SECTION 400578.13 - AIR/VACUUM VALVES FOR WATER SERVICE

Note that this section has only been edited for NYSOGS standardization and has not been technically edited. The designer shall make all technical edits specific to the project for this section.

This Section specifies air release/vacuum breaker valves for use in piping systems in water treatment facilities.

Air/vacuum valves (sometimes referred to as large orifice valves) permit large volumes of air to be released from or admitted into a pipeline as it is being filled or drained.

Process piping systems and appurtenances are specified in Divisions 40, 43, and 46.

For water and wastewater treatment projects, valving is typically defined by providing a valve schedule, which describes valve type and characteristics required for that system. A sample valve schedule is provided in Section 400551.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes: Air release/vacuum breaker valves for water treatment facilities.
				2. Related Requirements:

List other Sections directly related to or affecting Work of this Section. Include Sections specifying information expected to be found in this Section as well as Sections required to describe complete system or assembly requirements.

Section 400551 - Common Requirements for Process Valves: Typical product and installation requirements for valves specified in this Section.

Section 404213 - Process Piping Insulation: Insulation applied to process piping systems.

* + - 1. REFERENCE STANDARDS

List reference standards included within text of this Section, with designations, numbers, and complete document titles.

* + - * 1. American Water Works Association:

AWWA C512 - Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.

* + - * 1. ASME International:

ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard.

* + - * 1. ASTM International:

ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

ASTM A216 - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service.

ASTM A536 - Standard Specification for Ductile Iron Castings.

ASTM B148 - Standard Specification for Aluminum-Bronze Sand Castings.

* + - * 1. International Organization for Standardization:

ISO 9001 - Quality Management Systems.

* + - * 1. NSF International:

NSF 61 - Drinking Water System Components - Health Effects.

NSF 372 - Drinking Water System Components - Lead Content.

* + - 1. COORDINATION
				1. Coordinate Work of this Section with installation of process piping.
			2. PREINSTALLATION MEETINGS
				1. Convene minimum [**one week**] <**\_\_\_\_\_\_\_\_**> [**weeks**] prior to commencing Work of this Section.
			3. SUBMITTALS

Only request submittals needed to verify compliance with Project requirements.

* + - * 1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the

General Conditions.

* + - * 1. Manufacturer’s installation instructions shall be provided along with product data.
				2. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				3. Product Data: Submit manufacturer catalog information.
				4. Shop Drawings: Indicate materials, dimensions, weights, and end connections on assembly drawings.
				5. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

Include separate Paragraphs for additional certifications.

* + - * 1. Manufacturer Instructions: Submit special procedures and setting dimensions.
				2. Source Quality-Control Submittals: Indicate results of [**shop**] [**factory**] tests and inspections.
				3. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
				4. Manufacturer Reports: Certify that equipment has been installed according to manufacturer instructions.
				5. Qualifications Statements:

Coordinate following Subparagraphs with requirements specified in QUALIFICATIONS Article.

Submit qualifications for manufacturer and installer.

Submit manufacturer's approval of installer.

* + - 1. CLOSEOUT SUBMITTALS
				1. Project Record Documents: Record actual locations of air release/vacuum breaker valves.
			2. QUALITY ASSURANCE

Include this Article to specify compliance with overall reference standards affecting products and installation included in this Section.

* + - * 1. Materials in Contact with Potable Water: Certified to NSF 61 and NSF 372.
				2. Manufacturer Quality Management System: Certified to ISO 9001.

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Perform Work according to <**\_\_\_\_\_\_\_\_**> standards.

Include following Paragraph only when cost of acquiring specified standards is justified.

* + - * 1. Maintain <**\_\_\_\_\_\_\_\_**> [**copy**] [**copies**] of each standard affecting Work of this Section on Site.
			1. QUALIFICATIONS

Coordinate following Paragraphs with requirements specified in SUBMITTALS Article.

* + - * 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.
				2. Installer: Company specializing in performing Work of this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience [**and approved by manufacturer**].
			1. DELIVERY, STORAGE, AND HANDLING
				1. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
				2. Store materials according to manufacturer instructions.
				3. Protection:

Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

Furnish temporary end caps and closures on piping and fittings and maintain in place until installation.

Provide additional protection according to manufacturer instructions.

* + - 1. EXISTING CONDITIONS
				1. Field Measurements:

Verify field measurements prior to fabrication.

Indicate field measurements on Shop Drawings.

* + - 1. WARRANTY

This Article extends warranty period beyond one year. Extended warranties may increase construction costs and State enforcement responsibilities. Specify warranties with caution.

