



---

SECTION 40\_XX\_XX  
RUBBER FLAPPER SWING CHECK VALVES FOR POTABLE WATER OR SEWAGE

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Swing Check Valves for Potable Water or Sewage
- B. Related Sections:
  - 1. (provided by the engineer)
  - 2. (provided by the engineer)
  - 3. (provided by the engineer)

1.02 REFERENCES

- A. American Water Works Association (AWWA):
  - 1. C508 Swing Check Valves for Waterworks Service
- B. ASME B16.1 Pipe Flanges and Flanged Fittings
- C. NSF/ANSI 372 lead free and NSF/ANSI 61 for drinking water

1.03 SUBMITTALS

- A. (provided by the engineer)

1.04 WARRANTY

- A. Valves shall be warranted by the manufacturer for defects in materials and workmanship for a period of two years (24 months) from date of shipment.
- B. The flex portion of the flapper contains nylon reinforcement and shall include a special extended warranty for twenty-five years.

PART 2 PRODUCTS

2.01 GENERAL

- A. (provided by the engineer)

2.02 RUBBER FLAPPER SWING CHECK VALVES FOR WATER, SEWAGE, ABRASIVE and SLURRY SERVICE

- A. Manufacturers: APCO CRF or pre-approved equal.
- B. Design:
  - 1. Rubber Flapper Swing Check Valve shall be single body flanged design.
  - 2. General:
    - a. Design Maximum Working Pressure: 250 psig (1725 kPa)
    - b. Maximum Fluid Temperature: Dictated by elastomer selection
    - c. Valve design to provide 100% flow area when fully opened
    - d. The 4" (100mm) valve shall be capable of passing a 3" solid



- 
- e. Body Seat shall be on a 45-degree angle to the centerline of the pipe to permit horizontal or vertical (flow up) installation.
  - f. Flapper is captured between the body and valve cover to permit the disc to flex open and closed. The flapper shall have a fully encapsulated steel disc. An integral O-ring shall be molded onto the face of the rubber flapper for positive sealing.
  - g. Internally mounted leaf spring shall be used to assist in rapid closing of the valve. This leaf spring shall be securely held in place, captured between the cover and flapper.
  - h. Hinge Section of the rubber flapper shall be designed to accelerate closing due to an elastic spring effect. High-strength fabric shall be integrally molded in the rubber over the disc and bar to form a flexible joint giving the flapper a high cycle life.

**C. Materials:**

- 1. Body: Ductile Iron ASTM A536 Gr.65-45-12
- 2. Rubber Flapper: Shall have alloy steel disc encapsulated with Acrylonitrile-Butadiene (NBR), or Terpolymer of Ethylene Propylene and A Diene (EPDM)
- 3. Internal leaf spring to be 301 (or 316) stainless steel per ASTM A313
- 4. Bolting: 316 stainless steel
- 5. ASME 125/150 flanged

**D. Specifications for optional accessories:**

- 1. SR = Adjustable Spring Return shall be used to accelerate flapper closure before flow reversal can occur. The helical compression spring shall be adjustable externally without removing the cover from the valve and without removing the valve from service. The adjustment shall be made by means of an external sealed screw which provides infinite adjustment to the internal compression spring.
- 2. HOD = Hold Open Device. A screw-type backflow actuator shall be provided (when specified) to allow opening of the valve during no-flow and no pressure conditions. Acrylonitrile-Butadiene (NBR) seals shall be used to seal the aluminum bronze stem in a lead-free bronze or carbon steel bushing. The backflow device shall be of the rising-stem type to indicate position. A stainless steel T-handle shall be provided for ease of operation.
- 3. LB = Lined Body. Rubber lining shall be bonded to all interior surfaces of the body. Lining material shall be 1/8" thick Natural Rubber (NR), Terpolymer of Ethylene Propylene (EPDM), or Acrylonitrile-Butadiene (NBR).
- 4. PI = Position Indicator. The Disc Position Indicator is mounted to the cover and clearly identifies the position of the flapper upon visual inspection. The indicator shall have continuous contact with the flapper under all operating conditions to assure flapper position indication.
- 5. Disc Position Indicator Switches



- 
- a. SEL30: An inductive type proximity switch can be mounted on the position indicator. The switch transmits an electrical signal indicating when the flapper is fully closed.

E. Testing:

1. Each valve shall be shop tested as a complete assembly in accordance with AWWA C508.
2. The flapper design shall have been tested to withstand 1,000,000 cycles in accordance with ANSI/AWWA C508 and show no signs of wear, cracking, or distortion to the flapper or seal and shall remain drop-tight at rated working pressure.
3. Certified test reports shall be available upon request.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install valves as specified in section (filled in by the engineer) and the manufacturer's instructions.
- B. (verbiage by engineer instructing how discharge piping should be installed)

**3.02 COMMISSIONING**

- A. Field testing (verbiage by engineer)