SPECIFICATIONS - DETAILED PROVISIONS
Section 15103.2 - Butterfly Valves, Altitude Valve and Seismic Sensing Closing System

C O N T E N T S

SECTION 15103.2
BUTTERFLY VALVES, ALTITUDE VALVE AND SEISMIC SENSING CLOSING SYSTEM

PART 1 - GENERAL

1.01 SCOPE

This specification covers furnishing all labor, supervision, materials, equipment and performing all operations necessary to furnish and install a seismic valve closing system for use on 24" and smaller tank inlet/outlet piping.

1.02 GENERAL

The system requires a high performance lug type butterfly valve, high pressure air supply system, a two way altitude valve with seismic interceptor system and one seismic sensor. The butterfly valve individually or simultaneously with altitude valve opens when air pressure is supplied to the actuator and closes during a seismic event (5.3 on the Richter Scale).

PART 2 - PRODUCT

2.01 BUTTERFLY VALVES

Butterfly valves shall be a high performance butterfly valve with offset seat and eccentric shaft. It shall be capable of sealing against full differential pressure in either direction of flow. Valve seat shall be both self and pressure energized with an elastomeric core. The self energized core shall be isolated from the line media. The valve shall be ANSI Class 150, lug body, straight shaft, carbon steel body, 316 stainless disc, 316 stainless steel shaft, TFE seat, TFE packing, glass backed TFE bearings and pneumatic SR fail close actuator. Valve to be from Flow Seal or approved equal.

2.02 ACTUATOR

The pneumatic actuator shall be spring-to-close, pressure-to-open and equipped with a manual hydraulic override and valve position indicator. The actuator shall be Bettis or approved equal.

2.03 AIR SUPPLY

Air Supply shall consist of one high pressure 20 cubic foot (1500 PSIG) air cylinder with valve and high pressure gage, one high pressure regulator, one 24 volt latching type solenoid valve, stainless tubing, fittings and flexible hose as required to connect the air supply cylinder to the actuator.

2.04 ENCLOSURE

Enclosure shall be Nema IV Hoffman or equal to house Flo-loc seismic device and air supply system. It shall be bolted to concrete valve vault slab per manufacturer's recommendations.

2.05 ALTITUDE VALVE WITH SEISMIC INTERCEPT

The altitude valve with seismic intercept shall be hydraulically operated, diaphragm-actuated globe pattern valve. The pilot valve system shall be designed to control the level in the reservoir and will remain fully open until the "shut-off" point in the reservoir is reached. It shall also be capable of closing and remaining closed when an electrical signal is received from a seismic controller. The valve body shall consist of three major components, the main valve body, cover assembly, and diaphragm assembly. The main valve body shall be constructed of cast iron per ASTM A48 and shall have a bronze seat with an integral bearing. The valve shall have 125 lb. flange per ANSI B16.1.

The valve cover shall also be constructed of cast iron per ASTM A48 and shall contain an integral bronze bearing. The diaphragm assembly containing a main valve stem, shall be fully guided at both ends by the bearing in the cover and the integral bearing in the main valve seat. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. The diaphragm shall consist of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface. The diaphragm shall be fully supported in the fully closed position by the main valve body, and in the fully open position by the main valve cover. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the valve or pilot controls. All necessary repairs to the valve shall be possible without removing the valve from the line.

The pilot control system shall be designed to control the main valve and close off the valve when the level in the reservoir reaches a predetermined level and shall reopen the main valve whenever the system pressure drops below operating pressure in the reservoir. The pilot control shall be of a diaphragm-activated, 3-way type that operates on the differential force between the height of the water in the reservoir and an adjustable spring-load. The pilot control system shall incorporate a three part high capacity interceptor pilot that will be controlled by a three-way 24 volt DC latching type solenoid. When an electrical signal from seismic controller to the solenoid is received, it shall position the three port high capacity interceptor pilot so that either system pressure or reservoir pressure shall be directed into the main valve cover and shall lock the main valve in the closed position until another electrical signal is received, which will then reposition the interceptor pilot and allow the level control pilot valve system to operate the main valve. Valve shall be Cla-Val Model No. 610-85AB-DCS for sizes over 16" and Model No. 210-85AB-DCS for sizes up to 16".

2.06 COATINGS
Per AWWA C504-87, Section 4.2.

2.07 SEISMIC SENSOR AND CONTROL SYSTEM
The seismic control sensor device shall be Flo-loc Model No. FL2000E or approved equal. The device shall be capable of being controlled either manually or through telemetry system for remote trigger and reset commands. The seismic sensitivity setting shall be capable of being adjusted to various "G" settings of 0.15-0.5G.

PART 3 - EXECUTION

3.01 TESTING
All valves shall be performance, leakage, and hydrostatic tested in accordance with AWWA C504-87, Section 4.2.

END OF SECTION 15103.2

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