SECTION 400567.36 - PRESSURE-REGULATING VALVES

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.

PART 1 - GENERAL

* + - 1. SUMMARY
         1. Section Includes:

Pressure-reducing valves.

Pressure-sustaining valves.

* + - 1. REFERENCE STANDARDS

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

* + - * 1. ASME International:

ASME B1.20.1 - Pipe Threads, General Purpose (Inch).

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

ASME B16.24 - Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500, and 2500.

ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings, Classes 150 and 300.

* + - * 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 B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.

* + - * 1. American Water Works Association:

AWWA C550 - Protective Interior Coatings for Valves and Hydrants.

* + - * 1. NSF International:

NSF 61 - Drinking Water System Components - Health Effects.

NSF 372 - Drinking Water System Components - Lead Content.

* + - 1. COORDINATION
         1. Coordinate with installation of process piping.
      2. 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. 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. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
        3. Qualifications Statement:

Coordinate following Subparagraph with requirements specified in QUALIFICATIONS Article.

Submit qualifications for manufacturer.

* + - 1. CLOSEOUT SUBMITTALS
         1. Project Record Documents: Record actual locations of pressure-regulating 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 Standards 61 and 372.

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 Paragraph with requirements specified in SUBMITTALS Article.

* + - * 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.
      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 Owner enforcement responsibilities. Specify warranties with caution.

* + - * 1. Furnish [**five**] <**\_\_\_\_\_\_\_\_**>-year manufacturer's warranty for atmospheric vacuum breaker backflow preventers.
        2. Cavitation Damage: Warrant that valves will not suffer cavitation damage within a [**five**] <**\_\_\_\_\_\_\_\_**>-year period from date of installation when exposed to specified operating conditions.

1. PRODUCTS
   * + 1. PRESSURE-REDUCING VALVES
          1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=12691&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:

Normally [**open**] [**closed**] valves to maintain constant downstream pressure regardless of changing flow rate or varying inlet pressure[**, and to prevent backflow**].

Type: Pilot operated.

Furnish V-ports for pressure control at low flows.

Indicator Rod: Attached to piston for visual position indication.

* + - * 1. Pilot Valves:

Type: [**Globe**] [**or**] [**Angle**].

Body: [**Cast iron**] [**Ductile iron**] [**Steel**] [**Stainless steel**] [**Aluminum**] [**Bronze**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. End Connections:

Flanged, ASME [**B16.5**] [**B16.24**] [**B16.42**], Class [**150**] [**300**].

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

Threaded, ASME B1.20.1

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

Grooved, Class 300.

* + - * 1. Performance and Design Criteria:

Flow Rate:

Maximum: <**\_\_\_\_\_\_\_\_**> gpm

Minimum: <**\_\_\_\_\_\_\_\_**> gpm

Upstream Pressure:

Maximum: <**\_\_\_\_\_\_\_\_**> psig

Minimum: <**\_\_\_\_\_\_\_\_**> psig

Set Point Downstream Pressure:

[**\_\_\_\_\_\_\_\_ psig**] [**As indicated on Drawings**].

Range: Field adjustable from near zero to 110 percent.

* + - * 1. Materials:

Body: [**Cast iron, ASTM A126, Class B**] [**Ductile iron, ASTM A536**] [**Cast steel, ASTM A216**] [**Bronze, ASTM B62**].

Disc and Diaphragm:

[**Buna-N rubber**] <**\_\_\_\_\_\_\_\_**>.

Disc Retainer and Diaphragm Washer: [**Cast iron**] [**Cast steel**] [**Bronze**] <**\_\_\_\_\_\_\_\_**>.

Trim: [**Bronze**] [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Stem, Nut, and Spring: [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Packing: [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

Control Piping: [**Brass**] [**Bronze**] with stainless-steel wetted trim.

* + - * 1. Interior Coating: Coat cast-iron and ductile-iron surfaces with epoxy coating according to AWWA C550.
        2. Accessories:

[**Externally mounted strainer with cocks.**]

[**Isolation valve.**]

[**Check valves.**]

[**Low-flow bypass.**]

* + - 1. PRESSURE-SUSTAINING VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=12692&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:

Valve opens on increasing upstream pressure and closes on decrease in upstream pressure to maintain minimum set-point upstream pressure regardless of changing flow rate or varying downstream pressure.

Type: Pilot operated.

Furnish V-ports for pressure control at low flows.

Indicator Rod: Attached to piston for visual position indication.

* + - * 1. Pilot Valves:

Type: [**Globe**] [**or**] [**Angle**].

Body: [**Cast iron**] [**Ductile iron**] [**Steel**] [**Stainless steel**] [**Aluminum**] [**Bronze**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. End Connections:

Flanged, ASME [**B16.5**] [**B16.24**] [**B16.42**], Class [**150**] [**300**].

