SECTION 400565.13 - CONE 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 cone valves for throttling service or pump discharge control.

Cone valves are typically used for pump controlling flow discharge during pump start/stop conditions in order to prevent pressure surges. Cone valves may also be considered for flow control with velocities greater than about 15 fps .

In the water and wastewater treatment industry, valving is typically specified by valve type. Valves may be detailed via a valve schedule, which describes 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 valve manufacturer and select materials based on specific application.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes: Cone valves.
          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: Administrative requirements and basic materials and methods related to valves commonly used for process systems.

Section 400582 - Solenoid Valves for Process Service: Actuator control system.

Section 400557 - Actuators for Process Valves and Gates: Manual, electric, and pneumatic types of actuation systems.

* + - 1. REFERENCE STANDARDS

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

* + - * 1. ASME International:

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

* + - * 1. ASTM International:

ASTM A27 - Standard Specification for Steel Castings, Carbon, for General Application.

ASTM A36 - Standard Specification for Carbon Structural Steel.

ASTM A48 - Standard Specification for Gray Iron Castings.

ASTM A536 - Standard Specification for Ductile Iron Castings.

ASTM B271 - Standard Specification for Copper-Base Alloy Centrifugal Castings.

ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

* + - * 1. Fluid Controls Institute:

FCI 70-2: Control Valve Seat Leakage.

* + - * 1. NSF International:

NSF 61 - Drinking Water System Components - Health Effects.

NSF 372 - Drinking Water System Components - Lead Content.

Coordinate remainder of PART 1 requirements with Section 400551. Reference Section 400551 only, or include items not covered in Section 400551.

* + - 1. COORDINATION
         1. Coordinate Work of this Section with piping and equipment connections as specified in other Sections [**and as indicated on Drawings**].
      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.
        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 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. 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 cone valves.

1. PRODUCTS
   * + 1. CONE VALVES
          1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=13340&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:

Tapered cone that operates as a plug in the valve body, head cover, operating mechanism, and actuating unit.

Size: [**<\_\_\_\_\_\_\_\_> inches**] [**As indicated in valve schedule**] [**As indicated on Drawings**].

Process Fluid: <**\_\_\_\_\_\_\_\_**>.

Maximum [**Working**] [**Rated**] Pressure: <**\_\_\_\_\_\_\_\_**> psig.

* + - * 1. Body:

Materials:

Body: [**Cast steel; ASTM A27**] [**Cast iron; ASTM A48**] [**Ductile iron; ASTM A536**] <**\_\_\_\_\_\_\_\_**>.

Seat Rings: [**Monel**] <**\_\_\_\_\_\_\_\_**>.

Pivot Bearing: [**Bronze, ASTM B271**] <**\_\_\_\_\_\_\_\_**>.

Configuration:

Full-port plug type.

[**Cylindrical**] [**Conical**].

Replaceable without removing valve from piping.

End Connections:

Flanged.

Comply with ASME B16.1.

Class: [**125**] [**250**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. [**Cone**] [**Plug**]:

Material: [**Cast iron; ASTM A48**] [**Ductile iron; ASTM A536**] <**\_\_\_\_\_\_\_\_**>.

Configuration:

Full port.

[**Cylindrical**] [**Conical**].

Replaceable without removing valve from piping.

Trunnions:

Integrally cast.

Bushings: [**Bronze; ASTM B584**] <**\_\_\_\_\_\_\_\_**>.

Pivot Bearing: [**Bronze, ASTM B271**] <**\_\_\_\_\_\_\_\_**>.

Seats: [**Monel**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. [**Hood**] [**Head Cover**]:

Materials:

Material: [**Cast iron; ASTM A48**] [**Carbon steel; ASTM A36**] <**\_\_\_\_\_\_\_\_**>.

Inner and Outer Seals: [**Buna N rubber**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. Actuation:

Description: Lift, rotate, and lower valve.

Shaft and Guides: [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Linkage: [**Steel**] <**\_\_\_\_\_\_\_\_**>.

Lifting Nut: [**Bronze**] <**\_\_\_\_\_\_\_\_**>.

Valve Position Indicator: Mechanical pointer.

Actuator:

Type: [**Link and lever**] [**Electric**] [**Pneumatic**] <**\_\_\_\_\_\_\_\_**>.

Operator: [**Hydraulic**] [**Electric**] [**Pneumatic**] <**\_\_\_\_\_\_\_\_**>.

Comply with Section 400557 - Actuators for Process Valves and Gates.

* + - * 1. Finishes: As specified in Section 400551 - Common Requirements for Process Valves.
        2. Accessories:

Solenoid Valves: As specified in Section 400582 - Solenoid Valves for Process Service.

Fasteners: [**Type <\_\_\_\_\_\_\_\_> stainless steel**] <**\_\_\_\_\_\_\_\_**>.

* + - 1. SOURCE QUALITY CONTROL
         1. Testing: Hydrostatically test valve at twice [**working**] [**rated**] pressure for [**30**] <**\_\_\_\_\_\_\_\_**> minutes without leakage.

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

* + - * 1. Testing: Test valve according to FCI 70-2.
        2. Inspection: Ensure that body and sleeve seat properly when closed, and are drip tight.

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

* + - * 1. Director’s Inspection:

Make completed 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 tests 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. PREPARATION
          1. Thoroughly clean valve before installation.
          2. Clean surfaces to remove loose rust, mill scale, and other foreign substances.
       3. INSTALLATION
          1. According to manufacturer instructions.

\*\*\*\*\*\* [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.
        2. Dielectric Fittings: Provide between dissimilar metals.
      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: Pressure test valves with piping.
      1. CLEANING
         1. Keep valve interior clean as installation progresses.
         2. After installation, clean valve interior of soil, grit, and other debris.

END OF SECTION 400565.13