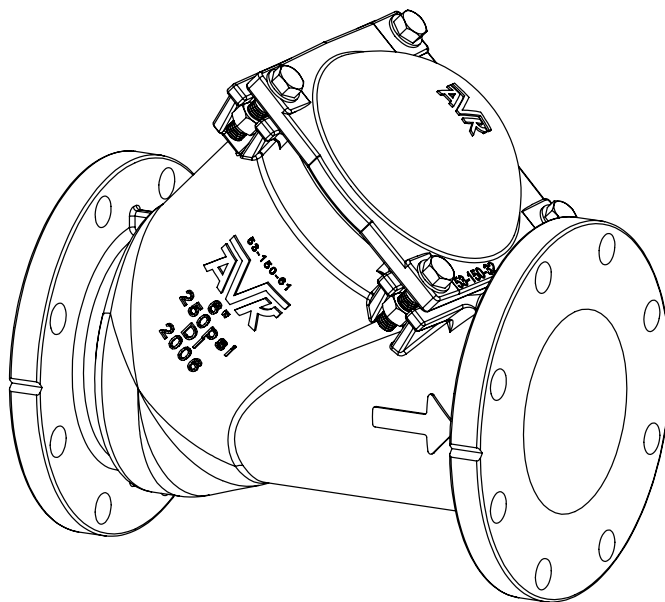


**AVK SERIES 53
FIELD MAINTENANCE AND INSTRUCTION
MANUAL FOR BALL CHECK VALVES**

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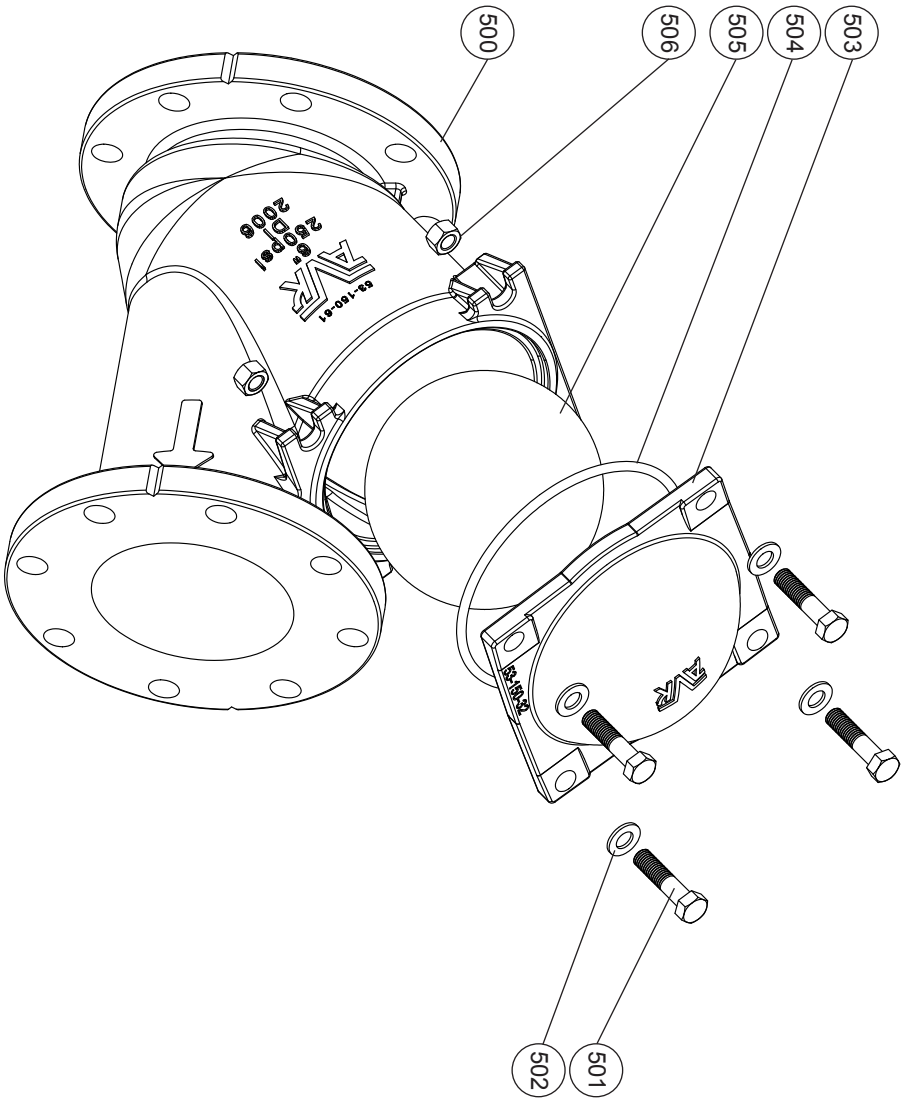
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American AVK Series 53 Ball Check Valve
Exploded Parts Breakdown

