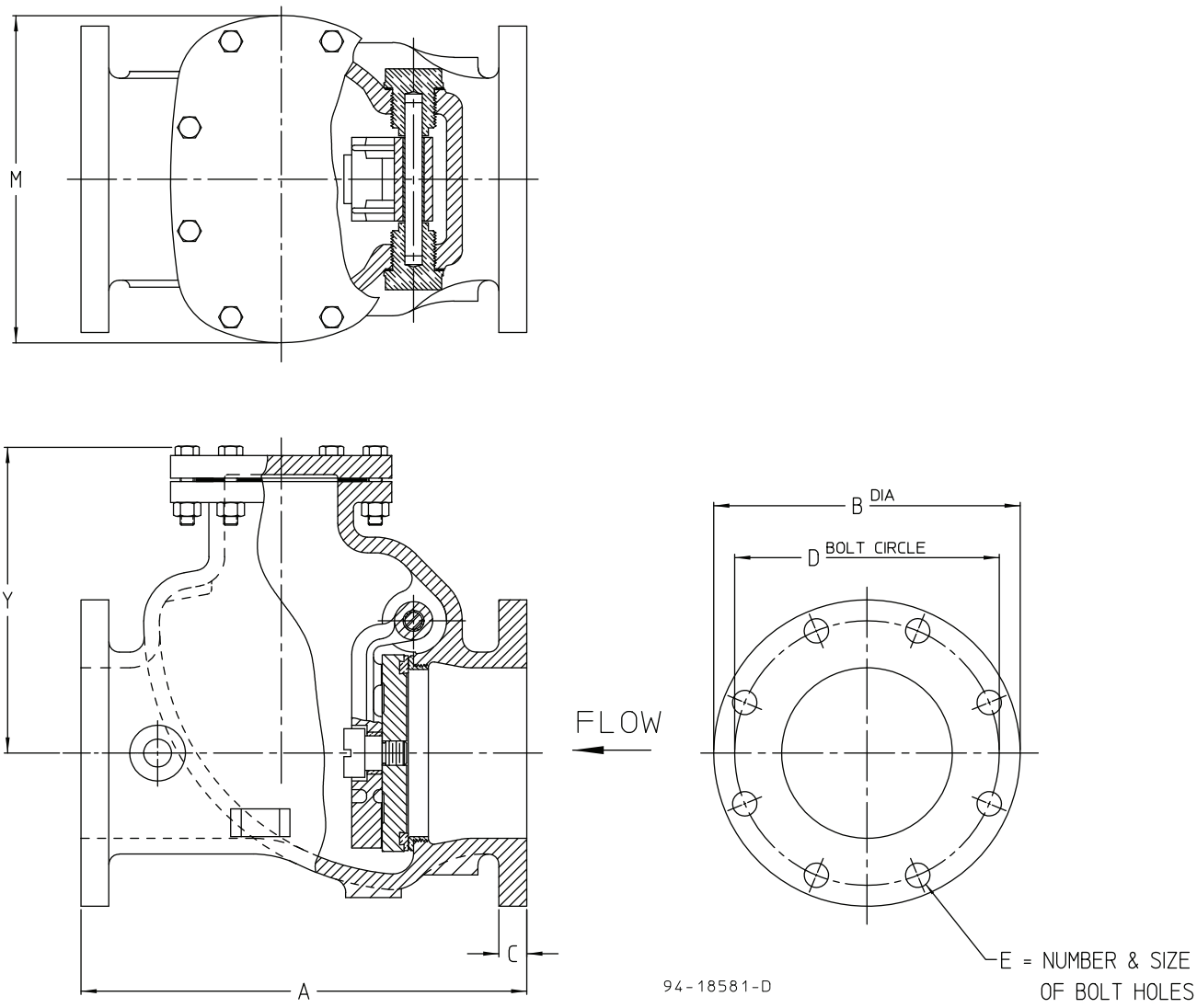
Swing check valves shall be manufactured from gray iron meeting or exceeding ASTM A126 Grade B. Valves are to comply with ANSI/AWWA C508, latest revision, rated at 200 psig working pressure. Valves shall be designed to permit a clear waterway opening for utilization of pipeline cleaning apparatus. Clapper arm shall be made of ductile iron conforming to ASTM A536. The disc shall not contact the body when the valve is in the full open position.

Check valve shafts are to be stainless steel with corrosion-resistant bearings provided at each end. Shaft and bearings are to be completely replaceable, if necessary, with valve remaining in the pipeline. If the valve shaft is extended outside the body, a double-O-ring seal fully contained within the shaft bearing shall be provided. There shall be a grease fitting for lubrication between the O-rings to help prevent foreign matter from reaching bearing surfaces. Different lever orientation shall be possible in the field in increments of 45 degrees without shaft modifications or extra drilling.

Check valve seating surfaces shall be bronze. Valve design shall be such that the valve remains in the closed position when installed in a horizontal pipeline under no-flow condition.

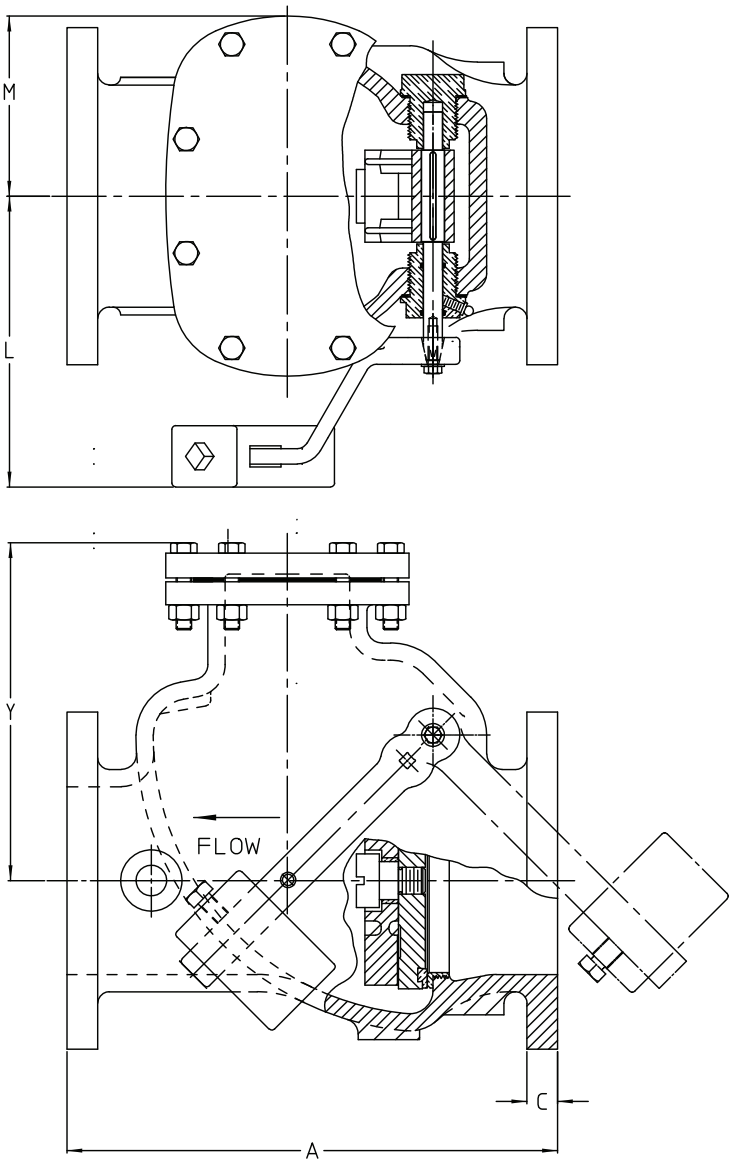
Check valves to have all internal ferrous surfaces coated with an NSF 61 Certified coating. Valves to be AMERICAN Flow Control's **Series 52-SC Swing Check Valves.**

