**BUTTERFLY Valves AWWA Class 150 B Specifications**

**Size Range 75 mm – 500mm (3 inch – 20 inch)**

**AWWA C504 latest Revision**

**General Design**

All butterfly valves shall be of the tight-closing, rubber-seated type, conforming to the design standards of ANSI/AWWA C504 latest revision except where noted herein. Valves shall be bubble-tight at the full rated pressure in either direction and shall be suitable for throttling service and/or shut-off pressure and maximum operating non-shock line pressure is 150 psig. Each valve shall be performance and leak tested as specified in AWWA C504 revised as follows: In addition to the testing requirements of AWWA C504, each butterfly valve shall be thoroughly cleaned and opened at least three (3) times prior to testing. The Manufacturer shall certify that the butterfly valves are capable of operating in continuous duty service under the specified pressures and flow conditions.

**Valve Identification**

All items shall have the name or symbol of the maker, the nominal size, date of manufacture, and the working pressure for which they are designed, cast, stamped, or permanently marked on the body.

**Ratings and Standards**

Butterfly valves shall be Class 150B, unless otherwise indicated and of the flanged short body design. Flanges shall conform to AWWA Class D standards.

**Body**

The valve bodies shall be constructed of Cast Iron ASTM A-126, Class B or Ductile Iron in accordance with ASTM A-536 with ANSI B16.1 flange drilling or for mechanical joint ends shall conform to ANSI/ AWWA C111/ A21.11 standard.

The valve mounting flange shall be machined with pressure relief grooves

**Discs**

Discs for valve sizes 3” – 20” shall be of the concentric design. Valve discs shall be constructed of 316 stainless steel for sizes 3” to 8” and epoxy coated or fusion bonded epoxy. Discs shall be ductile iron ASTM A-536 for sizes 10” to 20”. Valve disc shall have a 316 stainless steel seating edge. Valve disc shall seat at 90 degrees to the access of the pipe and shall require no torque to hold it in the closed position.

**Shafts**

Valves 3” – 20” shall have a one piece through shaft constructed of stainless steel ASTM A-276, grade 304, corresponding to the requirements of AWWA C504, latest revision. The shaft shall be fastened to the disc by means of a threaded disc pin providing a positive leak proof connection of the shaft to the disc. The shafts shall be fastened to the disc by straight pins that provide a .005 interference fit. The use of taper pins for the shaft/disc connection is not acceptable.

**Seats**

The resilient seat shall be Buna-N for valves 75mm- 500mm (3” – 20”) and shall be simultaneously bonded and vulcanized to body of the valve across the full face to face of the valve.

All interior surfaces in contact with water, excluding the disc, shall be completely rubber lined. Seats for valves 75 mm – 500mm (3”–20”) shall be designed so that they will require no internal adjustment or maintenance to seat against a pressure differential of 150 psi on either side of the valve. Valve seats shall incorporate upper and lower primary seals moulded to the profile of the disc hub.

**Bearings**

All bearings shall be of the self-lubricating, corrosion-resistant, sleeve type. Bearings shall be designed for horizontal and/or vertical shaft loading.

The valve assembly shall be furnished with a factory set two-way thrust bearing designed to center the valve disc in the valve seat at all times.

**Shaft Packing**

Shaft packing shall be of the V-type, self-adjusting type and suitable for pressure and vacuum service. The packing shall be recessed in the valve trunion.

**Interior Coatings & Surfaces**

The interior of valves 3” – 20” shall be completely rubber lined. The valve disc shall either be entirely 316 stainless steel or be ductile iron with epoxy coating from an AWWA NSF-61 coating system. The interior of the valve body and the exterior of the valve disc shall be cleaned and sandblasted and lining shall be applied as per the Manufacturer’s instructions.

The lining material shall be in compliance with ANSI/NSF Standard 61, for contact with potable water. The lining material shall be “Pota -Pox” as manufactured by Tnemec, or equal. The interior lining shall be applied in a minimum of two coats, at 4–5 mils per coat; the total dry thickness shall be 8 – 10 mils.

**Exterior coating and surfaces**

The exterior surfaces shall be cleaned and sandblasted and coating shall be applied in accordance with the Manufacturer’s instructions. Surface face cleanliness shall be inspected and any contaminants on the surface shall be removed prior to the coating operations. The coating material shall be “Pota-Pox” as manufactured by Tnemec, or equal. The coating material shall be applied in a minimum of two coats, at 4–5 mils per coat; the total dry thickness shall be 8– 10 mils.

Manual actuators selected by the supplier shall confirm to the latest edition of AWWA C504 Section Valve Actuators as amended below:

1. The actuators shall be sized to operate with a maximum rim pull of 178N (40 lbs.) on hand wheels and a maximum input torque of 109N-m (80 ft.-lbs.) on 50 mm AWWA nuts.
2. The actuators shall be designed to produce the torque which is necessary for seating and unseating of the valve based on bi-directional flow with a differential pressure equal to the specified working pressure applied to either face of the disc and based on the full rating of the valve.
3. The actuators shall be designed to produce sufficient torque exceeding the maximum dynamic valve torque requirements based on bi-directional flow on the full differential pressures equal to the maximum specified working pressure. The user shall give preference to those actuators meeting the specifications stated in Section 2.01.2(a).
4. The actuators shall be equipped with stop limiting devices to prevent over travel of the disc in the open and closed positions. All actuator components shall be capable of withstanding a minimum input torque of 300 ft-lbs.
5. The actuators shall be provided with adjustable mechanical position and grease packed with NSF grease. All actuators shall have 300 series stainless steel input shafts and isolated from any corrosive components in the housing.
6. The actuators shall turn clockwise to close the valve.
7. All Actuators shall be of worm gear type or travelling nut in size ranges 75mm through 500mm.
8. All Actuators shall be mounted directly to the valve mounting flange and the shaft key shall fully engage the actuator segment throughout the total height of the shaft. The actuator shall be bolted to the valve flange using external bolts accessible beneath the valve mounting flange

All gearboxes shall meet the requirements of AWWA Standard C 504- latest revision as required.

**Experience & Requirements**

The Manufacturer shall have had a successful experience in manufacturing tight closing Buna-N or other acceptable synthetic rubber-seated butterfly valves for this type service in the size indicated. The Manufacturer shall have at least 10 years’ experience in the manufacture of valves. All butterfly valves of the same type shall be the product of one Manufacturer. All materials used shall be new, of high grade, and with properties best suited to the working environment.

**Commissioning and Start up requirements**

The Valve Vendor or Manufacturers representative shall provide the services of a factory trained and authorized representative for a sufficient period of time as required to insure proper adjustment, installation, and operation of the valve.

End of Section