SECTION 400565.23 - SWING CHECK 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.

This Section specifies swing check valves 3 inches and larger for use in water- and wastewater-treatment plants. Refer to Section 220523 for swing check valves smaller than 3 inches.

Check valves are designed to prevent flow reversal in a piping system and are activated by the pressure of the flowing fluid. Flow reversal will close the valve using the weight of the check mechanism, back pressure, a spring, or a combination of these factors.

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

When selecting valve materials for corrosive fluids, consult with valve manufacturer and select materials based on specific application.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes: Swing check valves 3 inches and larger.
          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 220523 - General-Duty Valves for Plumbing Piping: Miscellaneous plumbing valves as required by Project.

Section 400551 - Common Requirements for Process Valves: Basic materials and methods related to valves commonly used for process 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 C508 - Swing-Check Valves for Waterworks Service, 2-In. Through 24-In. NPS.

* + - * 1. ASME International:

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

ASME B16.11 - Forged Fittings, Socket-Welding and Threaded.

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 A536 - Standard Specification for Ductile Iron Castings.

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

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

* + - * 1. NSF International:

NSF 61 - Drinking Water System Components - Health Effects.

NSF 372 - Drinking Water System Components - Lead Content.

* + - * 1. SSPC - The Society for Protective Coatings:

SSPC SP 6 - Commercial Blast Cleaning.

* + - 1. COORDINATION
         1. Coordinate Work of this Section with piping and equipment connections as specified in other Sections [**and as indicated on Drawings**].
      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.
        2. Manufacturer’s installation instructions shall be provided along with product data.
        3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
        4. Product Data: Submit manufacturer's catalog information, indicating materials of construction and compliance with indicated standards.
        5. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

Include separate Paragraphs for additional certifications.

* + - * 1. Source Quality-Control Submittals: Indicate results of [**shop**] [**factory**] tests and inspections.
        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 piping, valves and other appurtenances, connections, and [**invert**] [**centerline**] elevations.
      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 according to NSF 61 and NSF 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.

Protect valves and appurtenances by storing off ground.

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 swing check valves.

1. PRODUCTS
   * + 1. SWING CHECK VALVES
          1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=12528&mf=04&src=wd):

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

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

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

Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.

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

* + - * 1. Description:

Type: Swing, resilient seated, with outside lever and adjustable [**weight**] [**spring**].

Size: 3 inches and larger.

Comply with AWWA C508.

[**Minimum**] Working Pressure: [**<\_\_\_\_\_\_\_\_> psig at <\_\_\_\_\_\_\_\_> deg. F**] [**As indicated in valve schedule**].

Maximum Fluid Temperature: [**<\_\_\_\_\_\_\_\_> deg. F**] [**As indicated in valve schedule**].

Flow Area: Full open[**, equal to connecting nominal pipe diameter**].

Check Valves 6 Inches and Larger: Furnish with adjustable air cushion chambers.

Mounting: Horizontal or vertical.

End Connections: [**Flanged, ASME B16.1**] [**Flanged, ASME B16.42**] [**Grooved**] [**Mechanical joint**] [**Socket welded, ASME B16.11**] [**Threaded, ASME B16.11**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. Materials:

Body and Cover: [**Cast iron, ASTM A126**] [**Ductile iron, ASTM A536**] <**\_\_\_\_\_\_\_\_**>.

Disc: [**Bronze, ASTM B62**] [**Ductile iron, ASTM A536**] <**\_\_\_\_\_\_\_\_**>.

Seat: Field replaceable, [**aluminum-bronze, ASTM B148**] [**bronze, ASTM B62**] [**Type 304 stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Chamber and Plunger: [**Bronze, ASTM B62**] <**\_\_\_\_\_\_\_\_**>.

Hinge Pin and Key: [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Use of Buna-N is suggested up to a temperature of 180 deg. F. For higher temperatures, consider using Viton. Consult with valve manufacturer.

Packing and O-Ring: [**Buna-N**] <**\_\_\_\_\_\_\_\_**>.

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

Connecting Hardware: [**Type 304**] stainless steel.

* + - * 1. Finishes: As specified in Section 400551 - Common Requirements for Process Valves.
      1. SOURCE QUALITY CONTROL
         1. Testing:

Hydrostatically test check valves at twice rated pressure according to AWWA C508.

Permitted Leakage at Indicated Working Pressure: None.

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 valve and flange mate properly.
       2. PREPARATION
          1. Thoroughly clean valves before installation.
          2. Surface Preparation:

Solvent-clean surfaces that are not shop primed.

Clean surfaces to remove loose rust, mill scale, and other foreign substances by [**power wire brushing**] [**commercial sand blasting; SSPC SP 6**].

* + - 1. INSTALLATION
         1. According to AWWA C508 and manufacturer instructions.
         2. Dielectric Fittings: Provide between dissimilar metals.

\*\*\*\*\*\* [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. Inspection:

Inspect for damage to valve lining or coating and for other defects that may be detrimental as determined by Director’s Representative.

Repair damaged valve or provide new, undamaged valve.

After installation, inspect for proper supports and interferences.

* + - * 1. Pressure Testing: As indicated in piping schedule.

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

* + - * 1. Pressure test valves with piping.
      1. CLEANING
         1. Keep valve interior clean as installation progresses.
         2. After installation, clean valve interior of soil, grit, loose mortar, and other debris.

END OF SECTION 400565.23