

STANDARD SPECIFICATIONS

SECTION 15089

COMBINATION AIR VACUUM / AIR-RELEASE VALVE ASSEMBLY

PART 1 - GENERAL

A. Description

This section includes materials and installation of combination air vacuum/air-release valves.

Valves are to be provided and installed per AWWA C 512, unless noted otherwise in this section.

B. Application

1. Combination valves shall be installed at high points on the line or as shown on the plans.
2. If the profile changes during construction from that shown on the drawings, valve assemblies shall be installed at the high points in lines as constructed.
3. The installation shall be complete as shown on MNWD standard drawing W-9.
4. Combination valve assemblies shall function to slowly release pockets of air which accumulate at high points, or changes in line gradient, exhaust large quantities of air from pipeline while being filled and admit large quantities of air into pipeline when being drained to prevent air lock or vacuum collapse of the pipe.

C. Related Work Specified Elsewhere

All related work specified elsewhere, or in other codes or standards, will be as last revised, unless a specific date of issuance is called out in opposition to later revision date(s).

Other sections of the technical specifications, not referenced below, shall also apply to the extent required for proper performance of this work.

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| 1. Concrete: | 03300 |
| 2. Painting and Coating: (item C-3.C.) | 09900 |
| 3. Hydrostatic Testing of Pressure Pipelines: | 15042 |
| 4. Copper, Brass and Bronze Pipe, Fittings and Appurtenances: | 15057 |
| 5. Manual Valves: | 15100 |

D. Approved Manufacturers

1. APCO
2. Val-Matic
3. Crispin

E. Air-Release Valve Criteria

Air release shall be sized to accommodate the release of the maximum amount of entrained air that could be released in the system, as a function of the maximum differential in temperature and pressure which could result in air entrainment, or 2% of the volume of water passing through the system; whichever is greater.

F. Vacuum Release Criteria

The vacuum release shall be sized to accommodate 100% of the CFM of air of the pipeline.

PART 2 - MATERIALS

A. Combination Air Release Valves

1. Materials of construction for combination air and vacuum release valves shall be as described below:

<u>Item</u>	<u>Material</u>	<u>Specification</u>
Body and Cover	Cast Iron	ASTM A126, Class B
Float, Lever Poppet	Stainless Steel	ANSI Type 316 (ASTM A240 or A276)
Seat	Rubber	Buna-N (Chlorine Resistant)
Drain Plug	Bronze	85,5,5,5 Alloy
Casing bolts/nuts	Stainless Steel	ANSI Type 316

2. Interior of valve shall be epoxy lined per Section 09900 item C-3.C. Internal lining for domestic water facilities shall be NSF 61 approved epoxy to a minimum thickness of 12 mils (DFT) and Holiday tested.
3. All valves 2-inch and smaller shall have threaded inlets. All valves 3-inch and larger shall have flanged inlets.
4. For valves 4-inch and smaller, both air-vacuum and air-release functions shall be contained in one valve body. On valves 6-inch and larger, separate valves for each function piped together to function as one unit is permitted. An isolation valve shall be installed between the two units.

B. Steel Vented Pipe Vertical Cover

The steel vented pipe vertical cover shall be CEBE-38A or approved equal.

C. Service Piping

Water service piping utilized in the installation of the combination air and vacuum relief valve shall be Type K copper with bronze accessories per Section 15057.

D. PVC Pipe

PVC pipe fittings, Schedule 80.

E. Meter Box

Concrete meter box with steel traffic lid shall be placed per Section 03462.

F. Stainless Steel Pipe

The pipe nipple between the isolation valve and the combination air release assembly shall be stainless steel.

PART 3 - EXECUTIONA. Location

1. Combination air-vacuum/air-release valves shall be installed at each point in the pipeline as shown on the drawings or as specified by the District representative.
2. The tap for the air valves shall be made in a level section of pipe no closer than 18 inches to a bell, coupling, joint, or fitting. No tap shall be permitted in any machined section of ACP.
3. The center of the PVC sleeve shall be, except as otherwise approved by the District representative, located as shown on MNWD standard drawing W-9 as described below:
 - a. Where concrete curb or asphalt concrete (A.C.) berm exists or is to be constructed, and the sidewalk is next to the property line; 40 inches back of the face of the curb.
 - b. Where 6-foot wide or narrower sidewalk is to be installed or exist next to the curb; 12 inches back of sidewalk edge. Where there is insufficient public right-of-way behind of the sidewalk, an easement will be required.
 - c. Where there is no curb or berm, the location shall be designated by the District.

B. Installation

1. Combination valves shall be installed in accordance with MNWD standard drawing W-9.
2. The tap and piping shall be installed per Section 15057.
3. The concrete pad and support shall be constructed per Section 03300. Riser piping shall extend through concrete slab within a 4-inch diameter PVC sleeve.
4. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.

5. The combination valve and the steel vented pipe cover shall be painted in accordance with Section 09900. The final coat of paint shall be applied immediately prior to the final inspection.
6. A bronze ball valve with handle shall be installed on the copper service line above the concrete slab.
7. Stainless steel nipple shall be installed between the shutoff valve and the air release valve.

C. Valve Pressure Testing

1. Test valves at the same time that the connecting pipelines are pressure tested. See Section 15042 for pressure testing requirements.
2. Protect or isolate any parts whose pressure rating is less than the test pressure.

END OF SECTION