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# ROSS VALVE MANUFACTURING CO., INC.
# AWWA C507 BALL VALVE (MSBV)
# TYPICAL SUGGESTED SPECIFICATIONS

**GENERAL:** The AWWA C507 ball valve shall be Metal to Metal Ball Valve (Model MSBV) as manufactured by Ross Valve Manufacturing Co., Inc. It shall be a full-ported valve (Pressure Class 150 – 175 psi maximum differential pressure (cast iron) or Pressure Class 250/300 – 350 psi maximum differential pressure (ductile iron)) and shall be complete with valve operating mechanism, valve actuator and accessories as specified herein.

**OPERATION:** Operation of the AWWA ball valve shall employ an eccentric offset (90) degree rotary motion to rotate the valve ball from its seated position and rotate the ball 90° to open the valve and align the ball and body waterways in the open position. Closing movement of the valve ball shall be in reverse order. It shall be designed to operate satisfactorily at the head and flow conditions specified.

**VALVE CONSTRUCTION:** Valve body shall be provided with integrally cast trunnions, and end pieces with seat ring(s) of Monel metal (ERNiCu-7 (Monel 60)) electrically fused to the body end piece(s) waterway and sufficiently raised above the internal surface of the body to assure free operation. Valve body and Monel seats shall be constructed on an eccentric offset of not less than 2°. Body end piece seat ring(s) shall be of sufficient width such that seat contact pressure shall not exceed 2,000 psi at Pressure Class 250/300 – 350 psi maximum differential pressure based on projected area of body seat ring. AWWA ball valves shall be equipped with a single set of seats for uni-directional sealing in one (1) direction only or two (2) sets of seats for bi-directional sealing in both directions. Trunnion bushings in the body shall be **NO LEAD** bronze and shall mate with stainless steel bushings on the ball trunnions. Trunnion bushings shall be of sufficient diameter and length such that trunnion bushing contact pressure with ball trunnion bushing shall not exceed 2,000 psi at Pressure Class 250/300 – 350 psi maximum differential pressure based on projected contact area of trunnion bushing with the AWWA C507 ball valve in the fully closed & seated position. Trunnion bushing diameter (D) must be not less than 1-3/4 x bushing length (L). The valve shall be complete with ASME B16.1 Class 125 or 250 (cast gray iron) or ASME B16.42 Class 150 or 300 (cast ductile iron) flanges to mate with adjacent equipment.

Valve ball shall be of "skeletal" type construction consisting of two (2) intersecting pipes with generous ribbing as required and with integrally cast trunnions. It shall have a set of stainless steel or bronze seat (seal) rings attached to ball by adjustable threaded connection sufficiently raised above the "skeletal" surfaces of the ball to assure free operation. AWWA ball valves shall be equipped with a single set of seats for uni-directional sealing in one (1) direction only or two (2) sets of seats for bi-directional sealing in both directions. Ball seat(s) shall be constructed on an eccentric offset of not less than 2°. Ball seat (seal) rings shall be of sufficient width such that seat contact pressure shall not exceed 2,000 psi at Pressure Class 250/300 – 350 psi maximum differential pressure based on projected area of body seat ring. Trunnion bushings on the ball shall be stainless steel and shall mate with bronze bushings in the body. Trunnion bushings shall be of sufficient diameter and length such that trunnion bushing contact pressure shall not exceed 2,000 psi at Pressure Class 250/300 – 350 psi maximum differential pressure based on projected contact area (D x L) of trunnion bushing with the AWWA C507

ball valve in the fully closed & seated position. Trunnion bushing diameter (D) must be not less than 1-3/4 x bushing length (L).

Valve body/head bronze and plug stainless steel bushings shall be retained solely by heavy press/shrink fits w/o requiring the aid of any additional mechanical retention devices such as setscrews, pins, etc. Use of such mechanical retention devices shall not be permitted. Valve body trunnions shall be equipped with grease lubrication fittings for the purpose of lubricating the bronze/stainless steel trunnion bushings using externally located & readily accessible grease lubrication fittings. Valve body bronze bushings shall be **NO LEAD** bronze alloy C95400 and shall be equipped with spirally generated double loop grease groove pattern on ID of bushings with an external groove on OD at centerline with two (2) through holes to grooves 180° apart (opposed) coincident with intersection of double loop grease groove pattern. Additionally, trunnion bushings shall be lubricated with an appropriate Food Grade Lubricant (FGL) such as Lubriplate NSF-H-1 Registered Products FGL-2 or equal.

All AWWA C507 ball valve castings shall be ASTM A126 Class B cast iron or ASTM A536 Grade 65-45-12 ductile iron.

Valve operating shaft shall be stainless steel ASTM A564 630 H1075 with 125,000 psi minimum yield strength, and shall be pinned to the plug. The packing shall be Chevron "VEE" type fiber and graphite with a bronze packing gland.

**VALVE OPERATING MECHANISM CONSTRUCTION:** The valve operating mechanism shall be of the compound link/lever traveling nut type, totally enclosed in a ductile iron ASTM A536 Grade 65-45-12 housing with a separate mounting adapter to assure proper alignment. The housing shall be designed for either right or left hand actuator mounting. The valve operating mechanism cover shall be ductile iron ASTM A536 Grade 65-45-12 and make a pinned connection to the valve operating mechanism housing. The valve operating mechanism cover shall be bronze bushed where the valve operating shaft extends into it. The traveling nut crosshead shall be of bronze B584 C86300 and shall travel in fully machined ways in the valve operating mechanism housing and cover. An indicator shall be mounted on the end of the valve shaft for the local position indication.

**VALVE ACTUATOR:** Valve actuator shall be sized to operate the valve from full open to full closed under the most adverse actual project head and flow conditions. The valve manufacturer shall be responsible for sizing electrical or cylinder actuators based on the head and flow conditions including a 25% minimum safety factor.

**COATINGS:** All interior wetted surfaces of AWWA C507 ball valve including ball, body interior and end piece interior shall be prepped to SSPC – SP10 (near white metal) followed within seventy two (72) hours by two (2) coats of contrasting colors 4 to 6 mils DFT each 8 to 12 mils TDFT of two (2) part liquid epoxy coating (TNEMEC's Pota-Pox™ Plus Series N140F). All exterior non wetted surfaces of AWWA C507 ball valve including valve operating mechanism exterior and interior and all related parts including valve operating mechanism mounting adapter and valve actuator mounting adapter shall be prepped to SSPC – SP10 (near white metal) followed within seventy two (72) hours by a single coat 3 to 5 mils DFT of universal primer (TNEMEC's Pota-Pox™ Plus Series N140F). **DO NOT PREP OR COAT** any bronze, stainless steel or other non-ferrous or non-metallic surfaces. **ALL** final exterior top coats on non-wetted surfaces of AWWA C507 ball valves are to be applied in the field by others as specified.

**TESTING:** AWWA C507 valve body including end pieces shall be hydrostatically tested for 10 minutes at a test pressure of one and one-half times maximum working pressure for which the valve is intended. Under test, parts shall show no evidence of distress and shall be free from any leaks. When fully shop assembled, each AWWA C507 ball valve seat shall be leak tested at the maximum working pressure for which the valve is intended. Leakage shall not exceed maximum limits as defined by AWWA C507 for metal-seated valves.