STANDARD DIMENSIONS



Valve Size	A	B	C	D	E	M	Y
3″	11.00	7.50	.75	6.00	4 - 0.75	7.88	7.38
4″	13.00	9.00	.94	7.50	8 - 0.75	9.00	9.00
6″	16.00	11.00	1.00	9.50	8 - 0.88	11.75	10.75
8″	19.50	13.50	1.13	11.75	8 - 0.88	14.25	12.75
10″	24.50	16.00	1.19	14.25	12 - 1.00	16.38	14.75
12″	27.50	19.00	1.25	17.00	12 - 1.00	18.75	18.00
14″	31.00	21.00	1.38	18.75	12 - 1.12	22.50	20.38
16″	36.00	23.50	1.44	21.25	16 - 1.12	24.50	21.75

LEVER AND WEIGHT DIMENSIONS



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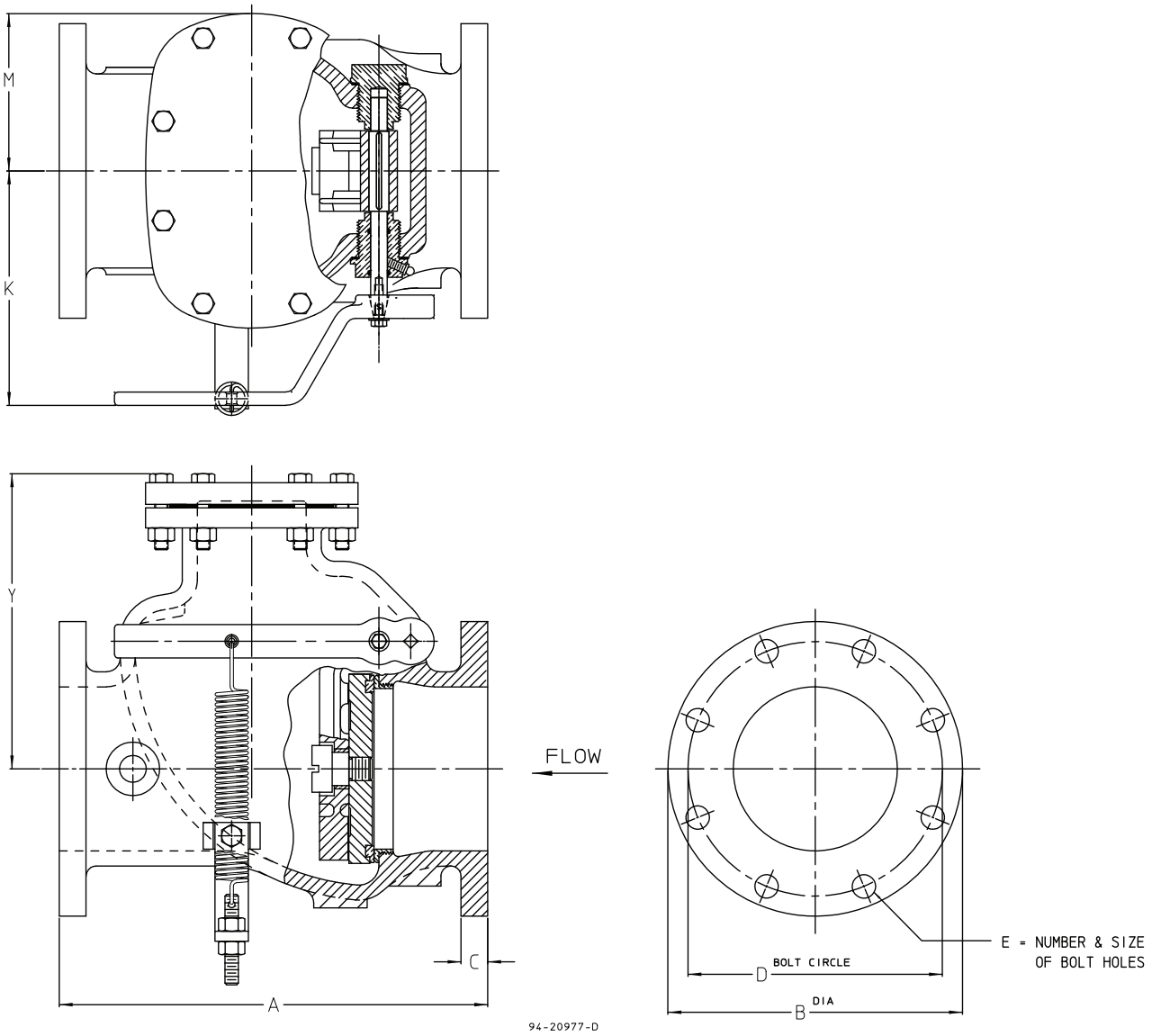
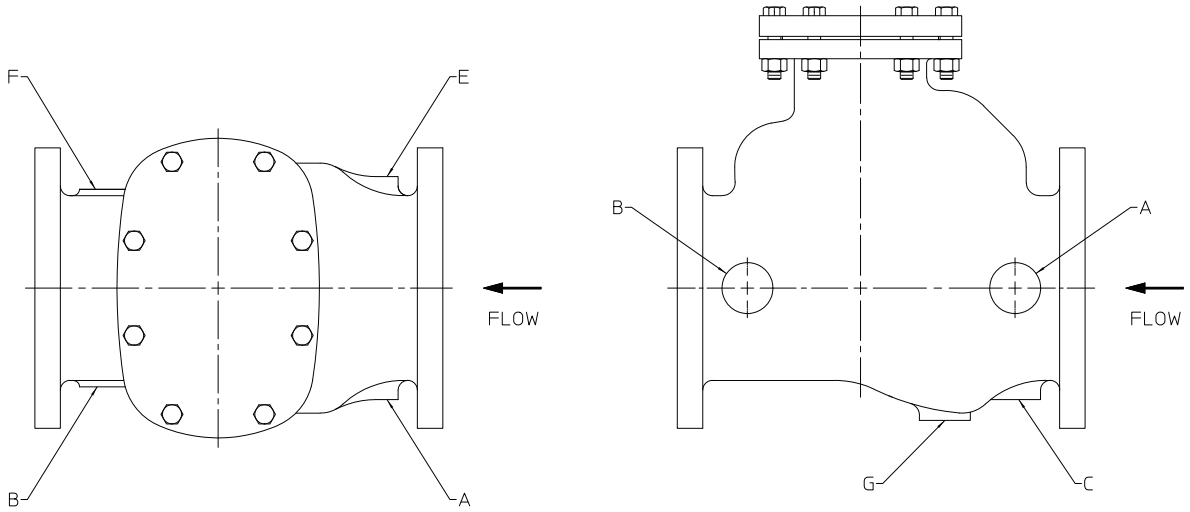
Valve Size	A	B	C	D	E	L	M	Y
3"	11.00	7.50	.75	6.00	4 - 0.75	5.85	3.94	7.38
4"	13.00	9.00	.94	7.50	8 - 0.75	6.57	4.50	9.00
6"	16.00	11.00	1.00	9.50	8 - 0.88	9.43	5.88	10.75
8"	19.50	13.50	1.13	11.75	8 - 0.88	10.66	7.13	12.75
10"	24.50	16.00	1.19	14.25	12 - 1.00	12.35	8.19	14.75
12"	27.50	19.00	1.25	17.00	12 - 1.00	13.01	9.38	18.00
14"	31.00	21.00	1.38	18.75	12 - 1.12	15.56	11.25	20.38
16"	36.00	23.50	1.44	21.25	16 - 1.12	16.96	12.25	21.75

