

Section 02524

AIR RELEASE AND VACUUM RELIEF VALVES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Air release and vacuum relief valves.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Prices.

1. Payment for air release and vacuum relief valves is on unit price basis for each valve installed.
2. Payment includes manhole or vault (when required), fittings, vent piping and bollard(s) and appurtenances necessary for complete installation of valve.
3. Payment for valve assembly on aerial crossing includes fittings, anti-vandalism protection, freeze protection, vent piping and appurtenances necessary for complete installation of valve.
3. Refer to Section 01270 - Measurement and Payment for unit price procedures.

- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.03 REFERENCES

- A. ASTM A 48 - Standard Specification for Gray Iron Castings.
- B. ASTM A 126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- C. ASTM A 240 - Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels.
- D. ASTM A 276 - Standard Specification for Stainless Steel Bars and Shapes.
- E. ASTM A 313 - Standard Specification for Stainless Steel Spring Wire.

- F. ASTM B 584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

1.04 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturer's product data for proposed valves for approval.

1.05 QUALITY CONTROL

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

PART 2 PRODUCTS

2.01 DESCRIPTION

- A. Provide combination air 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) and vacuum relief.
- B. Provide inlet and outlet connections, and orifice as shown on Drawings.
- 3. Valve exterior: Painted with shop-applied primer suitable for contact with potable water. Provide Apco Model 145C or 147C, Val-Matic Series 200, or approved equal valves.

2.02 MATERIALS

- A. Air Release Valves: Apco No. 200, GA Industries Fig. 2-AR, or approved equal, with body and cover, ASTM A 48, Class 30, cast iron; float and leverage mechanism, ASTM A 240 or ASTM A 276 stainless steel; orifice and seat, stainless steel against Buna-N or Viton mechanically retained with hex head nut and bolt. Other valve internals shall be stainless steel or bronze.
- B. Air Release and Vacuum Relief Valves: Provide single-body, standard combination valves or duplex-body custom combination valves as indicated on Drawings.
 - 1. For 2 inch and 3 inch, single-body valves, provide inlet and outlet size as shown on Drawings and orifice sized for 100 psi working pressure.

- a. Valve materials: body, cover, and baffle, ASTM A 48, Class 35, or ASTM A 126, Grade B cast iron; plug or poppet, ASTM A 276 stainless steel; float, ASTM A 240 stainless steel; seat, Buna-N; other valve internals, stainless steel.
2. For 3 inch and larger duplex body valves as shown on Drawings, provide Apco Series 1700 with No. 200 air release valve, GA Industries Fig. No. AR/GH-21K/280, or approved equal.
 - a. Air and vacuum valve materials: body and cover, ASTM A 48, Class 35, cast iron; float, ASTM A 240 stainless steel; seat, Type 304, stainless steel and Buna-N; other valve internals, stainless steel or bronze.
 - b. Air release valve: Constructed as specified in paragraph above on Air Release Valves.
- C. Vacuum Relief Valves: Provide air inlet vacuum relief valves with flanged inlet and outlet connections as shown on Drawings. Provide air release valves in combination with inlet and outlet, and orifice as shown on Drawings. Valve shall open under pressure differential not to exceed 0.25 psi. Provide Apco Series 1500 with No. 200A air release valve, GA Industries Fig. No. HCARV, or approved equal.
1. Materials for vacuum relief valves: valve body, ASTM A 48, Class 35, cast iron; seat and plug, ASTM B 584 bronze, copper alloy 836; spring, ASTM A 313, Type 304, stainless steel; bushing, ASTM B 584 bronze, copper alloy 932; retaining screws, ASTM A 276, Type 304, stainless steel.
- D. Manholes: As shown on Drawings conforming to requirements of Section 02082 - Precast Concrete Manholes.

PART 3 EXECUTION

3.01 EARTHWORK

- A. Conform to applicable provisions of Section 02317 - Excavation and Backfill for Utilities.

3.02 SETTING VALVES IN MANHOLES AND VAULTS

- A. If required by City Engineer, provide services of technical representative of valve manufacturer available on site during installation of valves.
- B. Prior to installing valves, remove foreign matter from within valves. Inspect valves in open and closed position to verify that parts are in satisfactory working condition.

- C. Install valves and valve manholes and vaults where indicated on Drawings or as located by City Engineer. Set manholes and vaults plumb and as detailed. Center manholes on valves. Compact cement-stabilized sand around each manhole and vault for minimum radius of 4 feet, or to undisturbed trench face when less than 4 feet. Provide aboveground vents for manholes and vaults as indicated on Drawings.

3.03 DISINFECTION AND TESTING

- A. Assist City with disinfection of valves and appurtenances as required by Section 02514 - Disinfection of Waterlines and test as required by Section 02515 - Hydrostatic Testing of Pipelines.

3.04 PAINTING OF PIPING AND VALVES

- A. Paint piping and valves located in manholes, stations, and above ground using ACRO Paint No. 2215, or approved equal.

END OF SECTION