Components:

- 500. Body
- 501. Bonnet Bolt
- 502. Bonnet Washer
- 503. Bonnet
- 504. Bonnet O-ring
- 505. Ball
- 506. Bonnet Nut



Item No.	Description	Material
500	Body	Ductile iron, ASTM A536*
501	Bonnet Bolt	Zinc plated steel
502	Bonnet Washer	Zinc plated steel
503	Bonnet	Ductile iron, ASTM A536
504	Bonnet O-ring	NBR
505	Ball	Aluminum encapsulated with NBR**
506	Bonnet Nut	Zinc plated steel

* Stainless steel available on NPT valves

** A Polyurethane Ball and Floating Ball are optional

Table 1
Approximate Ball Weights

Valve Dia. In.	Sinking (Kg)	Sinking (Lb)	Floating (Kg)	Floating (Lb)
2	0.3	0.6	0.1	0.3
2.5	0.6	1.3	0.2	0.5
3	0.8	1.7	0.4	0.8
4	1.6	3.5	1.3	2.8
6	5.1	11.2	2.2	4.9
8	11.2	24.7	6.0	13.2
10	24.5	54.0	12.3	27.1
12	38.0	83.8	17.7	39.0
14	63.0	138.9	31.0	68.3
16	93.0	205.0	48.0	106.0
20	175.0	386.0	88.0	194.0
24	310.0	683.0	160.0	353.0

INTRODUCTION / DESCRIPTION

The American AVK Series 53 Ball Check Valve is designed to be a trouble free, easy to maintain check valve. This manual will provide you with the information needed to properly install and maintain the valve and to ensure a long service life. The valve is opened by the fluid flow in one direction and closes automatically to prevent flow in the reverse direction. The Size, Flow Direction, and Maximum Working Pressure are cast into the body of the valve for reference.

RECEIVING AND STORAGE

Inspect valves upon receipt for damage in shipment. Unload all valves carefully to the ground without dropping. Do not allow lifting slings or chains to pass through the valve; use eyebolts or rods through the flange holes on large valves. Valves should remain crated, clean and dry until installed to prevent weather related damage. For long term storage the valves should be stored indoors.

INSTALLATION

WARNING: The line must be isolated, depressurized, and drained before removing the valve bonnet or removing the valve from line. Failure to do so may cause pressure to be released resulting in severe injury or death.

Correct installation of the Series 53 Ball Check Valve is important for proper operation. It may be installed in either horizontal or vertical flow-up applications. It may be installed in a vertical flow down configuration providing a floating ball is used. The preferred installation for best performance is vertical with the flow going up. Fig. 1 is for standard weight ball. Fig. 2 is for a floating weight ball. In all installations, the flow arrow cast in the valve body must be pointed in the direction of flow during normal system operation. For horizontal applications, there is a minimum static head back pressure requirement of 10 feet for effective operation. The recommended flow velocity is 3 to 5 ft/sec. Check the movement of the ball before installation. The ball should move freely through the valve body.