LEVER AND SPRING DIMENSIONS



Valve Size	A	B	C	D	E	K	M	Y
3"	11.00	7.50	.75	6.00	4 - 0.75	5.35	3.94	7.38
4"	13.00	9.00	.94	7.50	8 - 0.75	6.06	4.50	9.00
6"	16.00	11.00	1.00	9.50	8 - 0.88	8.68	5.88	10.75
8"	19.50	13.50	1.13	11.75	8 - 0.88	9.66	7.13	12.75
10"	24.50	16.00	1.19	14.25	12 - 1.00	11.16	8.19	14.75
12"	27.50	19.00	1.25	17.00	12 - 1.00	11.82	9.38	18.00
14"	31.00	21.00	1.38	18.75	12 - 1.12	13.94	11.25	20.38
16"	36.00	23.50	1.44	21.25	16 - 1.12	15.33	12.25	21.75

OPTIONAL TAP LOCATIONS/WEIGHTS



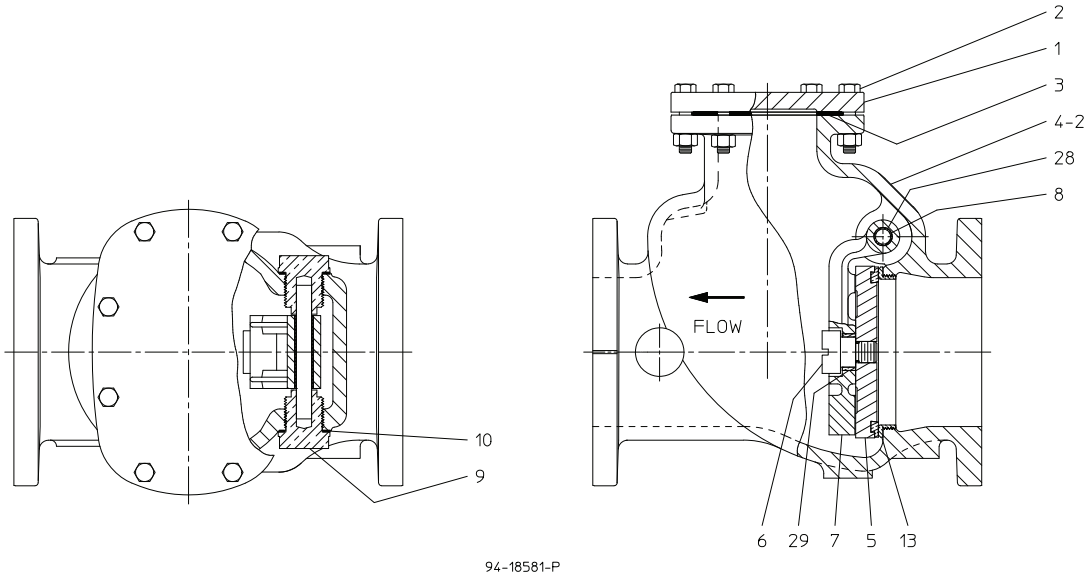
Valve Size	Maximum Tap Size for Bosses A, B, C, E, F & G
3″	1/2 NPT
4″	3/4 NPT
6″	1 NPT
8″	1 NPT
10″	2 NPT
12″	2 NPT
14″	2 NPT
16″	2 NPT

WEIGHTS

Valve Size	Standard	Lever / Spring	Lever / Weight
3″	61	63	64
4″	98	102	104
6″	167	170	173
8″	274	288	295
10″	445	450	470
12″	620	655	655
14″	1010	1080	1080
16″	1180	1250	1250

NOTE: All weights are in pounds.
1. Series 52-SC valves meet or exceed requirements of ANSI/AWWA C508.
2. 200 psig rated working pressure.

