

## Materials Specification – 11 for ONE-INCH THROUGH 4-INCH COMBINATION AIR- RELEASE AND VACUUM VALVES

**1. VALVE DESCRIPTION:**

Combination Air Release and Vacuum Valves shall be of the single body, double orifice type. The large orifice shall allow air to enter during the drainage of the pipeline and escape during pipeline filling. The small orifice shall release small pockets of air after the pipeline is filled and under pressure. Except as modified or supplemented herein, air valves supplied under this Specification shall be designed and manufactured in strict compliance with AWWA C512. The valves shall be installed in a vertical position in an underground vault.

**2. VALVE CONSTRUCTION:**

**A. Standard Iron Body:**

The valve body and cover shall be cast iron per ASTM A 48, Class 35 or ASTM A 126, Grade B; or ductile iron per ASTM A 536, Grade 65-45-12. Each valve shall be supplied with stainless steel trim; this includes the float, float arm, guide bushings, plug and connecting hardware.

**B. Cylindrical Body:**

The valve body shall be Type 304 stainless steel. The ends shall be epoxy coated steel or Type 304 stainless steel that is secured with Type 304 stainless steel rods. The floats shall be solid cylindrical high density polyethylene. The baffle plate, nozzle seat retaining plate, small orifice nozzle and connecting hardware shall be stainless steel.

Valve seats shall be natural or synthetic rubber, Buna-N or EPDM.

Three-inch and 4-inch valves shall be furnished with flanged inlets that conform in dimension and drilling to ANSI B16.1, Class 125. Each flange face shall be machined to a flat surface with a serrated finish in accordance with AWWA C207. One-inch and 2-inch valves shall be furnished with NPT inlets. Valves shall be provided with ½-inch NPT pipe plugs in the top cover and in the bottom of the body.

The operating pressure shall be 150 psi.

**3. SIZE OF ORIFICES:**

All valves shall be furnished with orifice sizes as tabulated:

Valve Size	Inlet	Outlet	Small Orifice	
			Standard Body	Cylindrical Body
1"	1"	1"	5/64"	.047"
2"	2"	2"	3/32"	.047"
3"	3"	3"	3/32"	.059"
4"	4"	4"	3/32"	.059"

**4. TESTING:**

Each assembled valve shall be tested in accordance with AWWA C512. The manufacturer shall furnish one certified copy of the test reports to Denver Water.

**5. COATINGS:**

Interior and exterior ferrous surfaces of the valve, except machined or bearings surfaces and corrosion resistant components, shall be prepared for coating per SSPC-SP-10. These surfaces shall then be coated with a two-part thermosetting polyamide epoxy in two or more uniform coats, or with fusion bonded epoxy, to a minimum dry film thickness of 10 mils. Epoxy coating shall conform to AWWA C550 and shall be Amerlock 400, Tnemec Series 140F Pota-Pox Plus or Corvel ECA-1626. Flange faces shall be shop coated with a rust preventative compound.

**6. CERTIFICATION:**

The manufacturer shall furnish a sworn statement that the inspection and all of the specified tests have been completed and that the results comply with the requirements of these Standards. A copy of the Certification, including compliance with ANSI/NSF 61, shall be sent to Denver Water.

**7. ACCEPTABLE MANUFACTURERS:**

Standard Body  
APCO, Models 143C, 145C, 147C and 149C  
Val-Matic, Series #200  
GA Industries, Figure 945  
Cylindrical Body  
Vent-O-Mat, Series RBX

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