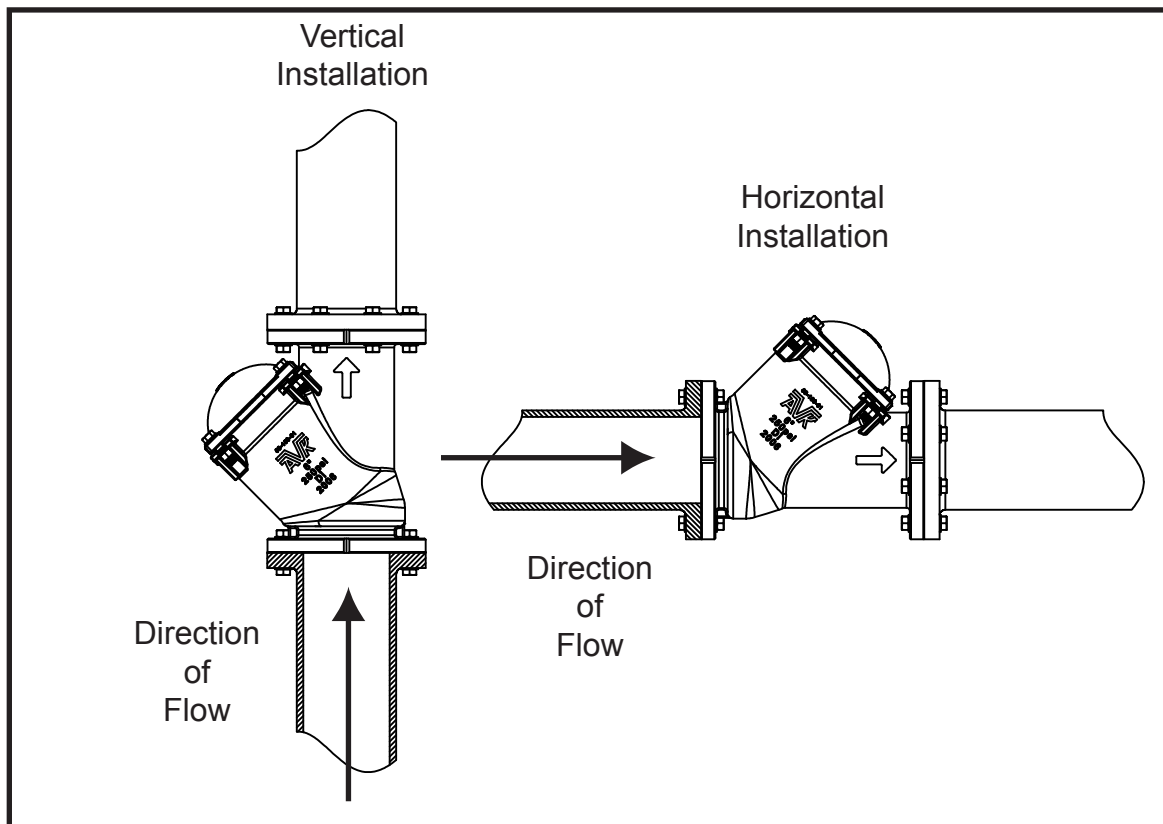


Fig. 1
Installation positions for a Standard Weight Ball

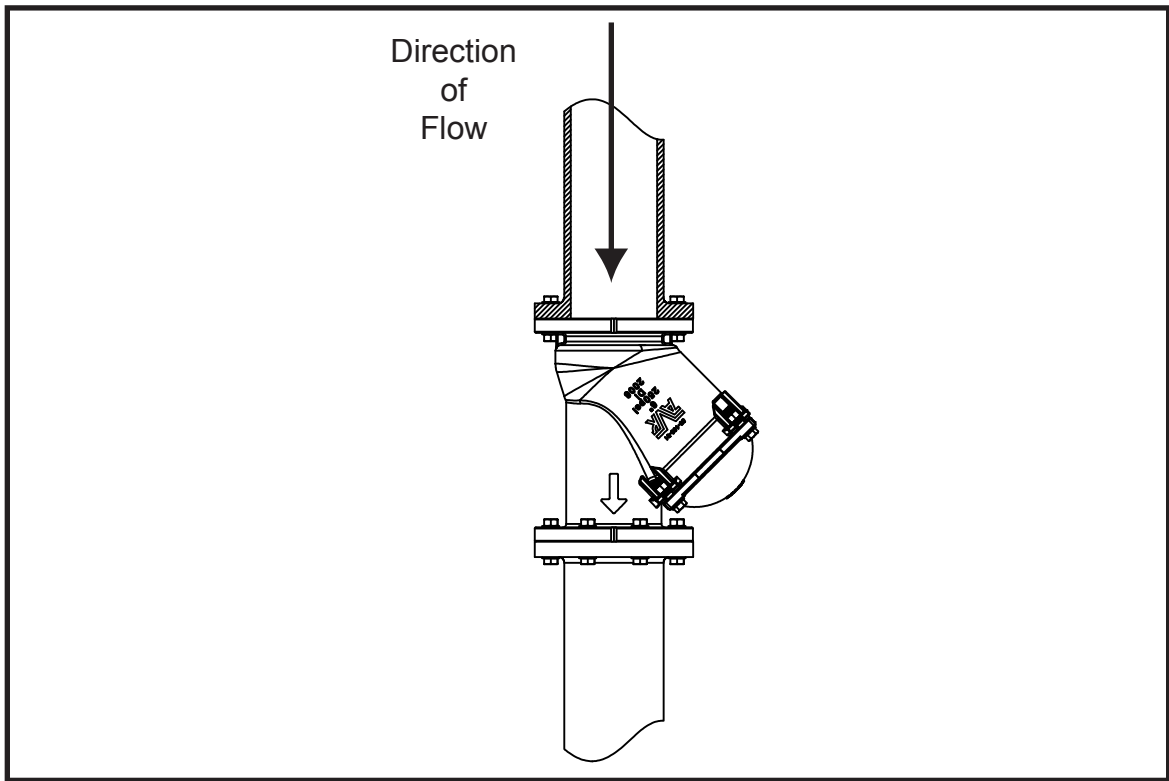


Fig. 2
Vertical installation
with Floating Ball

INSTALLATION: continued

Flanged valves should only be mated with flat-faced pipe flanges equipped with full face or ring type resilient gaskets. The valve and adjacent piping must be supported and aligned to prevent cantilevered stress on the valve. Once the flange bolts or studs are lubricated and inserted around the flange, tighten them uniformly hand tight. The tightening of the bolts should then be done in graduated steps using the crossover tightening method. The appropriate torques are listed in table 1. If leakage occurs, allow gaskets to absorb fluid and check torque and leakage after 24 hours. Do not exceed bolt rating or extrude gasket.

