

29-01

SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TEXAS
SPECIFICATIONS FOR AIR RELEASE, VACUUM & COMBINATION AIR
VALVES FOR WATER SERVICE
REVISED December 2005

1. **SCOPE**

This specification covers automatic valves installed on water mains to vent accumulated air under system pressure, and to provide air exhaust during initial fill or to prevent a vacuum during draining or water column separation of the system.

2. **GENERAL REQUIREMENTS**

- a. Valves furnished under this specification shall conform to ANSI/NSF Standard 60 for direct additives and ANSI/NSF Standard 61 for indirect additives. Cast Iron Valve Body and cover shall be in accordance with ASTM A48-35 or ASTM A126 class B. Non-Metallic Valve Body shall be fabricated from fiberglass reinforced nylon. Inlet sizes through 2 inches shall be screwed (NPT). Pipe sizes 3" and above shall have flanged inlets (125# ASNSI B 16.1). A protective hood or cowl shall be installed on the outlet of flange-bodied valves.
- b. Metallic Internal seat trim float arm and pivot pin shall be stainless steel type 303, 304 or 316. Metallic Floats shall be stainless steel ASTM A 240. Other stainless steel metal internal parts shall be stainless steel ASTM A240 or ASTM A276.
- c. Non-metallic floats shall be foamed polyethylene with stainless steel type 316 fasteners.
- d. Valves requiring Internal seats or orifice buttons shall be Buna-N rubber compounded for water service. For valves requiring cover gaskets, the cover gasket shall be composition type, equal to Armstrong CS-231, Garlock 3000, or Lexide NK-511. If an O-Ring is used to seal the cover, it shall be on NSF 61 certified rubber. Cover bolts shall be alloy steel. Rolling seals shall be furnished for non-metallic valves 2" and below.
- e. Valve body shall have a test pressure rating of 300 psi and working pressure rating of 150 psi.

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3. **GENERAL OPERATION REQUIREMENTS**

- a. The air release valve shall be designed to vent accumulated air automatically. The outlet orifice shall be properly sized to facilitate valve operation at pressures up to 150 psi. The air release valve shall be simple-lever, compound-lever, ball and orifice or rolling seal depending upon volume requirements and the design of the valve.
- b. The air and vacuum valve shall be designed with the inlet and outlet of equal cross-sectional area where applicable. The valve shall be capable or automatically allowing large quantities of air to be exhausted during the filling cycle an also capable of automatically allowing air to re-enter the system to prevent a negative pressure at water column separation or during the draining cycle. The float shall be guided to minimize premature closure by air and to provide proper alignment for normal closure by floating on the water surface.
- c. Combination air and vacuum relief valves shall provide for both automatic air release under system pressure and to allow air movement during filling or draining operations or water column separation. The combination valve may be housed in a single casting. The housing shall be designed to incorporate conventional or kinetic flow principles to properly vent the air without premature closure. Flanged sized (4 inch and larger) may be furnished in a dual housing. When dual casings are used a bronze manual isolation valve shall be installed if indicated by the manufacturer. This will allow the air release valve to be serviced when the system is under pressure. Field service of the valve may also be performed by closing the isolation valve between the air valve and the pipe connection.

4. **Tests**

The San Antonio Water System may, at no cost to the manufacturer, subject random valves to testing by an independent laboratory for compliance with these standards. Any visible defect or failures to meet the quality standards herein will be grounds for rejecting the entire order.

5. **Quality Assurance**

The manufacturers shall provide certification that products furnished under this specification are manufactured in an ISO 9001 certified facility or documentation from an accredited facility that ISO 9001 certification is in process.

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6. The following qualified products list identifies specific manufactured items by catalog number that are approved.

Approved Manufacturers and Models:

A. Air Release Valves (Inlet x Orifice)

<u>Manufacturer</u>	<u>1"NPT x 3/16"</u>	<u>2" NPT x 3/16"</u>
Apco Valve Company	200A	200A
G.A. Industries, Inc. (Empire)	920	920
Multiplex Mfg. Co. (Crispin)	PI-10	PL-10A
Val-Matic Mfg. Co.	38	38
PowerSeal Corporation	5401-D	5401-E
ARI Flow control	S-050 1T	D-040 2T

B. Air & Vacuum Valves (Inlet x Orifice)

<u>Manufacturer</u>	<u>2" NPT x 3/16"</u>	<u>4" flg. with cowl</u>
Apco Valve Company	144	152
G.A. Industries, Inc. (Empire)	930	930-C
Multiplex Mfg. Co. (Crispin)	AL20	AL41
Val-Matic Mfg. Co.	102	104
PowerSeal Corporation	5402-B	5402-D
ARI Flow Control	D-040 2T	K060 C-HF

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Approved Manufacturers and Models:

C. Combination Air Valves (Inlet x Orifice)

<u>Manufacturer</u>	<u>1"NPT x 5/64"</u>	<u>2" NPT x 3/32"</u>	<u>4"flg. x 3/32 w/ cowl</u>
Apco Valve Company	143C	145C	149C
G.A. Industries, Inc. (Empire)	945 (1" NPT)	945	960C
Multiplex Mfg. Co. (Crispin)	U10	UL20 (1/4")	UL41 (1/4")
Val-Matic Mfg. Co.	201C	202C	204C
PowerSeal Corporation	5403-A	5403-B	5403-D
ARI Flow Control	D-040 2T	D-040 D-060 C-HF	D-060 C-HF

Previous Revised
 January 1991
 August 1992