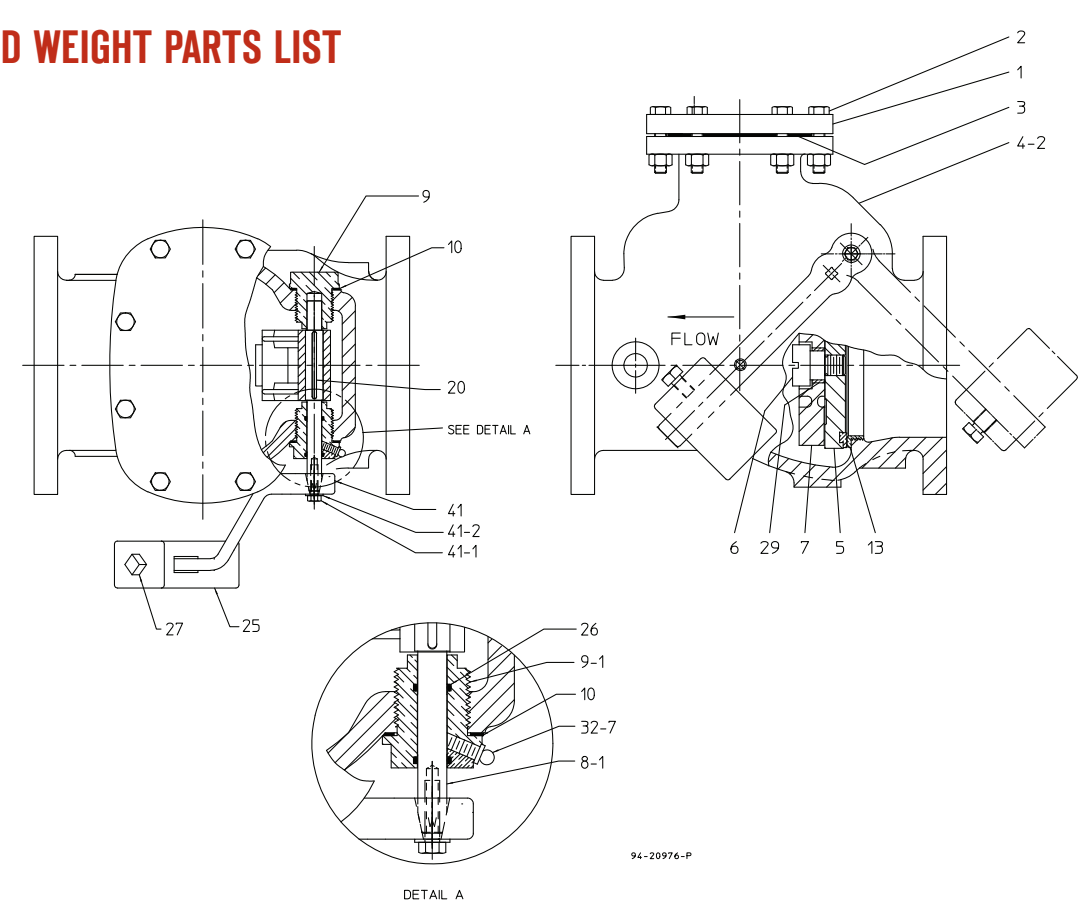
STANDARD PARTS LIST



Ref. No.	Description	Material	Quantity
1	Bonnet	Gray Iron (See Note 4)	1
2	Bonnet Bolt & Nut	Stainless Steel	Varies
3	Bonnet Gasket	Composition Rubber	1
4-2	Flanged End Case	Gray Iron (See Note 4)	1
5	Disc	See Note 5	1
6	Disc Stud	Bronze	1
7	Clapper Arm	Ductile Iron	1
8	Clapper Arm Shaft	Stainless Steel	1
9	Retainer Plug	Bronze	2
10	Retainer Plug Gasket	Composition Rubber	2
13	Seat Ring	Bronze	1
28	Shaft Bushing	Bronze (See Note 6)	1
29	Disc Stud Bushing	Bronze	1

NOTES:
1. Construction, materials and testing comply with ANSI/AWWA C508.
2. Bolt patterns of Class 125 flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1 Class 125).
3. Valves have manufacturer's name, pressure class and year of manufacture cast on side of case.
4. All gray iron is ASTM A126 Class B.
5. Discs on 3 in. are bronze, 4 in. and above are gray iron with bronze face disc that has lug on O.D. to prevent rotation.
6. Shaft bushings for valves 3 in.–10 in. are bronze, 12 in.–16 in. are nylon with molybdenum disulphide uniformly dispersed.

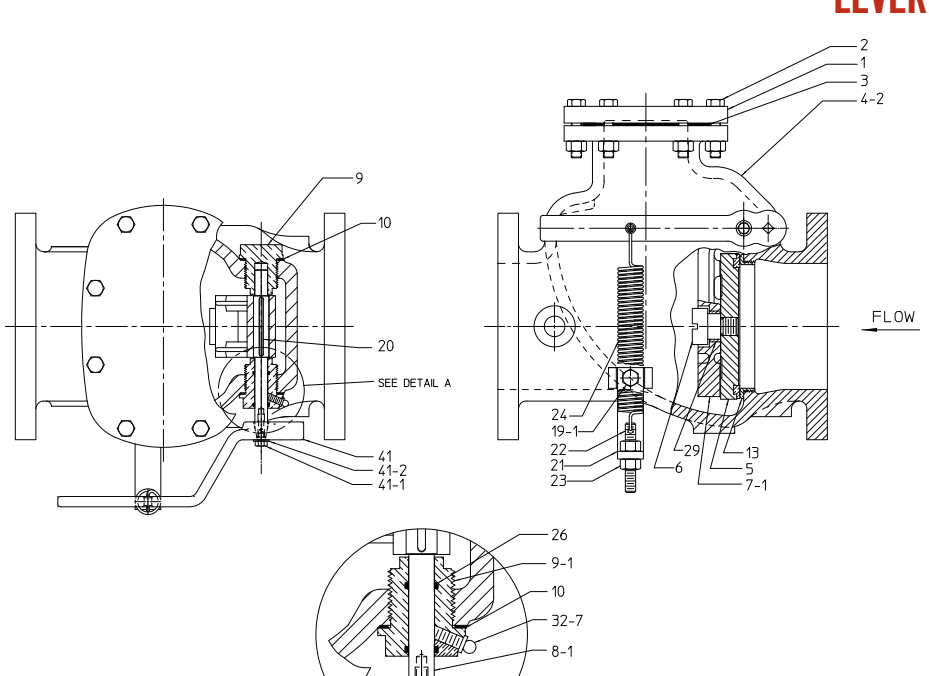
LEVER AND WEIGHT PARTS LIST



Ref. No.	Description	Material	Qty.
1	Bonnet	Gray Iron	1
2	Bonnet Bolt & Nut	Stainless Steel	Varies
3	Bonnet Gasket	Composition Rubber	1
4-2	Flanged Ends Case	Gray Iron	1
5	Disc	(See Note 6)	1
6	Disc Stud	Bronze	1
7-1	Clapper Arm for Lever	Ductile Iron	1
8-1	Clapper Arm Shaft Assembly	Stainless Steel (See Note 5)	1
9	Retainer Plug	Bronze	1
9-1	Retainer Plug for Lever	Bronze	1
10	Retainer Plug Gasket	Composition Rubber	2
13	Seat Ring	Bronze	1
20	Shaft Key	Stainless Steel	1
25	Weight for Lever	Gray Iron	1
26	O-ring	Rubber	2
27	Weight Set Screw	Steel	1
29	Disc Stud Bushing	Bronze	1
32-7	Grease Fitting	Steel	1
41	Lever	Ductile Iron	1
41-1	Lever Bolt	Stainless Steel	1
41-2	Lever Washer	Stainless Steel	1

Notes:
1. Construction, materials and testing comply with ANSI/AWWA C508.
2. Bolt patterns of Class 125 flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1 Class 125).
3. Valves have manufacturer's name, pressure class and year of manufacture cast on side of case.
4. All gray iron is ASTM A126 Class B.
5. Clapper arm shaft is stainless steel. Assembly includes lever, key, lever bolt and lever washer.
6. Discs on 3 in. are bronze; 4 in. and above are gray iron with bronze face disc. Disc has lug on O.D. to prevent rotation.
7. Lever is furnished on side and position shown unless otherwise specified for lever and weight. Lever shown by dot and dash lines is the position furnished when valve is to be installed in a vertical line with upward flow for lever and weight.

LEVER AND SPRING PARTS LIST



Ref. No.	Description	Material	Qty.
1	Bonnet	Gray Iron	1
2	Bonnet Bolt & Nut	Stainless Steel	Varies
3	Bonnet Gasket	Composition Rubber	1
4-2	Flanged Ends Case	Gray Iron	1
5	Disc	(See Note 6)	1
6	Disc Stud	Bronze	1
7-1	Clapper Arm for Lever	Ductile Iron	1
8-1	Clapper Arm Shaft Assembly	Stainless Steel (See Note 5)	1
9	Retainer Plug	Bronze	1
9-1	Retainer Plug for Lever	Bronze	1
10	Retainer Plug Gasket	Composition Rubber	2
13	Seat Ring	Bronze	1
19-1	Bracket Cap Screw	Steel	1
20	Shaft Key	Stainless Steel	1
21	Spring Bracket	Steel	1
22	Spring Link	Plated Steel	1
23	Link Nut	Plated Steel	2
24	Spring for Lever	Steel	1
26	O-ring	Rubber	2
29	Disc Stud Bushing	Bronze	1
32-7	Grease Fitting	Steel	1
41	Lever	Ductile Iron	1
41-1	Lever Bolt	Stainless Steel	1
41-2	Lever Washer	Stainless Steel	1

Notes:
1. Construction, materials and testing comply with ANSI/AWWA C508.
2. Bolt patterns of Class 125 flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1 Class 125).
3. Valves have manufacturer's name, pressure class and year of manufacture cast on side of case.
4. All gray iron is ASTM A126 Class B.
5. Clapper arm shaft is stainless steel. Assembly includes lever, key, lever bolt and lever washer.
6. Discs on 3 in. are bronze; 4 in. and above are gray iron with bronze face disc. Disc has lug on O.D. to prevent rotation.
7. Lever is furnished on side and position shown unless otherwise specified for lever and spring.

