



SECTION 40_XX_XX
AWWA ROTARY CONE VALVES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. AWWA Rotary Cone Valves, 6-60" (150-1500mm), with 100% full port construction, built especially for pump stop and check, pressure regulating, flow control and critical shut-off service as indicated.
- B. Related Sections:
 - 1. (provided by the engineer)

1.02 REFERENCES

- A. AWWA C522 "Rotary Cone Valves"
- B. ASME B16.1 "Pipe Flanges and Flanged Fittings"
- C. NSF/ANSI 61 "Drinking Water – Health Effects"
- D. NSF/ANSI 372 "Drinking Water – Lead Content"

1.03 SUBMITTALS

- A. Submit detailed product data and descriptive literature to include dimensions and materials of construction.
- B. Provide shop drawings to show installation arrangement of major component assemblies.

1.04 QUALITY ASSURANCE

- A. Supplier shall have been manufacturing Rotary Cone Valves of the type and size required for this project for a period of at least ten years. At the engineer's request, supplier shall provide a list of installations involving equipment of similar size and application.
- B. Valves and Actuators shall be warranted by the manufacturer for defects in materials and workmanship for a period of two years (24 months) from date of shipment.
- C. Each valve and actuator shall be assembled, adjusted and tested in accordance with AWWA C522 as a unit by the valve manufacturer.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. DeZURIK, Inc
 - 1. Willamette AWWA Rotary Cone Valves – Model VMC

2.02 AWWA ROTARY CONE VALVES

- A. Cone valve construction shall be in complete accordance with AWWA C522 and rated for maximum pressure of 150, 250 or 300 psi, as required.
- B. Cone valve shall be of the conical plug type employing axial motion to unseat the plug, followed by a rotary motion to open or close the valve, and then followed by an axial motion to reseat the plug. During rotation of the plug, there shall be clearance between the plug and body seat rings at all times so that no contact occurs between them.
- C. Cone valve shall consist of: 1. A valve body having waterway inlet and outlet diameters equal to the nominal size of the valve. 2. A fully skirted conical plug having a clear waterway diameter equal to the nominal size of the valve. 3. A cover to enclose the plug in the body. 4. A valve operating mechanism mounted on the cover.
- D. Body shall consist of a housing having flanged inlet and outlet waterways and a flange opening. Flange opening shall permit removal of the plug.
- E. Body and conical plug shall be constructed of either ductile iron ASTM A536 GR65-45-12 (150# class), (250# class) or cast steel ASTM A27 GR65-35 (300# class).
- F. Body flange dimensions shall be per ASME B16.1. Class 150 valve flanges shall be per ASME B16.1 Class 125. Class 250 valve flanges shall be per ASME B16.1 Class 125 or 250, except flanges shall be flat faced. Class 300 valve flanges shall be per ASME B16.1, Class 250, except flanges shall be flat faced.
- G. Valves shall be fitted with sleeve-type bearings contained in the body and cover hub bosses and on trunnions of conical plug. Bearing compressive stress shall not exceed the lesser of one-fifth of the compressive strength of the materials used or 2,000 psi (14 MPa) at the maximum specified rated pressure class. Bearings shall be of bronze or stainless steel.
- H. Valves shall have a Monel seat electrically fused to the valve body and a Monel mating seat electrically fused the conical plug to engage when seated in both open and/or closed positions. Closure shall be made when the conical plug is first lifted (unseated), rotated, then lowered (resealed), placing the body and conical plug seats into a metal-to-metal contact sealing position. The leakage past the closed seat shall not exceed 0.4 oz/min/inch nominal valve diameter.
- I. The valve shall be provided with a high strength 17-4PH stainless steel (ASTM A564) operating shaft that connects the conical plug to the valve operating mechanism. The operating shaft shall be securely attached to the plug to transmit the lifting force and operating torque.
- J. A shaft seal of either V-type or braided packing shall be provided where the valve shaft projects through the head cover.

2.03 ACTUATORS

- A. The cone valve operating mechanism shall be mounted on the cover and shall be provided with a removable cover, which shall permit inspection, adjustment and repair of the operating mechanism. Lift mechanism of the cone valve shall consist of a crosshead device, which will lift, rotate and lower the plug. Cone valve crosshead shall travel in a straight line and shall operate through an independent link and lever arrangement, so that lifting shall be accomplished by means of a lift nut and rotation shall be accomplished by means of a rotator lever.
- B. Cone valve actuation shall be either manual actuator (handwheel or AWWA square nut), electric motor (local or remote controls), or cylinder for hydraulic or pneumatic control as specified. (specification by engineer)

2.04 TESTING

- A. Each valve and actuator assembly shall be production tested in the valve manufacturer's facility for seat leakage, body hydrostatic and operation in accordance with AWWA C522 section 5.1.
- B. Certified test reports shall be available upon request.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install equipment in accordance with manufacturer's written instructions and approved submittals.

3.02 COMMISSIONING

- A. Field testing (specification by engineer)