SECTION 400561 - GATE 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 gate valves for use in water and wastewater treatment plants.

Refer to Section 400551 for common work results for process valves, to Section 400561.43 for knife gate 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:

Resilient-seated gate valves.

Solid wedge, metal-seated gate valves.

General duty gate valves smaller than 3 inches.

Plastic gate 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. DEFINITIONS
         1. OUTSIDE SCREW AND YOKE (OS&Y) VALVE: A valve in which the operating screw is driven by a threaded nut that is built into the handle.
      2. REFERENCE STANDARDS

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

* + - * 1. American Water Works Association:

AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.

AWWA C509 - Resilient-Seated Gate Valves for Water Supply 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.

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

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

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

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

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

MSS SP-70 - Gray Iron Gate Valves, Flanged and Threaded Ends.

MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves.

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

Gate valves have less flow obstruction than other valves and therefore offer relatively less pressure drop. When valve is fully open, wedge or gate is lifted entirely out of flow path and seating is at a right angle to flow. Gate valves are typically used for fully open or fully closed service and are not recommended for throttling, as the gate and seat may erode rapidly.

Gate valves are generally recommended for following service conditions:

- Fully open, fully closed, non-throttling.

- Minimum resistance to flow.

- Minimum amount of fluid trapped in line.

- Infrequent operation.

* + - 1. RESILIENT-SEATED GATE VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9565&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:

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

Comply with AWWA C509.

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

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

End Connections: [**ASME B16.1, ASME B16.5, and ASME B16.42, flanged**] [**Bell and spigot**] [**Mechanical joint**] <**\_\_\_\_\_\_\_\_**>.

Gear Actuators for Manual Valves: Comply with AWWA C509.

* + - * 1. Operation:

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

Stem: [**Rising**] [**Nonrising**].

[**Ten-position lever handle**] [**Infinite-position lever handle with memory stop**] [**Handwheel**] [**Pneumatically actuated**] [**Electrically actuated**].

Furnish gear operators for valves [**8**] <**\_\_\_\_\_\_\_\_**> inches and larger, and chainwheel operators for valves mounted over [**8**] <**\_\_\_\_\_\_\_\_**> feet above [**operating**] floor.

* + - * 1. Materials:

Wedge: Resilient [**ASTM A126, cast iron**] <**\_\_\_\_\_\_\_\_**>, fully encapsulated with [**molded rubber**] [**Buna-N**].

Body and Disc: [**ASTM A126, cast iron**] [**ASTM A536, ductile iron**] <**\_\_\_\_\_\_\_\_**>, [**rubber**] [**Buna-N**] coated.

Stem, Stem Nuts, Glands, and Bushings: [**ASTM B584, bronze**] <**\_\_\_\_\_\_\_\_**>.

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

* + - 1. SOLID WEDGE, METAL-SEATED GATE VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9566&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:

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

Comply with AWWA C500.

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

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

Wedge: One piece, solid.

End Connections: [**ASME B16.1, ASME B16.5, and ASME B16.42, flanged**] [**Mechanical joint**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. Operation:

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

Buried Service: Nonrising stem.

Interior and Exposed Service:

Outside screw and yoke (OS&Y).

Provide NRS valves with position indicators.

Gear Actuators for Manual Valves: Comply with AWWA C500.

Valves 18 Inches and Larger: Furnish [**bevel**] [**or**] [**spur gear**] operator.

* + - * 1. Materials:

Comply with AWWA C500.

Body, Bonnet, Wedge, and Gland: [**ASTM A536, ductile iron**] <**\_\_\_\_\_\_\_\_**>.

[**Handwheel**] [**Nut**]: [**Ductile iron**] <**\_\_\_\_\_\_\_\_**>.

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

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

Packing: [**Non-asbestos graphite**] <**\_\_\_\_\_\_\_\_**>.

Rollers and Tracks: Bronze.

Rubber Components: Buna-N.

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

* + - * 1. Finishes: As specified in Section 400551 - Common Requirements for Process Valves.
      1. GENERAL-DUTY GATE VALVES - SMALLER THAN 3 INCHES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9567&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. 2 Inches and Smaller:

Comply with MSS SP-80, [**Class 125**] [**Class 150**] <**\_\_\_\_\_\_\_\_**> [**as indicated on valve schedule**].

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

Body and Trim: Bronze, ASTM B62.

Bonnet: [**Threaded**] [**Union**] <**\_\_\_\_\_\_\_\_**>.

Operation: [**Lockshield stem**] [**Handwheel**].

Inside screw [**with backseating stem**].

Wedge Disc:

Type: [**Solid**] [**Split**].

Bronze, ASTM B62.

[**Alloy seat rings.**]

End Connections: [**Soldered**] [**or**] [**threaded**].

* + - * 1. 2-1/2 Inches to 3 Inches:

Comply with MSS SP-70, [**Class 125**] <**\_\_\_\_\_\_\_\_**> [**as indicated on valve schedule**].

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

Stem: [**Rising**] [**Nonrising**].

Body: ASTM A126, cast iron.

Trim: Bronze, ASTM B62.

Bonnet: Bolted.

Handwheel, OS&Y.

Wedge Disc: Solid, with bronze seat rings.

End Connections:

Type: Flanged.

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

* + - 1. PLASTIC GATE VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9568&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:

Size: 1/2 inch and larger.

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

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

End Connections:

Threaded, ASTM B1.20.1

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

Flanged; ASME [**B16.1**] [**B16.5**] [**B16.42**].

* + - * 1. Operation:

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

Stems: [**Rising**] [**Nonrising**].

Operators: [**Handwheel**] [**Pneumatically actuated**] [**Electrically actuated**] <**\_\_\_\_\_\_\_\_**>.

* + - * 1. Materials:

[**PVC, ASTM D1784**] [**CPVC, ASTM D1784**].

Wedge Disc: [**Styrene butadiene rubber**] [**Polypropylene**].

* + - 1. SOURCE QUALITY CONTROL
         1. As specified in Section 400551 - Common Requirements for Process Valves.
         2. Testing: Test gate valves according to AWWA C509.

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 [**C500**] [**C509**].

END OF SECTION 400561