FEATURES/BENEFITS/SPECIFICATIONS

AMERICAN Flow Control Waterous Series 600 Swing Check Valves are in full compliance with ANSI/AWWA C508. Configurations are available that are UL Listed.

Rated working pressure is 175 psig. These check valves are suitable for horizontal installation or vertical installation when the flow of water is in an upward direction.

Series 600 Swing Check Valves feature sturdy iron body and bronze mounted construction. This design provides extensive use of corrosion-resistant materials in places where corrosion may be a potential problem.

SERIES 600 FEATURES AND BENEFITS

RESILIENT SEATED DISC
The disc is constructed of high-strength bronze with a rubber seal recessed into the disc to assure a positive seal even under low pressure.

Series 600 Swing Check Valves are available in sizes 3 in.–12 in. and are available with lever and spring or lever and weight for applications where rapid flow reversals may be encountered.

CORROSION RESISTANT
The clapper arm is made of high-strength bronze. The check valve disc and clapper arm assembly use corrosion-resistant bearings, bushings, and washers to help reduce wear and help increase operating life.

FULL WATERWAY
The check valves are designed to provide a "Full Waterway" per MSS SP-71, Type I.

AMERICAN Flow Control Waterous Series 600 Swing Check Valves have these features:

- Comply with ANSI/AWWA C508
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Stainless Steel Clapper Arm Shaft
- Bronze Clapper Arm
- Resilient Seated Disc
- Stainless Steel Body to Bonnet Bolting
- Available UL Listing
- Fusion-Bonded Epoxy Coated

SPECIFICATIONS

Swing Check Valves shall be AMERICAN Flow Control Waterous Series 600 . Check valves shall be manufactured from gray iron meeting or exceeding ASTM A126, Grade B.

Check valves shall comply with ANSI/AWWA C508, latest revision, UL Listed and include the following features:

Check valves shall be designed with full waterway opening per Type I of MSS SP-71.

Check valve disc and clapper arm assembly shall be removable from the check valve body without having to remove the check valve from the pipeline.

All body to bonnet fasteners shall be Type 304 Stainless Steel

Disassembly of valve internals shall require no special tools other than standard socket wrenches.

Check valve disc and clapper arm assembly shall be assembled using corrosion-resistant bearings, bushings and washers to help reduce wear and help increase service life.

Clapper arm shall be constructed of high-strength bronze.

Clapper arm shaft shall be stainless steel.

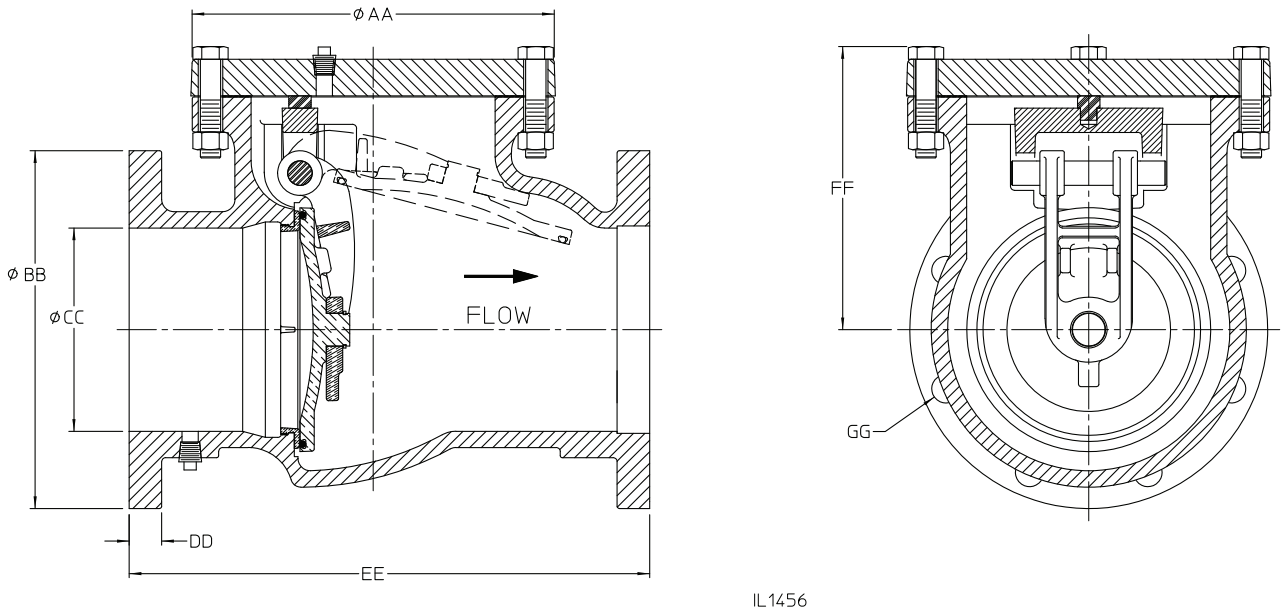
Disc shall be constructed of bronze with a rubber seal recessed into the disc face to provide a positive seal against the mating bronze body seat ring.

Check valves can be furnished with outside lever and weight or spring.

All internal and external ferrous cast surfaces of the valve body shall have an epoxy coating.

Note: Bodies for valves without outside shafts cannot be converted to accept outside shafts.

