SECTION 400563 - BALL 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 ball valves for use in water and wastewater treatment plants.

Refer to Section 400551 for common work results for process valves, and to Section 220523 for general purpose valves for plumbing piping.

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 with valve manufacturer and select materials based on specific application.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes:

Rubber-seated ball valves.

Plastic ball valves.

* + - * 1. 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 C507 - Ball Valves, 6 In. Through 60 In.

* + - * 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.

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

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

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

* + - * 1. ASTM International:

ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.

ASTM D3222 - Standard Specification for Unmodified Poly(Vinylidene Fluoride) (PVDF) Molding Extrusion and Coating Materials.

ASTM D4101 - Standard Specification for Propylene Injection and Extrusion Materials.

* + - * 1. Manufacturers Standardization Society of the Valve and Fittings Industry:

MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

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

* + - 1. <**\_\_\_\_\_\_\_\_**>
         1. Section <**\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_**>: <**\_\_\_\_\_\_\_\_**>.
         2. As specified in Section 400551 - Common Requirements for Process Valves: Submittal requirements for compliance with this Section.

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

* + - * 1. <**\_\_\_\_\_\_\_\_**>.

1. PRODUCTS

A ball valve is an adaptation of a plug valve. Instead of a plug, it contains a ball with a hole through one axis that lines up with inlet and outlet ports of valve body. The ball rotates between two seats: flow is straight through in open position, and when valve is rotated 90 degrees (in closed position), flow is completely blocked.

Ball valves are generally recommended for following service conditions:

- OPEN-CLOSE, non-throttling.

- Minimum resistance to flow.

- Quick opening.

- Low maintenance cost.

- Moderate temperature conditions.

* + - 1. RUBBER-SEATED BALL VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9563&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. 4 Inches through 48 Inches:

AWWA C507, Class [**150**] [**300**].

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

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

Body:

Material: [**Cast iron, ASTM A126**] [**Ductile iron, ASTM A536**] [**Cast steel**] [**Bronze**] <**\_\_\_\_\_\_\_\_**>.

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

Ball:

Material: [**Cast iron, ASTM A126**] [**Ductile iron, ASTM A536**] [**Cast steel**] <**\_\_\_\_\_\_\_\_**>.

Surfacing: [**Stainless steel**] [**Nickel-chrome**] <**\_\_\_\_\_\_\_\_**>.

Bearing Seal, O-Rings, and Packing: [**Buna-N**] <**\_\_\_\_\_\_\_\_**>.

Shaft and Attachment Pins: [**Type 316**] stainless steel.

Bearings: PTFE-lined with fiberglass backing.

Shaft Seals: Self-lubricating and self-adjusting.

Connecting Hardware: [**Type 316**] stainless steel.

End Connections:

Socket Welded: Comply with [**ASME B16.11**] [**and**] [**MSS SP-110**].

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

Threaded: Comply with ASTM B1.20.1

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

Flanged: Comply with ASME [**B16.1**] [**B16.5**] [**B16.42**].

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

Soldered.

Operator: [**Hand lever**] [**T-handle**] [**Handwheel**] [**Pneumatically actuated**] [**Electrically actuated**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. Smaller Than 4 Inches

Comply with MSS SP 110.

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

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

Body:

Type: [**One**] [**Two**] piece.

Material: [**Bronze**] [**Carbon steel**].

Ball: [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Port: [**Regular**] [**Full**].

Seats: [**PTFE**] [**Buna-N**] [**Neoprene**] <**\_\_\_\_\_\_\_\_**>.

Stem: Blowout proof.

End Connections: [**Soldered**] [**Threaded**] [**, with union**].

Operator: [**Hand lever**] [**Pneumatically actuated**] [**Electrically actuated**] <**\_\_\_\_\_\_\_\_**>.

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

* + - 1. PLASTIC BALL VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9564&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.

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

* + - * 1. Description:

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

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

Ports: Full size.

End Connections:

Flanged: Comply with ASME [**B16.1**] [**B16.5**] [**B16.42**].

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

Union.

* + - * 1. Operator: [**Hand lever**] [**Pneumatically actuated**] [**Electrically actuated**] <**\_\_\_\_\_\_\_\_**>.
        2. Materials:

Body and Ball: [**PVC, ASTM D1784**] [**CPVC, ASTM D1784**] [**Polypropylene, ASTM D4101**] [**PVDF, ASTM D3222**] <**\_\_\_\_\_\_\_\_**>.

Seats: PTFE.

* + - 1. SOURCE QUALITY CONTROL
         1. As specified in Section 400551 - Common Requirements for Process Valves.
         2. Testing: Test ball valves according to AWWA C507.

1. EXECUTION

Coordinate remainder of PART 3 requirements with Section 400551. Reference Section 400551 only, or include items not covered in Section 400551.

* + - 1. <**\_\_\_\_\_\_\_\_**>
         1. Section <**\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_**>: <**\_\_\_\_\_\_\_\_**>.
         2. As specified in Section 400551 - Common Requirements for Process Valves: Submittal requirements for compliance with this Section.

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

* + - * 1. <**\_\_\_\_\_\_\_\_**>.
      1. INSTALLATION
         1. According to AWWA C507.

END OF SECTION 400563