

WASTEWATER COMBINATION AIR VALVE

Val-Matic Specification

1 Scope

1.1 This specification is intended to cover the design, manufacture, and testing of 1 in. (25 mm) through 8 in. (200 mm) Wastewater Combination Air Valves suitable for pressures up to 150 psig (1000 kPa).

1.2 Wastewater Combination Air Valves shall be automatic float operated valves designed to exhaust large quantities of air during the filling of a piping system and close upon liquid entry. The valve shall open during draining or if a negative pressure occurs. The valve shall also release accumulated air from a piping system while the system is in operation and under pressure. The valve shall perform the functions of both Wastewater Air Release and Wastewater Air/Vacuum Valves and furnished as a single body or dual body type as indicated on the plans.

2 Standards, Approvals and Verification

2.1 Valves shall be manufactured and tested in accordance with American Water Works Association (AWWA) Standard C512.

2.2 Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

3 Connections

3.1 Single body valves sizes 4 in. (100 mm) and smaller shall have full size NPT inlets and outlets equal to the nominal valve size with a 2 in. (50 mm) inlet on 1 in. (25 mm) valves. The body inlet connections shall be hexagonal for a wrench connection. The body shall have 2" NPT cleanout and 1" NPT drain connection on the side of the casting.

3.2 Dual body valves sizes 3 in. (75 mm) and smaller shall have full size NPT inlets and outlets equal to the nominal valve size with a 2 in. (50 mm) inlet on 1 in. (25 mm) valves. The body inlet connection shall be hexagonal for a wrench connection. Valve sizes 4 in. (100 mm) through 6 in. (150mm) shall have bolted flanged inlets and NPT outlets. 8 in. (200 mm) valves shall have flanged inlets and outlets. Flanges shall be in accordance with ANSI B16.1 for Class 125 iron flanges.

3.3 The valve shall have three additional NPT connections for the addition of backwash accessories.

4 Design

4.1 Both single and dual body valves shall provide an extended body with a through flow area equal to the nominal size. Floats shall be unconditionally guaranteed against failure including pressure surges. A resilient bumper shall be provided on 4 in. (100 mm) and larger sizes to cushion the float during sudden opening conditions. The seat shall provide drop tight shut off to the full valve pressure rating.

4.2 Dual body valves shall consist of a Wastewater Air Release Valve piped to a Wastewater Air/Vacuum Valve with a full-ported brass ball valve.

4.2.1 The Wastewater Air Release Valve shall have an extended leverage mechanism with sufficient mechanical advantage so that the valve will open under full operating pressure. An adjustable threaded resilient orifice button shall be used to seal the precision discharge orifice in the cover.

4.2.2 The Wastewater Air/Vacuum Valve sizes 4 in. (100 mm) and larger shall have a cover fitted to the valve body by means of a machined register to maintain concentricity between the top and bottom guide bushings at all times. The tandem float assembly shall have a hexagonal guide shaft supported in the body by circular bushings to prevent binding from debris. The upper float shall be protected against direct water impact by an internal baffle. The seat shall be a minimum of .5 in. (12 mm) thick on 2 in. (50 mm) and larger valves and secured in such a manner as to prevent distortion.

4.3 Single body valves shall have a full port orifice, a double guided plug, and an adjustable threaded orifice button. The 1 in. (25 mm) body shall be globe style to increase float clearance and reduce clogging. The plug shall be protected against direct water impact by an internal baffle and an extended float stem. The plug shall have a precision orifice drilled through the center stem. The float shall include a sensitivity skirt to minimize spillage.

5 Materials

5.1 The valve body and cover shall be constructed of ASTM A126 Class B cast iron.

5.2 The float, plug, guide shafts, and bushings shall be constructed of Type 316 stainless steel. Non-metallic guides and bushings are not acceptable. Resilient seats shall be Buna-N.

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6 Options

- 6.1 Backwash accessories shall be furnished when specified and shall consist of an inlet shut-off valve, a blow-off valve, a clean water inlet valve, rubber supply hose, and quick disconnect couplings. Accessory valves shall be quarter-turn, full ported bronze ball valves.
- 6.2 An optional Regulated Exhaust Device shall be provided when specified to reduce pressure surges due to column separation or rapid changes in velocity and pressure in the pipeline.
 - 6.2.1 The Regulated Exhaust Device shall be mounted on the outlet of the Wastewater Combination Air Valve, allow free air flow in and out of the valve, close upon rapid air exhaust, and control the air exhaust rate to reduce pressure surges.
 - 6.2.2 The device shall have a threaded or flanged globe-style body with a center guided disc and seat assembly. The disc shall have threaded holes to provide adjustment of the air exhaust rate through the valve. The holes shall provide for a flow area of 5% of the nominal valve size.
 - 6.2.3 The material of the body shall be consistent with the Wastewater Combination Air Valve. The seat and disc shall be ASTM A351 Grade CF8M stainless steel.
- 6.3 Optional body materials include ASTM A536 Grade 65-45-12 ductile iron, ASTM A351 Grade CF8M stainless steel, and ASTM B584 Alloy 836 cast bronze.
- 6.4 Valve interiors and exteriors shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWA C550 when specified.
- 6.5 Low Durometer seat and orifice button shall be furnished for low pressure applications.

7 Manufacture

- 7.1 The manufacturer shall demonstrate a minimum of (5) years experience in the manufacture of wastewater air valves. The valves shall be manufactured and tested in accordance with American Water Works Association Standard (AWWA) C512. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.
- 7.2 The exterior of the valve shall be coated with a universal alkyd primer.
- 7.3 Wastewater Combination Air Valves shall be Series 800 or 48A/300 as manufactured by Val-Matic Valve and Manufacturing Corporation, Elmhurst, IL, USA or approved equal.

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