SECTION 400564 - BUTTERFLY 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 butterfly 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 butterfly valves.

Plastic butterfly 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 C504 - Rubber-Seated Butterfly Valves.

* + - * 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.

* + - * 1. ASTM International:

ASTM A536 - Standard Specification for Ductile Iron Castings.

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. PRODUCTS

Possible advantages of butterfly valves over other valve types are reduced weight, space, and cost. Maintenance costs are likewise relatively low because there is a limited number of moving parts and no pockets in which to trap process fluid.

Butterfly valves are suitable for throttling as well as OPEN-CLOSE applications. The 90-degree rotation of its handle allows straightforward and quick operation. Butterfly valves are typically used for handling large gas or liquid flows at relatively low pressure, and for handling slurries or liquids with large amounts of suspended solids. If stringy material is present, however, it could become trapped or entwined on valve shaft.

Butterfly valves are generally recommended for following service conditions:

- Fully open, fully closed, throttling.

- Low-pressure drop across valve.

- Minimum amount of fluid trapped.

- Frequent operation.

- Positive shutoff for gases or liquids.

- Handling of (non-stringy) slurries.

* + - 1. RUBBER-SEATED BUTTERFLY VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9569&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:

Comply with AWWA C504, Class [**150**] [**250**].

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

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

Style: [**Wafer**] [**Lugged**].

Shaft: Self-lubricating.

Seats:

Mounting: On [**body**] [**disc**] for valves 24 inches and smaller.

Type: Field replaceable for valves larger than 30 inches

Packing: Replaceable without dismantling valve.

End Connections: Comply with ASME B16.1.

* + - * 1. Operator:

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

Gear Actuators for Manual Valves: Comply with AWWA C504.

* + - * 1. Materials:

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

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

Disc: [**Cast iron, ASTM A126**] [**Ductile iron, ASTM A536**] [**Nickel-plated ductile iron**] [**Elastomer-coated ductile iron**] [**Chrome-plated ductile iron**] [**Aluminum bronze**] [**Stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Seats:

Type: Resilient and replaceable.

Material: [**EPDM rubber**] [**Buna-N**] [**Neoprene**] <**\_\_\_\_\_\_\_\_**>.

Seating Surfaces: [**Type 316 stainless steel**] <**\_\_\_\_\_\_\_\_**>.

Bearings:

Sleeve: <**\_\_\_\_\_\_\_\_**>.

Thrust: <**\_\_\_\_\_\_\_\_**>.

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

* + - * 1. Finishes: As specified in Section 400551 - Common Requirements for Process Valves.
      1. PLASTIC BUTTERFLY VALVES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9570&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**].

Body Style: [**Wafer**] [**Lugged**] <**\_\_\_\_\_\_\_\_**>.

End Connections:

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

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

Union.

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

Body: [**PVC, ASTM D1784**] [**CPVC, ASTM D1784**] [**Polypropylene (PP), ASTM D4101**] [**PVDF, ASTM D3222**] [**PTFE-coated ductile iron, ASTM A536**] <**\_\_\_\_\_\_\_\_**>.

Disc: [**PVC, ASTM D1784**] [**PP, ASTM D4101**] [**PVDF, ASTM D3222**] [**PTFE**] <**\_\_\_\_\_\_\_\_**>.

Stem: Type [**304**] [**316**] <**\_\_\_\_\_\_\_\_**> stainless steel.

Seats: [**Neoprene**] [**PTFE**] [**EPDM rubber**] <**\_\_\_\_\_\_\_\_**>.

Seals: [**PTFE**] [**EPDM rubber**] <**\_\_\_\_\_\_\_\_**>.

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

* + - 1. SOURCE QUALITY CONTROL
         1. As specified in Section 400551 - Common Requirements for Process Valves.
         2. Testing: Test butterfly valves according to AWWA C504.

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 C504.

END OF SECTION 400564