Valve Diameter (Inches)	Bolt Diameter (inches)	Recommended Torque (ft-lb)
3	5/8	50
4	5/8	60
6	3/4	90
8	3/4	90
10	7/8	120
12	7/8	130
14	1	175
16	1	180
20	1 1/8	240
24	1 1/4	300

INSTALLATION: continued

Valves with threaded NPT ends should be mated to steel or iron pipe with NPT threads. Apply pipe joint compound or joint tape to the male ends. Rotate the valve by hand onto the pipe. Once snug, use a pipe wrench to rotate the valve until tight. Ensure the valve is oriented for proper operation.

MAINTENANCE AND INSPECTION

The AVK Series 53 Ball Valve requires no scheduled lubrication or maintenance. The valve can be serviced or inspected without removal of the valve body from the line.

INSPECTION: If inspection of the valve is required, follow the Disassembly Instructions.

DISASSEMBLY FOR INSPECTION

For convenience, the valve can be disassembled for inspection without removing it from the pipeline. All work on the valve should be performed by a skilled mechanic with proper tools and a power hoist for larger valves. Disassembly may be required to inspect the ball for wear or the valve for deposits.

WARNING: The line must be isolated, depressurized, and drained before removing the valve bonnet or removing the valve from line. Failure to do so may cause pressure to be released resulting in severe injury or death.

1. Isolate the valve, relieve pressure and drain the pipeline. Remove the bonnet bolts (501) and bonnet washers (502) from the bonnet (503).
2. Pry the valve bonnet (503) loose if required and lift off.
3. Inspect the ball (505) to see if it is worn or damaged. For larger valves, the valve may need to be removed from the line to remove the ball.
4. Replace worn parts as necessary or replace head assembly with a new head assembly.

REASSEMBLY AFTER INSPECTION

All parts and sealing surfaces must be cleaned before reassembly. Worn parts and seals should be replaced during reassembly.

1. Insert the ball (505) into the valve body (500).
2. Place the bonnet o-ring (504) onto the bonnet (503).
3. Place the bonnet/o-ring assembly onto the valve body (be careful not to displace the bonnet o-ring) and fasten with the appropriate bonnet bolts (501) and bonnet washers (502). Ensure that the bonnet o-ring (504) is not being pinched between the bonnet (503) and valve body (500).
4. Tighten the bonnet bolts(501) to 45 ft-lbs incrementally in a crossover pattern to ensure that the bonnet (503) does not bend or crack and the bonnet o-ring (504) is evenly compressed.

TROUBLESHOOTING

Some problems and solutions are presented below to assist you in troubleshooting the valve.

- Leakage at the Bonnet: Ensure that the bonnet bolts are tightened to 45 ft-lbs. If leakage persists, replace bonnet O-ring.
- Valve leaks when closed: Remove head and inspect ball for damage. Replace if necessary. Ensure that the sealing surface in the valve body is clean and undamaged.
- Valve does not open or close: Verify operating pressure is high enough to open the valve. Disassemble the valve to check for an obstruction in the valve or pipeline.
- Valve has noisy operation when open: Check the flow velocity. Check the system piping for trapped air.
- Valve chatters when closing: Ensure there is enough static pressure on the ball to get it to close correctly.

PARTS AND SERVICE

For information on parts and service for your area contact American AVK. Make a note of the valve model number and size located on the valve and contact:

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2155 N. Meridian Blvd
Minden, NV 89423
PH: 775-552-1400
FAX: 775-783-7502
www.americanavk.com

AMERICAN AVK COMPANY WARRANTY SERIES 53 BALL CHECK VALVES

American AVK Company warrants its Series 53 Ball Check Valves to be free from defects in workmanship and materials for a period of one (1) year from the date of shipment from American AVK Company except as noted. American AVK Company shall have no obligation under this warranty unless it is notified of claims hereunder promptly and in writing upon discovery thereof and within the warranty period, and unless the product is delivered to American AVK Company within thirty (30) days of such notice.

American AVK shall have the right to inspect said product before it is removed from installation. If the product is removed from installation prior to approval from American AVK this warranty shall be void.

As to motors, gearing or accessory equipment purchased by American AVK Company from other manufacturers, and used or incorporated into American AVK Company's products, those manufacturers' warranties shall apply.

American AVK Company's sole responsibility shall be, in its sole discretion, to replace the product with the same or a similar product, repair the product, or refund the price paid for the product provided the product has been properly applied and used under normal service and under conditions for which it is designed. American AVK Company shall not be liable for indirect, special, incidental, or consequential damage or penalties and does not assume any liability of purchase to others or to anyone for injury to persons or property.

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NOTES: