



Tucson Water  
Standard Specifications and Details  
2017 Edition  
Engineering Directive No. 3

EFFECTIVE DATE: January 1, 2020

SUBJECT: Check Valve (Section 1417)

STATEMENT OF PURPOSE: Provide a new section for Check Valves

GENERAL PROVISION: Section 1417 will consist of the requirements of the accepted criteria for check valves allowed in the distribution system and production facilities. All accepted Check Valves are listed in the Approved Material List.

PROCEDURAL RESPONSIBILITY: The Engineering Administrator for Tucson Water and/or designated representative(s) are responsible for the enforcement of this Directive and the associated standards.

**RECOMMEND**

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Specifications Coordinator  
Planning and Engineering

**CONCUR**

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Director of Tucson Water



## SECTION 1417

### CHECK VALVE

#### 1414.0100 GENERAL

**1414.0101 Description of Work.** The work under this Section shall consist of furnishing all labor, materials, and equipment required for the installation of check valves in accordance with the details shown on the plans and requirements of these specifications. The check valve shall prevent flow reversal, water hammer, and system surges. The check valve shall be fully automatic, and shall be opened by the velocity flow and closed by the spring which returns the plug to the seat before the reversal of the flow occurs.

**1414.0103 Submittals.** In order to be accepted for incorporation into the work, the manufacturer's make and model of check valve shall appear on the list of approved products found in the Approved Materials List (Appendix A). Check valves larger than 12 inch shall be approved by the engineer, or shown on the plans or specifications.

**1414.0104 Delivery, Storage, and Handling.** Check valves shall be delivered to the site, stored, and handled in accordance with the manufacturer's instructions except as modified by the plans, special specifications, or as directed by the Engineer.

#### 1414.0200 PRODUCTS

##### 1414.0201 Materials.

**(A) Pressure Rating.** Design pressure valves shall be 200 pounds per square inch for valves smaller than 12 inches, and 150 pounds per square inch for valves 12 inches and larger. Valves for operating pressures other than the above shall be as specified on the plans or in the special specifications.

##### **(B) Component Parts.**

###### **(1) Body.**

Check valves shall be of the globe style silent closing type with appropriately drilled ANSI flanged ends for the described working pressure. The main body shall be either ductile iron in accordance with ASTM A536, GRADE 65-45-12, or cast iron Class B ASTM A-126. The check valve shall be fully automatic, spring loaded and double guided. The flow area through the valve shall exceed the cross-sectional area of the specified pipe size. All check valves shall be designed to prevent permanent distortion of the body, seat and avoid any strain on the seats that would be sufficient to force them out of alignment when under test pressure per Section 1431.

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### **(2) Trim.**

The seat, plug and bushing shall be ASTM B-62 Bronze, or ASTM 276 Stainless Steel or approved equal. Metal to Metal check valve seating surfaces shall be bronze or metal with a corrosion resistance equivalent to bronze.

Check Valves larger than 24-inches shall be a dual disc check valve with threaded lug flange design. The valve shall be appropriately drilled ANSI flanged ends for working pressure equal to that of the connecting pipe, as a minimum, or as specified otherwise.

### **(3) Spring.**

The spring shall be a coiled type, Stainless Steel ASTM A-276 or approved equal.

### **(4) Markings.**

Cast markings shall be cast or stamped and appear on the body or on a brass or stainless steel nameplate permanently affixed to the valve showing the manufacture's name or mark, check valve size, working water pressure, and flow direction arrow.

### **(5) Flanges.**

Check valves shall have flat faced flanges in accordance with ASME B16.1 for Class 125 or Class 250 iron flanges. The check valve shall be capable of mating directly to a wafer butterfly valve without disc interference.

### **(6) Certifications.**

Check valves used in potable service shall be certified to NSF/ANSI 61. Drinking Water System Components – Health Effects, and certified to be Lead-Free in accordance with NSF/ANSI 372.

**(C) Coating and Linings.** All exterior ferrous surfaces shall be factory coated in accordance with AWWA C550 with a fusion bonded epoxy. The valve interior shall be lined with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWA C550. Minimum total dry film thickness of this coat shall be no less than 10 mils. Surface preparation shall be in accordance with SSPC-SP 10 for near white blast cleaning prior to prime coat application. Screws shall be stainless steel conforming to ASTM A-276 or an approved equal.

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### 1414.0300 EXECUTION

**1414.0301 General.** Check valves shall be installed above grade and in the horizontal position as indicated on the plans or as specified in the special specifications.

### 1414.0302 Installation.

**(A) General.** Check Valves shall be installed in accordance with the manufacturer's recommendation.

**(B) Workmanship.** All the Contractor's or subcontractor's personnel shall be skilled and knowledgeable regarding installation procedures for the valves and appurtenances being installed.

**(C) Testing.** All valves shall be hydrostatically leak tested per TW Section 1431.