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**SECTION 40\_XX\_XX  
VACUUM RELIEF/AIR INLET VALVE FOR CLEAN SERVICE**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
  - 1. Vacuum Relief/Air Inlet valves for clean service
  
- B. Related Sections:
  - 1. (provided by the engineer)
  - 2. (provided by the engineer)
  - 3. (provided by the engineer)

**1.02 REFERENCES**

- A. ASME B16.42 "Ductile Iron Pipe Flanges and Flanged Fittings"
- B. ASME B16.5 "Steel Pipe Flanges and Flanged Fittings"
- C. AWWA C512 "Air Release, Air/Vacuum and Combination Air Valves for Waterworks Service"
- D. AWWA C550 "Protective Interior Coatings for Valves and Hydrants"

**1.03 SUBMITTALS**

- A. (provided by the engineer)

**1.04 QUALITY ASSURANCE**

- A. Valves shall be warranted by the manufacturer for defects in materials and workmanship for a period of two years (24 months) from date of shipment.

**PART 2 - PRODUCTS**

**2.01 GENERAL**

- A. (provided by the engineer)

**2.02 AIR RELEASE VALVES FOR CLEAN SERVICE**

- A. Manufacturers: APCO AVR or pre-approved equal
- B. Design:
  - 1. Vacuum Relief/Air Inlet valve shall have a globe type body with integrally cast flanged ends
  - 2. General: Single Body (Body Style 1500A)
    - a. Valve shall have a cross-sectional inflow area 10% greater than equivalent pipe size for full vacuum relief protection during draining, pipeline rupture or water column separation.
    - b. Valve shall open when a vacuum/pressure differential exceeds 0.25 psi (2 kPa)
    - c. Resilient seat shall be retained in the body by a cover to ensure positive shut off
    - d. Plug shall be center guided on both ends to prevent jamming
    - e. Plug shall be normally closed, by means of a spring
    - f. Internal components shall be field replaceable without removing the valve from the line

General: Combination Body with Air Release Valve (Body Style 1500AC)

- a. Combination valve shall have double bodies and double orifices: Body Style 1500A and an air release valve
  - b. Air release valve shall automatically release small pockets of air which accumulate at the high points of a system after it is filled and under pressure
  - c. Air release valve shall have the ability to open against internal pressure because it has a small orifice and a leverage mechanism which multiplies the force of the float. This force must be greater than the internal pressure across the orifice to open the valve when a pocket of air needs to be vented.
  - d. Needle and seat shall be field replaceable
  - e. Resilient seat seals shall provide drop tight shut off to the full valve pressure rating
- C. Materials:
1. Body: Ductile Iron ASTM A536, Carbon Steel ASTM A216 or 316 Stainless Steel ASTM A743/A351
  2. Seat: 316 Stainless Steel ASTM A743/A351
  3. Resilient Seat: Acrylonitrile-Butadiene (NBR), Terpolymer of Ethylene, Propylene and A Diene (EPDM) or Fluoro Rubber (FKM)
  4. Plug: 316 Stainless Steel ASTM A743/A351
  5. Spring: 316 Stainless Steel ASTM A313
- D. Specifications for optional accessories:
1. ADJ: An adjustable vacuum relief
  2. MRC: A mushroom cap installed in the threaded outlet for discharge protection
- E. Testing:
1. Each valve shall be shop tested as a complete assembly in accordance with AWWA C512.
  2. Certified test reports shall be available upon request.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Install valves as specified in section (filled in by the engineer) and the manufacturer's instructions.
- B. (verbiage by engineer instructing how discharge piping should be installed)

### **3.01 COMMISSIONING**

- A. Field testing (verbiage by engineer)