

AWWA Metal Seated Ball Valve

Part 1 - General

1.1 Description

This section includes all materials, installations and testing of metal seated ball valves including accessories, linings and coatings as shown in the Drawings and specified herein, in accordance with the Contract Documents. Size ranges are from 4" through 60".

1.2 Related Work Specified Elsewhere

The work in the following Sections also apply to the Work in this Section. Other Sections may also apply.

- A. Standard Provision
- B. Section 1300 – Submittals
- C. Section 09900 – Painting and Coating
- D. Section 15041 – Disinfection of Pipeline
- E. Section 15044 – Pressure Testing of Pipe
- F. Section 15050 – General Piping Requirements
- G. Section 15100 – Valves
- H. Section 16640 – Corrosion Control for Buried Pipe

1.3 Submittals

- A. The following shop drawings shall be submitted in accordance with Section 01300:
 - 1. Submit valve manufacturers catalog data, descriptive literature and assembly drawings. Show dimensions, materials of construction by specification reference and grade, linings and coatings.
 - 2. Submit manufacturers affidavit of compliance with referenced standards.
 - 3. Submit coating application FACTORY test records for measuring coating thickness and holiday detection for the valve interior linings and exterior coatings and repair procedure.
 - 4. Submit manufacturers proof-of-design per AWWA C507.

PART 2 Products

2.1 General

- A. All ball valves shall be of the tight-closing, shaft-mounted type that fully comply with AWWA Standard C507. Design pressure ratings shall be 150 psi and provide tight shutoff against flow in both directions. Design of valve shall be such that with the valve in the open position, the full and unobstructed circular inlet and outlet port diameter shall be as specified in Table 2 of AWWA Standard C507.
- B. The valve body shall have integral support legs or pads and shall consist of two body end pieces and a center body piece through-bolted and O-ring-sealed against leakage. All body pieces shall be of cast ductile iron ASTM A536 grade 65-45-12. Minimum body thickness shall be as specified in Table 3 of AWWA Standard C507. Flanges shall be flat-faced and flange drilling shall be in accordance with ANSI B16.1 Class 125.
- C. The valve ball shall be constructed of ductile iron ASTM A536 65-45-12 and shall be taper-pinned to an upper and lower fitted shaft of 17-4 Type 630 stainless steel. Valves employing chromium-plated iron or steel shafts shall not be accepted.
- D. The center section shall have bronze bearings installed in each half section accurately located in the center of the housing to receive the trunnion bearings on the ball. The bearings shall place the ball in the central position. Bearing load shall not exceed 2000 psi at a 250 psi differential pressure. The body seat shall be monel electronically fused to the base metal. The seat shall be accurately machined to form the seating seal and to not protrude into the waterway.
- E. The ball seats shall be 300 series stainless steel. Seats shall be retained by use of a stainless steel mounting ring which is securely attached and pinned into position after the correct seat setting is attained. Seats shall seal a full 360° without interruption, mating with a spherical seating surface on the ball. The seat shall be pressure assisted and utilizing an offset on the body and ball. The seats shall only contact at the actual point of closure. Valve seats shall be field adjustable around the full 360° circumference and replaceable without dismantling the operator, ball or shaft. Where line size permits, seats shall also be capable of being adjusted without removing the valve from the line. The ball seat shall be located the top, when the valve is in the open position. Manufacturer shall certify that the seat is field adjustable and

replaceable. Plastic, UHMW or seats that thread directly on to the ball are not permitted.

- F. Valve actuators shall be electrically operated or of the manual handwheel type and shall be a traveling nut operator. Actuators shall be designed for 450 ft-lbs input torque and shall be mounted and testing by the valve manufacturer prior to shipment per AWWA C507.

2.2 Valve Testing

- A. All ball valves shall be subjected to hydrostatic, shop leakage and performance tests as specified in Section 5.2 of AWWA Standard C507.
- B. Certified shop test reports shall be submitted as requested by the Engineer.

2.3 Lining and Coating

- A. The manufacturer shall line all internal cast or ductile iron surfaces, except finished or bearing surfaces, with Tnemec Series 140F PotaPox epoxy to a thickness of 12 mils.
- B. All exterior steel or cast or ductile iron surfaces of each valve, except finished or bearing surfaces, shall be shop coating with one or more coats of Alkyd primer. For buried service valves, two coats of asphalt varnish per Federal Specification TT-C-494.

2.4 Proof of Design

- A. The manufacturer furnishing valves under the specification shall be prepared to show that the valves proposed meet the proof of design requirements of AWWA Standard C507, Section 5.3.

2.5 Manufacture

- A. Ball valves shall be manufactured by the Henry Pratt Company or pre-approved equal.

PART 3 Execution

3.1 Installation

- A. All exposed flanged ball valves shall be installed with a means of removing the complete valve assembly without dismantling the valve or operator. The installation shall be in accordance with Section 15100 – Valves

END OF SECTION

AWWA Rubber Seated Ball Valve

Part 1 - General

1.1 Description

This section includes all materials, installations and testing of manually operated resilient seated ball valves including accessories, linings and coatings as shown in the Drawings and specified herein, in accordance with the Contract Documents. Size ranges are from 4" through 60".