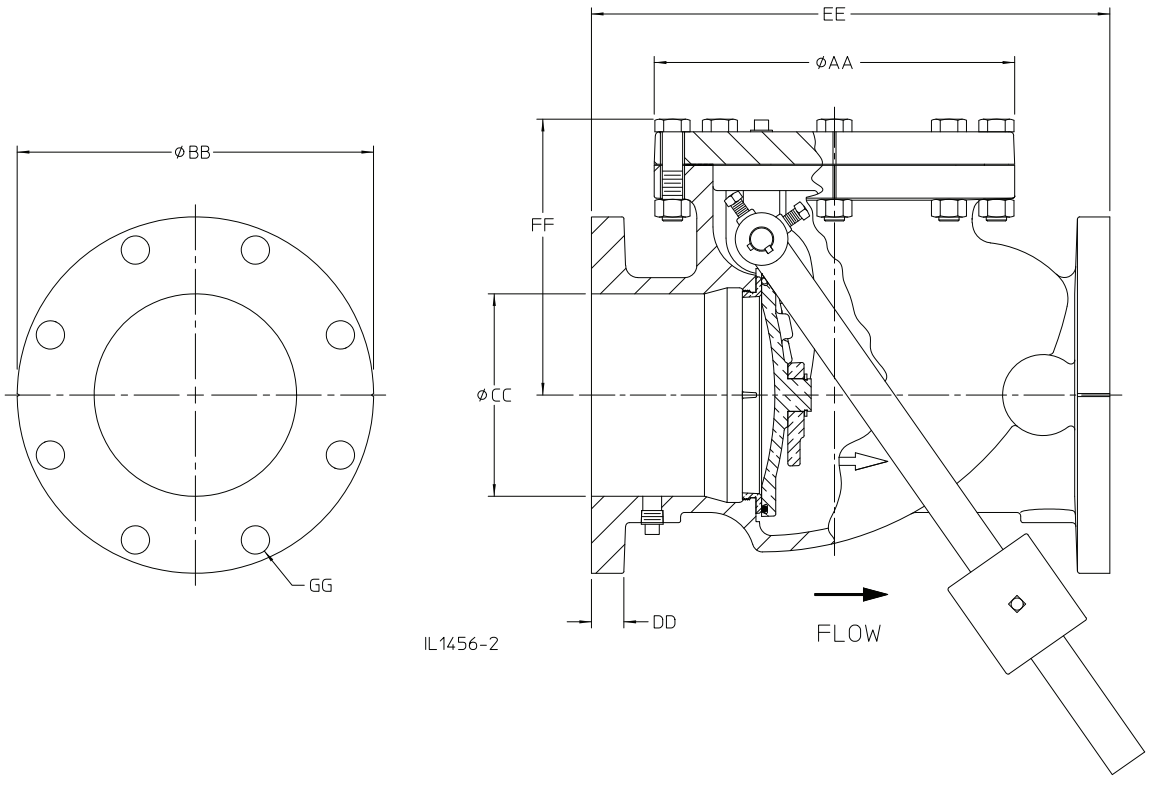
STANDARD DIMENSIONS



Size	AA	BB	CC	DD	EE	FF	GG		
							Holes	Size	Bolt Circle
3″	8.50	7.50	3.12	0.75	11.00	7.12	4	0.75	6.00
4″	8.38	9.00	4.12	0.94	13.00	6.81	8	0.75	7.50
6″	11.12	11.00	6.25	1.00	16.00	8.50	8	0.88	9.50
8″	14.00	13.50	8.12	1.12	19.50	10.19	8	0.88	11.75
10″	15.25	16.00	10.12	1.19	22.00	12.00	12	1.00	14.25
12″	18.00	19.00	12.12	1.25	26.00	12.38	12	1.00	17.00

LEVER AND WEIGHT DIMENSIONS

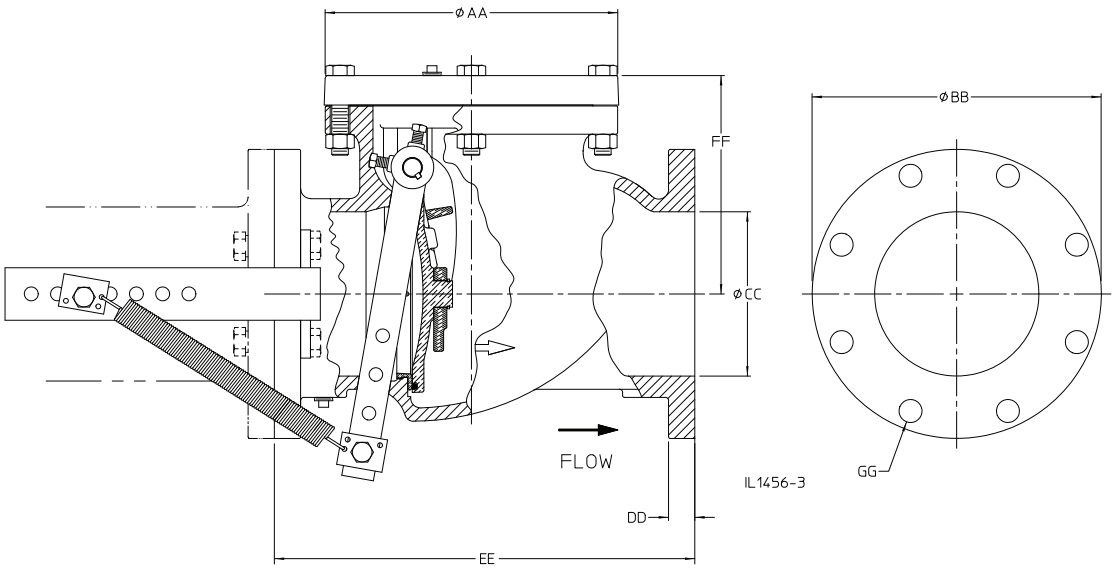
(Right-hand outside shaft shown)



Size	AA	BB	CC	DD	EE	FF	GG		
							Holes	Size	Bolt Circle
3″	8.50	7.50	3.12	0.75	11.00	7.12	4	0.75	6.00
4″	8.38	9.00	4.12	0.94	13.00	6.81	8	0.75	7.50
6″	11.12	11.00	6.25	1.00	16.00	8.50	8	0.88	9.50
8″	14.00	13.50	8.12	1.12	19.50	10.19	8	0.88	11.75
10″	15.25	16.00	10.12	1.19	22.00	12.00	12	1.00	14.25
12″	18.00	19.00	12.12	1.25	26.00	12.38	12	1.00	17.00

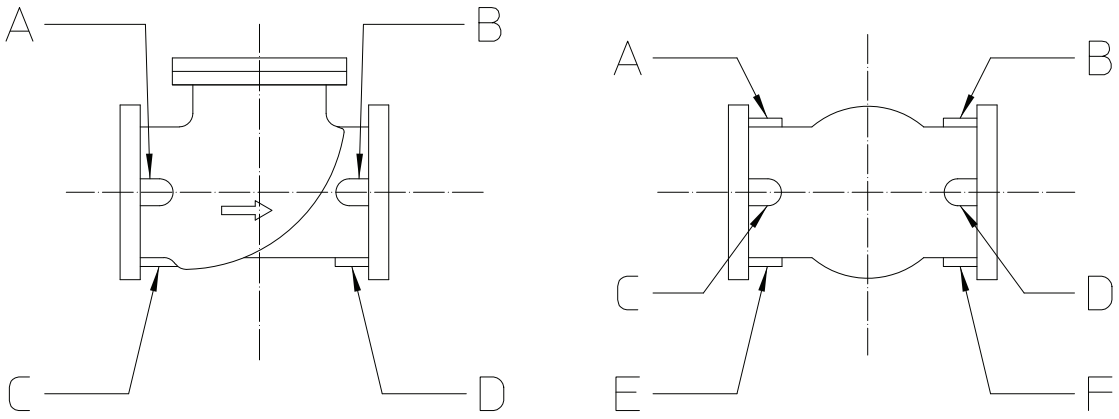
LEVER AND SPRING DIMENSIONS

(Right-hand outside shaft shown)



