

Section 15111

AIR RELEASE AND VACUUM RELIEF VALVES FOR WRF AND PLANT WORK

PART 1 GENERAL

1.01 SUMMARY

This Section includes the furnishing and subsequent installation of air release and vacuum relief valves for Water Receiving Facilities (WRF) and Plant Work.

1.02 MEASUREMENT AND PAYMENT

No separate payment for Work performed under this Section. Include cost of same in Contract price bid for Work of which this is a component part.

1.03 REFERENCES

This specification references the following publications in their current editions. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

- A. ASTM A126: Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
- B. ASTM A536: Standard Specification for Ductile Iron Castings
- C. ASTM B584: Standard Specification for Copper Alloy Sand Castings for General Applications
- D. NSF/ANSI 61: Drinking Water System Components - Health Effects

1.04 SUBMITTALS

Submit the following in accordance with Section 01330 – “Submittal Procedures.”

- A. Submit manufacturer's product data for proposed valves for approval.

1.05 RELATED REQUIREMENTS

- A. Section 01330 – "Submittal Procedures"
- B. Section 02514 – "Disinfection of Water Lines"
- C. Section 02515 – "Hydrostatic Testing of Pipelines"
- D. Section 09902 – "Painting and Protective Coating"

1.06 QUALITY ASSURANCE

Provide manufacturer's affidavit that air release and vacuum relief valves purchased for the Work, were manufactured and tested in the United States, and conform to requirements of this Section.

1.07 – 1.13 (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURER(S)

See "Air Release and Vacuum Release Valves Schedule" in "ATTACHMENT" for type of transmitter(s) being installed. See "ATTACHMENT" for recommended sizing and Plans showing details of valve installations.

A. Air Release Valves

1. Cla-Val Series 34
2. Or Approved Equal

B. Dual Body Combination Air Valves

1. Cla-Val Series MTP36-CAV-AC
2. Or Approved Equal

C. Anti-Shock Combination Air Valve (Primary Use - Booster Pump Discharge Lines)

1. Vent-O-Mat Series RBX
2. Or Approved Equal

D. Vacuum Relief Valves

1. Apco Series 1500
2. GA Industries Fig. No. 992
3. Or Approved Equal

E. Single Body Combination Air Valves

1. Apco Series 140
2. Cla-Val Series 36
3. Or Approved Equal

2.02 MATERIALS AND/OR EQUIPMENT

A. Description

1. Provide air release, air/vacuum relief, combination air valves, and vacuum relief valves designed to fulfill functions of air release (permit escape of air accumulated in line at high point of elevation while line is under pressure), air in and out during filling or draining, and vacuum relief. Air release and vacuum relief valves 8 inches and smaller in diameter shall be self-contained in one unit.
2. Provide inlet and outlet connections, and orifice as shown on Plans.

B. Materials

1. Air Release Valves:

- a. Body and cover: ASTM A126, Class B, cast iron
- b. Float and leverage mechanism: 316 stainless steel
- c. Orifice and seat: 316 stainless steel against Buna-N or Viton mechanically retained with hex head nut and bolt
- d. Other valve internals shall be 316 stainless steel

2. Dual Body Combination Air Valves:

Supply an assembly including an air vacuum valve, air release valve, and an arrestor check.

a. Air vacuum valve:

- (1) Body and cover: cast iron ASTM A126, Class B
- (2) Seat and Cushion: Buna-N
- (3) Exterior fasteners: Cadmium Plated Steel
- (4) Other internal parts: stainless steel 316.

b. Air release valve:

Constructed as specified in paragraph above on Air Release Valves.

c. Arrestor check:

- (1) Body: Cast Iron ASTM A126, Class B

- (2) Seat: Bronze ASTM B584, and must meet lead free requirements
 - (3) Bushing: Bronze ASTM B584, and must meet lead free requirements
 - (4) Plug: Bronze ASTM B 584, and must meet lead free requirements
 - (5) Other internal parts: stainless steel 316
 - d. Include piping and shut-off valve for connection of Air Release Valve to Air/Vacuum Valve
3. Anti-Shock Combination Air Valve:
- Single chamber design with inlet, outlet and orifice sizes as shown on Plans.
- a. 1” Threaded Valve:
 - (1) Double orifice (small and large orifice) with anti-shock orifice mechanism
 - (2) The end connection is screwed BSP/NPT male
 - (3) Maximum pressure rating of 363 psi
 - (4) Minimum pressure rating of 7.2 psi
 - (5) Operating temperature range 40°F to 180°F
 - b. 2” Threaded Valve:
 - (1) Double orifice (small and large orifice) with anti-shock orifice mechanism
 - (2) The end connection is screwed BSP/NPT male
 - (3) Maximum pressure rating of 580 psi
 - (4) Minimum pressure rating of 7.2 psi
 - (5) Operating temperature range 40°F to 180°F
 - c. 3” Flanged Valve:
 - (1) Double orifice (small and large orifice) with anti-shock orifice mechanism.

- (2) The end connection is flanged with screwed stubs for alignment
- (3) Maximum pressure rating of 232 psi
- (4) Minimum pressure rating of 7.2 psi
- (5) Operating temperature range 40°F to 180°F
- d. Valve materials:
 - (1) Body: 316 stainless steel
 - (2) Top and lower floats: high density polyethylene
 - (3) All other internal parts: 316 stainless steel
- e. Valve exterior:

Painted with shop applied primer suitable for contact with potable water, NSF/ANSI 61 approved.
- 4. Vacuum Relief Valves:
 - a. Provide air inlet vacuum relief valves with flanged inlet and outlet connections as shown on Plans.
 - b. Provide air release valves per Section B.1 above, including piping and shut-off valve in combination with inlet and outlet, and orifice as shown on Plans.
 - c. Valve shall open under pressure differential not to exceed 0.25 psi.
 - d. Materials for vacuum relief valves:
 - (1) Valve body: ASTM A126, Class B, cast iron
 - (2) Seat and plug: ASTM B584 bronze and must meet lead free requirements
 - (3) Spring: 316 stainless steel
 - (4) Float: 316 stainless steel
 - (5) Bushing: ASTM B584 bronze, and must meet lead free requirements
 - (6) Other internals: 316 stainless steel

5. Single Body Combination Air Valves:
 - a. 1” to 3” inlets with body and cover, cast iron ASTM A126, Class B, or ductile iron ASTM A536
 - b. Float: 316 stainless steel
 - c. Seat: Buna-N
 - d. Other valve internals: 316 stainless steel

2.03 – 2.04 (NOT USED)

PART 3 EXECUTION

3.01 – 3.02 (NOT USED)

3.03 ERECTION/INSTALLATION/APPLICATION AND/OR CONSTRUCTION

A. Setting Valves

1. Prior to installing valves, remove foreign matter from within valves.
2. Inspect valves in open and closed position to verify that parts are in satisfactory working condition.
3. Install valves where indicated on Plans

B. Disinfection and Testing

1. Disinfect valves and appurtenances as required by Section 02514 – "Disinfection of Water Lines" and test as required by Section 02515 – "Hydrostatic Testing of Pipelines."
2. "Anti Shock" air/vacuum valves to be flow tested in the field to show reduction of surge pressure in the valve.

C. Painting of Piping

Paint piping and valves located in manholes, stations, and above ground using approved paint. See Section 09902 – "Painting and Protective Coating" for additional details.

3.04 – 3.10 (NOT USED)

