

DOUBLE AND TRIPLE OFFSET BUTTERFLY VALVES FOR WATERWORKS SERVICE

1. SCOPE
 - 1.1. This specification covers the design, manufacture, and testing of cast butterfly valves 3 inch (75 mm) and larger under service pressure of up to 500 psig (3450 kPa).
 - 1.2. Butterfly valves shall be resilient seated and of the quarter turn, double or triple offset, mechanically retained seal in disc type.
2. GOVERNING STANDARDS
 - 2.1. All butterfly valves shall be in full conformance with the design, manufacturing, and testing standards set forth by the American Water Works Association (AWWA) in Standard ANSI/AWWA C504.
 - 2.2. When requested, manufacturer shall provide an Affidavit of Proof of Design Testing in accordance with AWWA C504.
3. CONNECTIONS
 - 3.1. Flanged valves shall conform to all standards of ANSI B16.1, Class 125 or Class 250.
 - 3.2. Flanged valves' lay length shall conform to AWWA C504 Table 1, Short Body.
 - 3.3. Mechanical joint valves shall conform to all standards of ANSI/AWWA C111/A21.11.
4. MARKINGS
 - 4.1. Each valve shall be marked with the manufacturer's name, valve size, body material, and pressure rating cast into the body of the valve. Lettering shall be a minimum of 1/2 inch tall and project 1/10 inch from body.
 - 4.2. All butterfly valves, except buried or submerged valves, shall be equipped with a type 304 or 316 stainless steel tag identifying body, disc, resilient seat, and stem material in addition to manufacturer's name, pressure rating, size, date of manufacturer, and date of testing.
5. DESIGN
 - 5.1. Valves shall be equipped with a replaceable seat machined from a single piece of corrosion resistant material mechanically attached to the body of the valve.
 - 5.2. Valve shall have a field replaceable and adjustable disc mounted resilient seal. The seal should be retained to the body by a single continuous ring and hardware that does not pierce the seal.
 - 5.3. Valve shall be equipped with a set of V-type stem packing with an adjustable gland. Valve stem packing shall be replaceable without removing the bonnet of the valve.
 - 5.4. Radial shaft bushings shall be supplied in the upper and lower bearing journals. A thrust bearing shall be supplied acting on lower shaft section to center disc in valve body.
 - 5.5. The valves shall be equipped with a mounting area for operators conforming to Manufacturers Standard Society(MMS) 101 or International Organization of Standardization(ISO) 5211. There shall be sufficient clearance to directly mount standardized operators with easily accessible fasteners.
 - 5.6. Stem diameter shall be the preferred dimension stated in ISO 5211 Table 4.
 - 5.7. Drive keys shall comply with ISO R773, unless specifically stated otherwise. Preferred tolerance is D10. Tolerance of Js9 is acceptable for motor operated valves.
 - 5.8. Valves shall provide a bubble-tight shutoff bi-directionally at rated working pressure.
6. MATERIALS
 - 6.1. The valve body, disc, and bonnet if equipped shall be constructed of ASTM A536 Ductile Iron.
 - 6.2. The valve seat shall be manufactured from a single machined piece of type 304 or 316 stainless steel.
 - 6.3. The valve seal shall be made from resilient NBR, EPDM, or FPM as specified. Valve seal shall be retained by a single machined piece of type 304 or 316 stainless steel.
 - 6.4. Radial and thrust bearings shall be made of permanently lubricated RTFE or lead free Bronze.
 - 6.5. All submerged coatings shall conform to AWWA C550, be holiday free, and have a minimum total dry film thickness of 10 mils.
 - 6.6. All wetted hardware should be of corrosion resistant type 304 or 316 stainless steel as specified.
 - 6.7. All uncovered, submerged, or buried valves shall have type 304 or 316 stainless steel exterior hardware. All others shall have zinc plated carbon steel hardware unless specified.
7. OPERATORS
 - 7.1. All manually operated valves 8 inches and larger shall be equipped with a worm gear actuator with position indicator. Operator should be designed to hold the valve in any intermediate position without creeping or fluttering.
 - 7.2. All actuators shall be permanently sealed and suitable for buried service.
 - 7.3. All 2 inch square operating nuts, exposed hardware and shafts shall be made of corrosion resistant stainless steel.
 - 7.4. All actuators equipped with handwheels shall have a maximum rim pull of 50lbs plus 5%.
8. MANUFACTURER
 - 8.1. Double and triple offset butterfly valves shall be VSI Series AWWAC504HP as manufactured by Valve Solutions, Inc., Alpharetta, GA USA.
 - 8.2. All valves shall be warranted by manufacturer for a minimum of 12 months.