Size	AA	BB	CC	DD	EE	FF	GG		
							Holes	Size	Bolt Circle
3″	8.50	7.50	3.12	0.75	11.00	7.12	4	0.75	6.00
4″	8.38	9.00	4.12	0.94	13.00	6.81	8	0.75	7.50
6″	11.12	11.00	6.25	1.00	16.00	8.50	8	0.88	9.50
8″	14.00	13.50	8.12	1.12	19.50	10.19	8	0.88	11.75
10″	15.25	16.00	10.12	1.19	22.00	12.00	12	1.00	14.25
12″	18.00	19.00	12.12	1.25	26.00	12.38	12	1.00	17.00

OPTIONAL TAP LOCATIONS/WEIGHTS



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Valve Size	Maximum Tap Size for Bosses	
	A, B, E, & F	C, D
3″	3/4 NPT	3/4 NPT
4″	3/4 NPT	1/2 NPT
6″	1 -1/4 NPT	3/4 NPT
8″	1 - 1/2 NPT	1/2 NPT
10″	2 NPT	3/4 NPT
12″	2 NPT	3/4 NPT

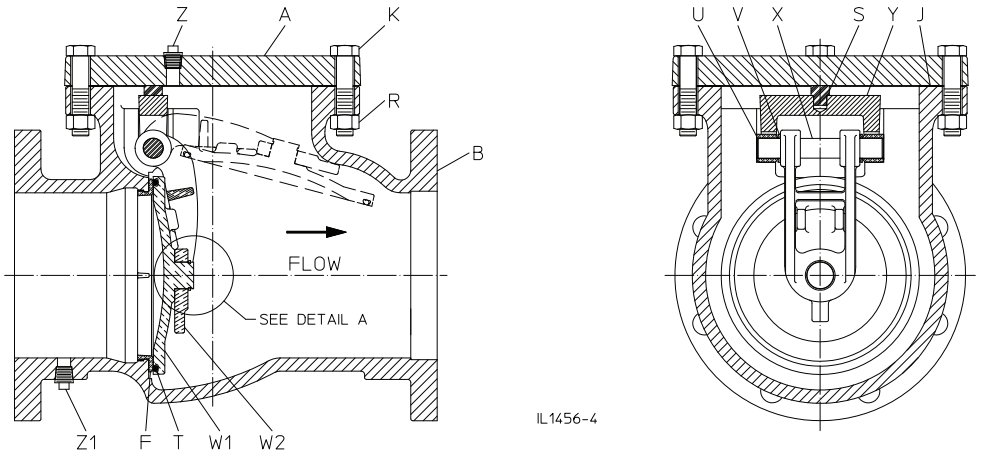
WEIGHTS

Valve Size	Standard	Lever / Spring or Weight
3″	60	70
4″	75	85
6″	145	160
8″	245	260
10″	380	405
12″	500	525

NOTE: All weights are in pounds.

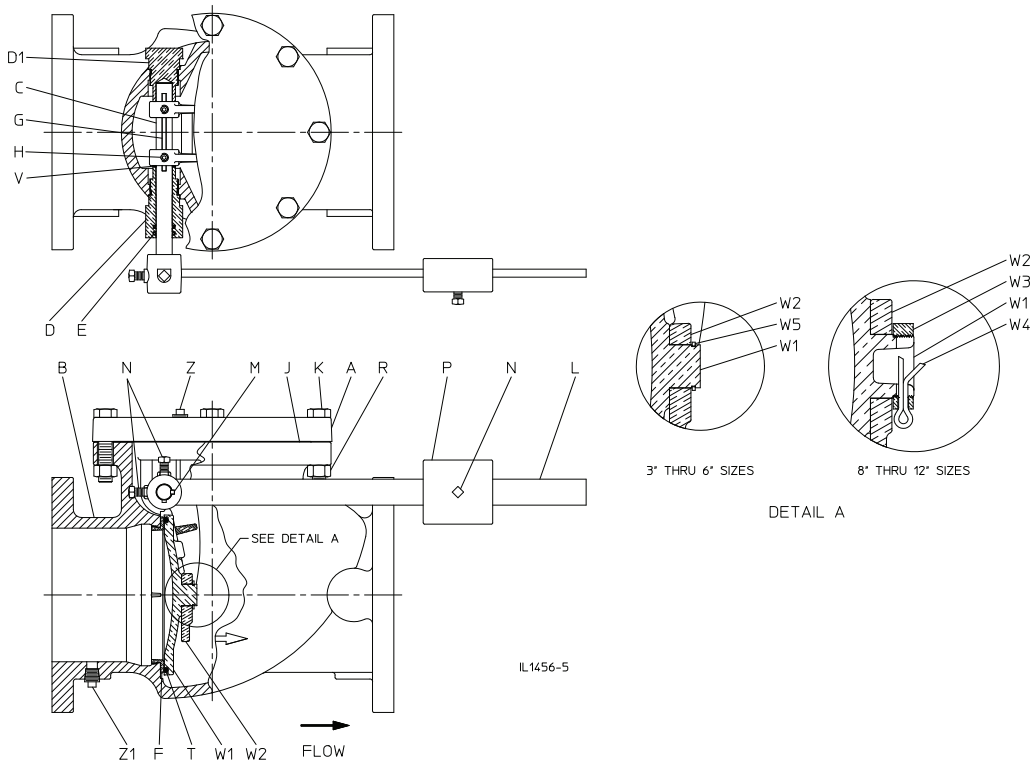
1. Series 600 valves meet or exceed requirements of ANSI/AWWA C508.
2. 175 psig rated working pressure.
3. May be furnished in configurations that are UL Listed.

STANDARD PARTS LIST



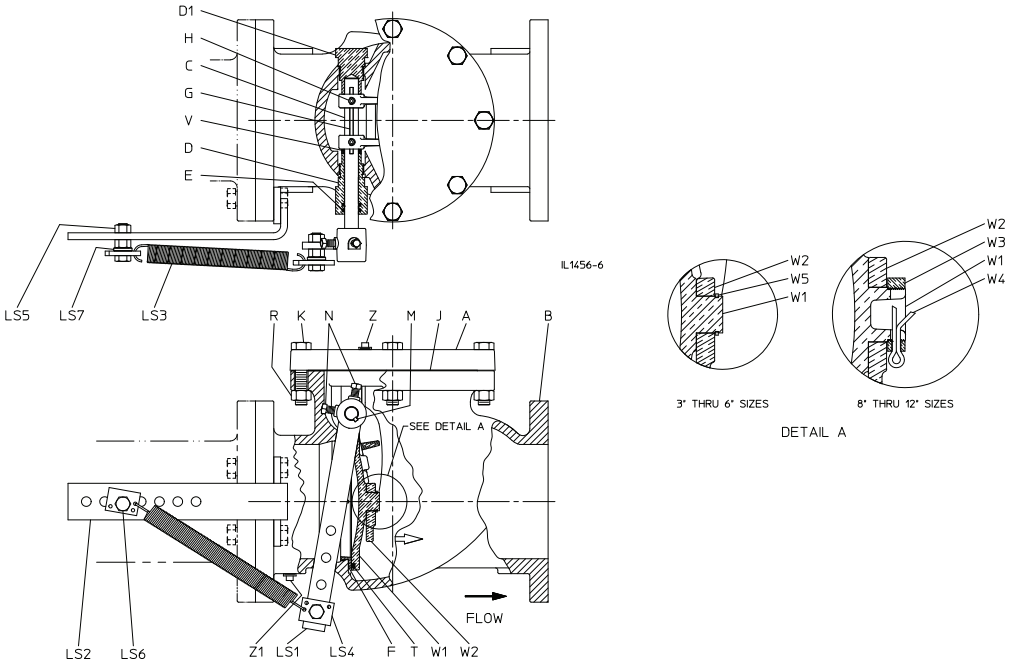
Ref.	Description	Material
A	Cover	Gray Iron
B	Valve Body	Gray Iron
F	Body Seat Ring	Bronze
J	Cover Gasket	Synthetic Fiber with Elastomeric Rubber
K	Hex Head Bolt	Stainless Steel
R	Hex Nut	Stainless Steel
S	Bumper	Rubber
T	O-ring	Rubber
U	Bushing	Brass
V	Shim Washer	Brass
W1	Disc	Bronze
W2	Arm	Bronze
W3	Locknut	Bronze
W4	Cotter Pin	Stainless Steel
W5	Snap Ring	Stainless Steel
X	Shaft	Stainless Steel
Y	Yoke	Gray Iron
Z	Pipe Plug	Stainless Steel
Z1	Pipe Plug	Bronze

LEVER AND WEIGHT PARTS LIST



Ref.	Description	Material
A	Cover	Gray Iron
B	Valve Body	Gray Iron
C	Shaft	Stainless Steel
D	Shaft Support	Bronze
D1	Shaft Retiainer	Bronze
E	O-ring	Rubber
F	Body Seat Ring	Bronze
G	Arm Key	Stainless Steel
J	Cover Gasket	Synthetic Fiber with Elastomeric Rubber
K	Hex Head Bolt	Stainless Steel
L	Weight Lever	Bronze
M	Lever Key	Stainless Steel
N	Square Head Set Screw	Steel
P	Weight	Gray Iron
R	Hex Nut	Stainless Steel
T	O-ring	Rubber
V	Shim Washer	Brass
W1	Disc	Bronze
W2	Arm	Bronze
W3	Locknut	Bronze
W4	Cotter Pin	Stainless Steel
W5	Snap Ring	Stainless Steel
Z	Pipe Plug	Stainless Steel
Z1	Pipe Plug	Bronze

LEVER AND SPRING PARTS LIST



Ref.	Description	Material
A	Cover	Gray Iron
B	Valve Body	Gray Iron
C	Shaft	Stainless Steel
D	Shaft Support	Bronze
D1	Shaft Retiainer	Bronze
E	O-ring	Rubber
F	Body Seat Ring	Bronze
G	Arm Key	Stainless Steel
H	Socket Head Set Screw	Steel
J	Cover Gasket	Synthetic Fiber with Elastomeric Rubber
K	Hex Head Bolt	Stainless Steel
LS1	Spring Lever	Bronze
LS2	Bracket	Steel
LS3	Spring	Stainless Steel
LS4	Spring Plate	Steel
LS5	Hex Nut	Plated Steel
LS6	Hex Head Bolt	Plated Steel
LS7	Spacer	Steel
M	Lever Key	Stainless Steel
N	Square Head Set Screw	Steel
R	Hex Nut	Stainless Steel
T	O-ring	Rubber
V	Shim Washer	Brass
W1	Disc	Bronze
W2	Arm	Bronze
W3	Locknut	Bronze
W4	Cotter Pin	Stainless Steel
W5	Snap Ring	Stainless Steel
Z	Pipe Plug	Stainless Steel
Z1	Pipe Plug	Bronze

INSTALLATION AND TESTING

INSTALLATION

This information is provided as a recommendation to the customer for the proper use and installation of swing check valves.

1. When received, the valves should be unloaded carefully and in the case of Series 52-SC, stored with clapper braced in closed position. If provided, leave end protectors in place after initial examination. Protect stored valves from the elements and from undue damage in handling.

2. At the time of installation, remove any bracing from the swing check valve. Make sure the valve and flange gasket surfaces are clean and free of damage. Clean the inside of the valve to remove all debris and/or contaminants that may affect performance, or fluid quality. Check for free movement of clapper and inspect valve seal. Check the direction of flow in the pipeline and make sure the arrow cast on the side of the valve body agrees with the direction of flow through the valve.

3. Valves without lever and weight, or spring, are to be installed with the centerline of the valve port in a horizontal position and with the bonnet facing upward. Check valves will operate satisfactorily if not oriented more than 45° from the horizontal and with the flow upward.

4. To help prevent check valve slam, the valve can be supplied with an optional extended shaft configuration, equipped with either lever and weight, or lever and spring. The principle behind either of these options is to close the valve before the fluid establishes a reverse flow. The torque required to close the valve is unique to each system. The torque can be adjusted by changing the number and position of the spring and/or weight. In any service where the possibility of slamming exists, it is recommended that check valves be equipped with lever and spring, or lever and weight.

5. Check valves equipped with lever and spring can be used in a horizontal pipeline or in a vertical pipeline only when flow is upward. Check valves equipped with lever and weight can also be used in either a horizontal pipeline or a vertical pipeline. The lever must be positioned correctly to achieve valve closure. In the case of the Series 52-SC, the correct position of the lever and weight, when valve is installed in a horizontal line is 45° below the horizontal centerline of pipe, on the downstream side of the check valve disc. If the check valve is to be installed in a vertical line with upward flow, the lever should be moved 90° counterclockwise from this position. The Series 600 is equipped with two keyways: one for horizontal waterway and one for a vertical waterway.

6. DO NOT INSTALL CHECK VALVES IN A VERTICAL LINE WITH DOWNWARD FLOW.

7. At the time of installation, make sure piping is properly aligned and supported to avoid stress on the valve body. Under no circumstances should the installation of the valve be used to correct alignment errors.

TESTING

Check to see that all valve joints and pressure-containing bolts are tight. After testing, relieve excess pressure from the upstream side of the valve.

OPERATION/MAINTENANCE/SPARE PARTS

OPERATION

1. On swing check valves without lever or weight, there are no special instructions regarding the operation since the valve is actuated by line flow.

2. If supplied with a lever or weight, the check valve can be adjusted to counteract slamming and/or surge. Adjustment may be accomplished by adjusting the tension on the spring, or the position, and/or amount, of weight on the valve.

MAINTENANCE

1. Normally there is very little maintenance on a check valve. On standard check valves it is suggested the valve be disassembled once a year. Depressurize the valve for inspection. Check for wear at all oscillating locations.

2. On the Series 52-SC Check Valves with extended shaft valves, every six months add an AMERICAN Flow Control recommended grease between o-rings until resistance to flow is felt on the grease gun lever. If leakage occurs due to oscillation, replace o-rings by removing retainer plug. Be sure to pressurize space between o-rings with grease after reassembly. Look for excessive wear on extended shaft and bearing bore that would prevent o-ring sealing.

SPARE PARTS

Under most conditions the only spare parts needed for swing check valves would be bonnet gasket, and any applicable retaining plug gaskets and o-rings, if valve is equipped with extended shaft. Under conditions where very frequent oscillation of a clapper experienced, and/or sever service conditions, other parts may be kept in stock.

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRATICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while check valve is under pressure.

NOTES

AMERICAN

FLOW CONTROL

THE RIGHT WAY

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Check Valve Product Information

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