1.2 Related Work Specified Elsewhere

The work in the following Sections also apply to the Work in this Section. Other Sections may also apply.

- A. Standard Provision
- B. Section 1300 – Submittals
- C. Section 09900 – Painting and Coating
- D. Section 15041 – Disinfection of Pipeline
- E. Section 15044 – Pressure Testing of Pipe
- F. Section 15050 – General Piping Requirements
- G. Section 15100 – Valves
- H. Section 16640 – Corrosion Control for Buried Pipe

1.3 Submittals

- A. The following shop drawings shall be submitted in accordance with Section 01300:
 - 1. Submit valve manufacturers catalog data, descriptive literature and assembly drawings. Show dimensions, materials of construction by specification reference and grade, linings and coatings.
 - 2. Submit manufacturers affidavit of compliance with referenced standards.
 - 3. Submit coating application FACTORY test records for measuring coating thickness and holiday detection for the valve interior linings and exterior coatings and repair procedure.
 - 4. Submit manufacturers proof-of-design per AWWA C507.

PART 2 Products

2.1 General

- A. All ball valves shall be of the tight-closing, shaft-mounted type that fully comply with AWWA Standard C507. Design pressure ratings shall be 150 psi and provide tight shutoff against flow in both directions. Design of valve shall be such that with the valve in the open position, the full and unobstructed circular inlet and outlet port diameter shall be as specified in Table 2 of AWWA Standard C507. With the valve in the closed position, the rubber seated valve shall be bubble tight at rated pressure.
- B. The valve body shall have integral support legs or pads and shall consist of two body end pieces and a center body piece through-bolted and O-ring-sealed against leakage. All body pieces shall be of cast iron ASTM A126 Class B. Minimum body thickness shall be as specified in Table 3 of AWWA Standard C507. Flanges shall be flat-faced and flange drilling shall be in accordance with ANSI B16.1 Class 125.
- C. The valve ball shall be constructed of ductile iron ASTM A536 65-45-12 or cast iron ASTM A48 Class 40, and shall be taper-pinned to an upper and lower fitted shaft of 18-8 Type 304 or 17-4 Type 630 stainless steel. Valves employing chromium-plated iron or steel shafts or trunnions shall not be accepted.
- D. The center section shall be fitted with sleeve-type bearings contained in the body hubs. Bearings shall be corrosion resistant and self-lubricating. material shall be Teflon-lined with fiberglass backing. Bearing surfaces shall be isolated from flow by O-ring type seals. The ball assembly shall be supported by a two-way thrust bearing assembly consisting of a stainless steel stud and thrust collar in a grease-packed cavity.
- E. All seats shall be of a synthetic rubber compound. Seats shall be retained in the valve body by mechanical means without retaining rings, segments, screws or hardware of any kind in the flow stream. Seats shall seal a full 360° without interruption and have a plurality of grooves mating with a spherical stainless steel seating surface on the ball. Valve seats shall be field adjustable around the full 360° circumference and replaceable without dismantling the operator, ball or shaft. Where line size permits, seats shall also be capable of being adjusted without removing the valve from the line. Manufacturer shall certify that the rubber seat is field adjustable

and replaceable. Plastic, UHMW or seats that utilize retainers or follower rings are not allowed.

- F. Valve shall be double seated and be Factory certified bubble tight at rated pressure.
- G. Valve actuators shall be of the manual handwheel type and shall be a traveling nut operator. Actuators shall be designed for 450 ft-lbs input torque and shall be mounted and testing by the valve manufacturer prior to shipment per AWWA C507.

2.2 Valve Testing

- A. All ball valves shall be subjected to hydrostatic, shop leakage and performance tests as specified in Section 5.2 of AWWA Standard C507.
- B. Certified shop test reports shall be submitted as requested by the Engineer.

2.3 Lining and Coating

- A. The manufacturer shall line all internal cast or ductile iron surfaces, except finished or bearing surfaces, with Tnemec Series 140F PotaPox epoxy to a thickness of 12 mils.
- B. All exterior steel or cast or ductile iron surfaces of each valve, except finished or bearing surfaces, shall be shop coating with one or more coats of Alkyd primer. For buried service valves, two coats of asphalt varnish per Federal Specification TT-C-494.

2.4 Proof of Design

- A. The manufacturer furnishing valves under the specification shall be prepared to show that the valves proposed meet the proof of design requirements of AWWA Standard C507, Section 5.3.

2.5 Manufacture

- A. Ball valves shall be manufactured by the Henry Pratt Company/SVE.
- B. Or Pre-approved

PART 3 Execution

3.1 Installation

- A. All exposed flanged ball valves shall be installed with a means of removing the complete valve assembly without dismantling the valve or operator. The installation shall be in accordance with Section 15100 – Valves.

END OF SECTION