

## **33 12 16.16 AIR RELEASE AND AIR AND VACUUM VALVES (WATER)**

### **1.00 GENERAL**

#### **1.01 WORK INCLUDED**

- A. Furnish labor, materials, equipment and incidentals necessary to install air release and air and vacuum valves of the sizes and types indicated. Furnish the necessary isolating valves and piping.

#### **1.02 SUBMITTALS**

- A. Submittals shall be in accordance with Section 01 33 00 "Submittal Procedures" and shall include:
  - 1. Shop Drawings.
  - 2. Certificate of Adequacy of Design documenting compliance with AWWA, ANSI, and ASTM standards.
  - 3. Certified test reports relative to performance and hydrostatic testing
  - 4. Manufacturer Warranty
  - 5. Operation and Maintenance Manuals.

#### **1.03 STANDARDS**

- A. The applicable provisions of the following standards shall apply as if written here in their entirety:
  - 1. American National Standards Institute (ANSI)/NSF:
    - a. ANSI/NSF Standard 61 "Drinking Water System Components - Health Effects"
    - b. ANSI/NSF Standard 372 "Drinking Water System Components - Lead Content"
  - 2. American Water Works Associations (AWWA):
    - a. AWWA C512 – Air-Release, Air/Vacuum and Combination Air Valves for Water and Wastewater Service
  - 3. Materials shall comply with the requirements of state/federal regulations for wastewater and reclaimed water systems as applicable.

### **2.00 PRODUCTS**

#### **2.01 MANUFACTURED PRODUCTS**

- 1. Approved Manufacturer's**
  - a. 8-inch and smaller valves:**
    - 1). Vent-O-Mat Series RBX**
    - 2). Vent-Tech Model WTR, Series C**

- b. 10-inch and 12-inch valves**
    - 1). Vent-O-Mat Series RBXc**
    - 2). Vent-Tech Model WTR, Series C**
- 2. Valves shall be the latest product of a manufacturer who has been regularly engaged in the production of equipment of the size and type specified for at least ten years.
- 3. Valves shall be designed for ease of service and maintenance (tie-rod and/or flanged housing assembly) without special tools; spares should be replaceable without special tools or skills.**
- 4. Valves shall be triple function (Combination):
  - a. Air & vacuum component to discharge air during filling of the system.
  - b. Air & vacuum component that admits air during drainage and at water column separation.
  - c. An air release component to release entrapped air in pressurized systems.
- 5. Maximum Working Pressure: designed for the maximum working pressure shown in the valve schedule, Paragraph 3.02.
- 6. Minimum working pressure: 200 psi.
- 7. Minimum sealing pressure: 3 psi, unless specified otherwise.
- 8. Working temperature range: between 40° - 176° F.
- 9. Outlet Orifices: suitably sized, using the manufacturer's sizing data, to vent or to admit air at a suitable, controlled rate.
- 10. Top and Lower Flange: Type 316L Stainless Steel
- 11. Barrel and Body: Type 316L Stainless Steel
- 12. Trim: Type 316L Stainless Steel
- 13. Floats: High density polyethylene
- 14. Float Seats and Seals: Nitrile or EPDM (NSF 61 for water application)
- 15. Nozzle Seat: EPDM (NSF 61 for water application)
- 16. All wetted internal parts shall be Type 316 Stainless Steel
- 17. End Connections:
  - a. 2-inch: Screwed NPT Male (ASME B1.20.1).
  - b. 3-inch thru 8-inch: Studded Inlet (ANSI 150#) with FL Outlet (ANSI 150#).
  - c. 10-inch and 12-inch: FL Inlet (ANSI 150#) with FL Outlet (ANSI 150#)
- 18. Flange Studs: Type 316 Stainless Steel
- 19. All valves ordered shall be supplied with the appropriate accessories.

20. Flanged valves shall be provided with kits consisting of a full-face gasket, with 150 psi# pattern gasket constructed of EPDM and type 316 stainless steel hex bolts, washers and nuts. All ring gaskets shall be dimensioned in accordance with AWWA Standard C110, latest edition.
21. Bolts: Bolts shall conform to ASTM A193 Grade B8M and be hexagonal with dimensions conforming to ANSI B 18.2.1
22. Nuts: Bolts shall conform to ASTM A194 Grade 8M and be hexagonal with dimensions conforming to ANSI B 18.2.2
23. Coatings:
  - a. Interior and exterior of the air valve shall be painted per the systems listed below. The interior shall be painted according to System No. 1 or System No. 29 as listed below and per Section 09 96 00 "High Performance Coatings."
  - b. The exterior shall be coated per System No. 4 as listed below, and per Section 09 96 00 "High Performance Coatings."