* + - * 1. Furnish [**five**] <**\_\_\_\_\_\_\_\_**>-year manufacturer's warranty for air release/vacuum breaker valves.
1. PRODUCTS
	* + 1. AIR/VACUUM VALVES FOR WATER SERVICE
				1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=12731&mf=04&src=wd):

designer to provide two manufacturers and approved equivalent for all listed products.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above.

* + - * 1. Description:

Type: Fully automatic, float operated.

Comply with AWWA C512.

Size: As indicated [**on Drawings**] [**in valve schedule**].

Suitable for potable or raw water service.

Pressure Rating: [**740**] <**\_\_\_\_\_\_\_\_**> psig

Maximum Operating Temperature: Water to [**180**] <**\_\_\_\_\_\_\_\_**> deg. F

* + - * 1. Materials:

Body and Cover: [**Cast iron, ASTM A126**] [**Ductile iron, ASTM A536**] [**Cast steel, ASTM A216**] [**Aluminum-bronze, ASTM B148**] [**Type <\_\_\_\_\_\_\_\_> stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Float, Seat, and Trim: [**Type**] <**\_\_\_\_\_\_\_\_**> [**stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Seats: [**Buna-N**] [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Seals: [**Buna-N**] [**Viton**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. End Connections:

Size 3 Inches: Threaded, NPT.

Size 4 Inches and Larger: Flanged, ASME [**B16.1**] [**B16.5**].

Accessories: Furnish [**two**] <**\_\_\_\_\_\_\_\_**> additional NPT connections.

* + - * 1. Accessories:

Backwash accessories, including inlet shutoff valve, blowoff valve, rubber supply hose, and quick-disconnect couplings.

[**Epoxy lining.**]

[**Throttling device on outlet.**]

* + - 1. INSULATION
				1. As specified in Section 404213 - Process Piping Insulation.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

* + - * 1. As indicated [**on Drawings**] [**on Shop Drawings**] [**in pipe schedule**].
			1. SOURCE QUALITY CONTROL
				1. Provide shop inspection and testing of completed assembly.

Include one or both of following Paragraphs to require Director's inspection or witnessing of test at factory.

* + - * 1. Director’s Inspection:

Make completed air/vacuum valve assembly available for inspection at manufacturer's factory prior to packaging for shipment.

Notify Director’s Representative at least [**seven**] <**\_\_\_\_\_\_\_\_**> days before inspection is allowed.

* + - * 1. Director’s Witnessing:

Allow witnessing of factory inspections and test at manufacturer's test facility.

Notify Director’s Representative at least [**seven**] <**\_\_\_\_\_\_\_\_**> days before inspections and tests are scheduled.

Include following Paragraph if reliance on fabricator's approved quality-control program is sufficient for Project requirements.

* + - * 1. Certificate of Compliance:

If fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.

Specified shop tests are not required for Work performed by approved fabricator.

1. EXECUTION
	* + 1. EXAMINATION
				1. Verify that field dimensions are as indicated on [**Shop**] Drawings.
				2. Inspect existing flanges for nonstandard bolt hole configurations or design and verify that new pipe and flanges mate properly.
			2. PREPARATION
				1. Thoroughly clean end connections before installation.
				2. Close pipe and equipment openings with caps or plugs during installation.
				3. Surface Preparation: Clean surfaces to remove foreign substances.
			3. INSTALLATION
				1. According to manufacturer instructions.
				2. Provide access for operation, removal, and maintenance, and to avoid discharge to occupied areas or other equipment.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Installation Standards: Install Work according to <**\_\_\_\_\_\_\_\_**> standards.
			1. FIELD QUALITY CONTROL
				1. Inspect for interferences and proper supports.
				2. Testing:

As specified in Section 400551 - Common Requirements for Process Valves.

Demonstrate operation without undue noise or vibration.

* + - * 1. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than <**\_\_\_\_\_\_\_\_**> [**days**] [**hours**] on Site for installation, inspection, startup, field testing, and instructing Director’s Representative in operation and maintenance of equipment.
				2. Equipment Acceptance:

Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

Make final adjustments to equipment under direction of manufacturer's representative.

Repair damaged coatings with material equal to original coating.

* + - * 1. Furnish installation certificate from equipment manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.
			1. CLEANING
				1. Keep interior of air release valves clean as installation progresses.
			2. DEMONSTRATION
				1. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Director’s Representative.

END OF SECTION 400578.13