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

Threaded, ASME B1.20.1

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

Grooved, Class 300.

* + - * 1. Performance and Design Criteria:

Flow Rate:

Maximum: <**\_\_\_\_\_\_\_\_**> gpm

Minimum: <**\_\_\_\_\_\_\_\_**> gpm

Downstream Pressure:

Maximum: <**\_\_\_\_\_\_\_\_**> psig

Minimum: <**\_\_\_\_\_\_\_\_**> psig

Set-Point Upstream Pressure:

[**\_\_\_\_\_\_\_\_ psig**] [**As indicated on Drawings**].

Range: Field adjustable from near zero to 110 percent.

* + - * 1. Materials:

Body: [**Cast iron, ASTM A126, Class B**] [**Ductile iron, ASTM A536**] [**Cast steel, ASTM A216**] [**Bronze, ASTM B62**].

Disc and Diaphragm:

[**Buna-N rubber**] <**\_\_\_\_\_\_\_\_**>.

Disc Retainer and Diaphragm Washer: [**Cast iron**] [**Cast steel**] [**Bronze**] <**\_\_\_\_\_\_\_\_**>.

Trim: [**Bronze**] [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Stem, Nut, and Spring: [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Packing: [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

Control Piping: [**Brass**] [**Bronze**] with stainless-steel wetted trim.

* + - * 1. Interior Coating: Coat cast-iron and ductile-iron surfaces with epoxy coating according to AWWA C550.
        2. Accessories:

[**Externally mounted strainer with cocks.**]

[**Isolation valve.**]

[**Check valves.**]

[**Low-flow bypass.**]

[**Drain to atmosphere.**]

* + - 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 pressure-regulating valve 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 manufacturer's approved quality-control program is sufficient for Project requirements.

* + - * 1. Certificate of Compliance:

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

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

1. EXECUTION
   * + 1. EXAMINATION
          1. Verify that field dimensions are as indicated on [**Shop**] Drawings.
          2. Inspect existing flanges for nonstandard bolthole 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. Cleaning: Clean surfaces to remove foreign substances.
       3. INSTALLATION
          1. According to manufacturer instructions and local code requirements.
          2. Install with nameplate and test cock accessible.

\*\*\*\*\*\* [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. After installation, inspect for interferences and proper supports.
         2. Testing:

Hydrostatic: Test each assembled valve, except control piping, hydrostatically at 1-1/2 times rated working pressure for minimum five minutes.

Leakage:

Test each valve for leakage at rated working pressure against closed valve.

Test Duration: Minimum 15 minutes.

Permitted Leakage: Zero.

Perform functional test on each valve to verify specified performance.

* + - * 1. Repair damaged coatings with material equal to original coating.
      1. CLEANING
         1. Keep interior of valves clean as installation progresses.
      2. DEMONSTRATION
         1. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Director’s Representative personnel.
      3. ATTACHMENTS

When relying on separate schedules, tables, illustrations, or forms to specify product requirements, include list of each attachment. Include identical list of attachments in Project Manual table of contents.

Insert attachments following END OF SECTION. Consider following examples when developing Project schedule.

* + - * 1. Pressure-Reducing Valve Schedule:

PRV-115:

Application: Raw water.

Flow Rate:

Minimum: <**\_\_\_\_\_\_\_\_**> gpm

Maximum: <**\_\_\_\_\_\_\_\_**> gpm

Pressure:

Downstream: <**\_\_\_\_\_\_\_\_**> psig

Upstream Set Point: <**\_\_\_\_\_\_\_\_**> psig

PRV-122:

Application: Finished water.

Flow Rate:

Minimum: <**\_\_\_\_\_\_\_\_**> gpm

Maximum: <**\_\_\_\_\_\_\_\_**> gpm

Pressure:

Upstream: <**\_\_\_\_\_\_\_\_**> psig

Downstream Set Point: <**\_\_\_\_\_\_\_\_**> psig

* + - * 1. Pressure-Sustaining Valve Schedule:

PSV-135:

Application: Raw water.

Flow Rate:

Minimum: <**\_\_\_\_\_\_\_\_**> gpm

Maximum: <**\_\_\_\_\_\_\_\_**> gpm

Pressure:

Downstream: <**\_\_\_\_\_\_\_\_**> psig

Upstream Set Point: <**\_\_\_\_\_\_\_\_**> psig

PSV-142:

Application: Raw water.

Flow Rate:

Minimum: <**\_\_\_\_\_\_\_\_**> gpm

Maximum: <**\_\_\_\_\_\_\_\_**> gpm

Pressure:

Downstream: <**\_\_\_\_\_\_\_\_**> psig

Upstream Set Point: <**\_\_\_\_\_\_\_\_**> psig

END OF SECTION 400567.36