Surface Prep.	Paint Material	Min. Coats, Cover
Abrasive Blast, or Centrifugal Wheel Blast (SP 10)	Moisture Cured Zinc Rich Primer	1 coat, 3 MDFT
	Moisture Cured Urethane	1 coat, 5 MDFT
	Moisture Cured Urethane	1 coat, 5 MDFT

24. Valve Identification:
  - a. The following information, at a minimum, shall be cast in raised letters into the body or bonnet: Manufacturers' name or symbol, year cast, size, and rated working pressure. Country of origin to be clearly cast into body and cover castings.

### 3.00 EXECUTION

#### 3.01 INSTALLATION

- A. Carefully handle and install valves vertically in such a manner as to prevent damage to any part of the valves. Installation shall be in accordance with the manufacturer's instructions. Provide necessary assembly hardware and gaskets where applicable.
- B. TAGGING: Valves shall be permanently tagged with a brass tag indicating the model number, working pressure rating, and valve identifier to be provided by NTMWD.

### 3.02 SCHEDULES

- A. The required valves and certain pertinent data are given below. This list is given to facilitate description of the various valves and as an aid to plan take-off. The Contractor is responsible for verifying size, type, and number of valves required.

Air Valve Unique ID (UID)	City	Pipeline ID	Ex. Air Valve Size (inches)	Replace Air Valve Size (inches)	Replace Valve Type	Ex. Main Pipe Flange Size (inches)	Ex. Main Pipe Size (inches)	Replace CAV Max Pressure (psi)	Replace CAV Isolating Gate Valve Size (inches)
2091	Wylie	A	8	10	CAV	24	90	363	10
2187	Wylie	A	8	10	CAV	24	90	363	10
2188	Wylie	A	8	10	CAV	24	90	363	10
2190	Wylie	A	8	12	CAV	24	90	363	12
2191	Wylie	A	8	10	CAV	24	90	363	10
1133	UN-INC	ABC	Missing	2	CAV	8	12	363	8
1124	Parker	AC	8	12	CAV	24	84	363	12
1126	Lucas	AC	8	12	CAV	24	84	363	12
1127	Lucas	AC	8	12	CAV	24	84	363	12
413	Wylie	B	8	8	CAV	24	78	363	8
424	UN-INC	B	8	12	CAV	24	96	363	12
1294	St. Paul	B	8	12	CAV	24	96	363	12
1842	Allen	E	6	12	CAV	24	84	363	12
1664	Fairview	L	6	10	CAV	30	60	363	10
280	Allen	N	6	10	CAV	24	72	363	10
307	Allen	N	6	10	CAV	24	72	363	10
350	UN-INC	Q	6	12	CAV	24	72	363	12
432	Wylie	R	2	2	CAV	N/A	20	363	8
1084	UN-INC	S	2	2	CAV	8	14	363	8
1086	Princeton	S	None	2	CAV	8	14	363	8
1088	UN-INC	S	2	2	CAV	8	14	363	8
1091	UN-INC	S	2	2	CAV	8	14	363	8
1093	Lowry Crossing	S	2	2	CAV	8	14	363	8
1095	McKinney	S	2	2	CAV	8	14	363	8
1115	McKinney	S	2	2	CAV	8	14	363	8
1116	Princeton	S	2	2	CAV	8	14	363	8
1889	UN-INC	S	2	2	CAV	8	14	363	8

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1890	UN-INC	S	2	2	CAV	8	14	363	8
1069	UN-INC	T	2	2	CAV	8	24	363	8
1100	Princeton	T	2	2	CAV	8	14	363	8
1102	Princeton	T	2	2	CAV	8	14	363	8
1105	Princeton	T	2	2	CAV	8	14	363	8
1106	UN-INC	T	2	2	CAV	8	14	363	8
1108	Princeton	T	2	2	CAV	8	14	363	8
2082	McKinney	W	8	8	CAV	8	42	363	8
296	Frisco	X	8	8	CAV	24	48	363	8

Notes:

1. UN-INC indicates location is in an Unincorporated Area.

**END OF SECTION**