

Section 02524

AIR RELEASE AND VACUUM RELIEF VALVES

PART 1 GENERAL

1.01 SUMMARY

This Section includes 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 the 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.
4. 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. AWWA C512 - Air Release, Air/Vacuum, and Combination Air Valves for Water and Wastewater Service.
- B. ASTM A536 Grade 65-45-12 Standard Specification for Ductile Iron Castings.
- C. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications.
- D. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes.
- E. ASTM A313/A313M - 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 RELATED REQUIREMENTS

- A. Section 01270 – “Measurement and Payment”
- B. Section 01330 – “Submittal Procedures”
- C. Section 02082 – “Precast Concrete Manholes”
- D. Section 02317 – “Excavation and Backfill for Utilities”
- E. Section 02514 – “Disinfection of Water Lines”
- F. Section 02515 – “Hydrostatic Testing of Pipelines”
- G. Section 09902 – “Painting and Protective Coatings”

1.06 QUALITY ASSURANCE

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.

1.07 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

- A. General
 - 1. 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.
 - 2. Provide inlet and outlet connections, and orifice as shown on Plans.
 - 3. Valve exterior: Painted with shop-applied and NSF approved liquid 2 part epoxy or fusion bonded epoxy.
 - 4. Valves shall have material of casting cast into the valve body, or shall be temporarily marked with the material of the casting before shipping

B. Materials

1. Air Release Valves: Shall meet AWWA C512 requirements. Provide approved air release valves ASTM A536 Grade 65-45-12. Float and leverage mechanism ASTM A 240 type 316. Body and cover, ASTM A 240 type 316 stainless steel. Orifice and seat, stainless steel against Buna-N or Viton mechanically retained with ASTM A 240 type 316 hex head nut and bolt. Other valve internals shall be ASTM A 240 type 316 stainless steel.
2. Air Release and Vacuum Relief Valves: Shall meet AWWA C512 requirements. Provide single-body, standard combination valves or duplex-body custom combination valves as indicated on Plans.
 - a. For 2 inch and 3 inch, single-body valves, provide inlet and outlet size as shown on Plans and orifice sized for 100 psi working pressure at 5 fps.
 - 1) Valve materials: body, cover, and baffle, ASTM A536 Grade 65-45-12; plug or poppet, ASTM A 240 type 316 stainless steel; float, ASTM A 240 type 316 stainless steel; seat, Buna-N; other valve internals, ASTM A 240 type 316 stainless steel.
 - b. For 3 inch and larger duplex body valves as shown on Plans, provide approved air release valve.
 - 1) Air and vacuum valve materials: body and cover, ASTM A536 Grade 65-45-12; float, ASTM A 240 type 316 stainless steel; seat, Buna-N; other valve internals, Type ASTM 240 type 316 stainless steel.
 - 2) Air release valve: Constructed as specified in paragraph 2.02.B.1 on Air Release Valves.
3. Vacuum Relief Valves: Provide approved air inlet vacuum relief valves with flanged inlet and outlet connections as shown on Plans. Provide air release valves in combination with inlet and outlet, and orifice as shown on Plans. Valve shall open under pressure differential not to exceed 0.25 psi.
 - a. Materials for vacuum relief valves: valve body, ASTM A536 Grade 65-45-12. Seat and plug, bushing, and retaining screws Type A 276 type 304 or ASTM 240 Type 316 stainless steel.
4. Manholes: As shown on Plans conforming to requirements of Section 02082 – “Precast Concrete Manholes”.

2.03 – 2.04 NOT USED

PART 3 EXECUTION

3.01 – 3.02 NOT USED

3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION

A. Earthwork

Conform to applicable provisions of Section 02317 – “Excavation and Backfill for Utilities”.

B. Setting Valves in Manholes and Vaults

1. If required by Project Manager, provide services of technical representative of valve manufacturer available on site during installation of valves.
2. 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.
3. Install valves and valve manholes and vaults where indicated on Plans or as located by Project Manager. 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 above-ground vents for manholes and vaults as indicated on Plans.

C. Painting of Piping and Valves

Paint piping and valves located in manholes, stations, and above ground per Specification 09902 – “Painting and Protective Coatings”.

3.04 – 3.07 NOT USED

3.08 DEMONSTRATION / TESTING AND INSPECTION

A. Disinfection and Testing

Disinfect valves and appurtenances as required by Section 02514 – “Disinfection of Waterlines” and test as required by Section 02515 – “Hydrostatic Testing of Pipelines”.

3.09 – 3.10 NOT USED

END OF SECTION