SECTION 33 52 43.15 - FUEL SYSTEM GENERAL VALVES

PART 1 - GENERAL

1.1 SUMMARY:

A. This section of the specification includes general valves for use in isolating various segments of the fuel system.

B. General valves specified in this section include the following:

1. Ball Valves
2. Butterfly Valves
3. Double Block and Bleed Plug Valves

1.2 RELATED SECTIONS:

A. Section 33 52 43.00 - Fuel System General Provisions

B. Section 33 52 43.11 - Fuel System Piping Specialties

C. Section 33 52 43.13 - Aviation Fuel Pipe, Fittings, and Installation

D. Section 33 52 43.25 - Fuel System Service Pits and Access Covers

1.3 REFERENCES:

A. American Petroleum Institute (API)

1. 6D – Specification for Pipeline Valves
2. 6FA – Specification for Fire Test for Valves
3. 607 – Fire Test for Soft-Seated Quarter-Turn Valves
4. 609 – Butterfly Valves: Double Flanged, Lug and Wafer-Type

B. American Society of Mechanical Engineers

1. 16.34 – Valves – Flanged, Threaded, and Welding End.

C. Underwriters Laboratory (UL)

D. Oil Companies Materials Association (OCMA)

E. American Society of Mechanical Engineers (ASME)

F. Factory Mutual (FM)

1.4 SUBMITTALS:

A. Submit as specified in Section 01 33 00 and 33 52 43.00.

B. Product Data

1. Ball Valves
2. Butterfly Valves
3. Double Block and Bleed Plug Valves

C. Quality Assurance

1. Test Reports
2. Manufacturer's Instructions
3. Certifications

1.5 QUALITY ASSURANCE:

A. No foreign made equipment, fittings, bolts, or any other accessory may be used in this work. All such items shall be American made, manufactured in the United States of America. If any foreign items are found within the work supplied under this contract, the Contractor shall remove and replace them with American made items at no additional charge to the Owner.

B. The valve manufacturer(s) shall have products in satisfactory use in similar applications for a minimum of five years.

PART 2 - MATERIALS

2.1 BALL VALVES :

A. The valve shall be Flow-Tek Model F15 or approved equal. The valve shall be of two-piece full port ball valve. The valve shall have a rated working pressure no less than 275 psi, and shall have a working temperature range of at least -20 degrees F to 300 degrees F.

B. Valves shall consist of carbon steel, two-part assembly with replaceable body seal of SS316/Graphite. The ball and stem shall be 316 Stainless Steel. The replaceable ball seat shall be 15% RPTFE or TFM 1600 and stem packing shall be constructed of Graphite.

C. Valves shall have a “fire safe” rating per API 607.

D. Valves shall have a lever type handle and a 90-degree stop on the extended stem. Handle shall be suitable for padlocking in both the open or closed position.

E. Where indicated on the Drawings, valves shall be equipped with spring return devices in the actuator as part of the manufacturer’s complete assembly.

F. All valves shall have ANSI Class 150 raised face flanged connections.

2.2 BUTTERFLY VALVES:

A. Butterfly valves shall be used for bi-direction bubble-tight shut-off of flow within the system. Valves shall be mounted between ANSI Class 150 flanges with rated working pressure of the valve to be not less than 275 psi.

B. The valves shall have a carbon steel ASTM, A216 full lug body, drilled and tapped lugs, 316 ASTM stainless steel disc, stainless steel stem, and 316 stainless steel seat with TFE insert material. The operator shall be a spring loaded 10-position manual operator with locking device for valves 4" or smaller and a self-locking wormgear operator for valves 6" or larger.

C. Valves shall have a "fire safe" rating per OCMA and/or API 607.

D. Where used for end-of-line service with a blind installed on the downstream face, install butterfly valve with the seat retainer against the weldneck flange. Refer to manufacturer's recommendations for installation requirements.

E. Valves shall be WKM "Dynacentric", Posi-Seal "Phoenix III", FlowSeal "Fire-Flow", or approved equal.

2.3 DOUBLE BLOCK AND BLEED PLUG VALVES:

A. Plug valves shall be used for tight shut-off of flow within the system where verification of no-flow is required. The valves shall have a cast carbon steel body and plug with Viton seals. Slip replacement shall be from the bottom of the valve. Valve shall be rated for 275 psi working pressure and suitable for installation between ANSI Class 150 raised face flanges.

B. Accessories include a thermal relief valve for the body cavity which discharges to upstream flow. Valves shall have weatherproof operators with mechanical position indicator flags of metal construction. All operators shall have a stainless steel indicator shaft.

C. Operators on valves sized 6-inch and larger shall include a right-angle self-locking gear operated handwheel. Where indicated on drawings, provide a mechanical extension to extend the operator up into the valve vault access cover. Ensure proper clearance of handwheel and gear operator with the vault access cover frame and lid.

D. When such coatings are not compatible with the specified coating system, any valve coating or primer (e.g., Cameron red oxide primer) applied by the valve manufacturer as a temporary coating for shipping and short-term storage shall be removed prior to coating application per Section 09 97 13.00 - Fuel System Coatings. The valve surface shall be prepared to the extent required by the coating manufacturer.

E. Valves shall be Cameron General Valve Model C8811 to match existing valves in service at the airport.

PART 3 - EXECUTION

3.1 METHOD OF INSTALLATION:

A. Valves shall be of the same Manufacturer throughout, where possible. Manufacturer's name and pressure rating shall be located on a permanent nameplate on outside of valve.

B. Valves shall be installed in accordance with manufacturer's recommendations and as indicated on the plans.

C. Each valve shall be installed in an easily accessible location such that valve operator shall not have to interfere with adjacent equipment for operation and maintenance. Provide spool piping, whether indicated on the drawings or not, if required for proper movement of valve operator and disc.

D. A union connection shall be installed within two feet of each screw end valve. Valves and specialty items shall be rated for not less than the system pressure.

E. Replace any and all valves that prove defective during system testing.

F. Install all butterfly valves with valve shaft in the horizontal position.

G. Butterfly valves that will be blinded on one side after project completion shall be installed with the seal on the fluid "wet" side of the valve. This is to prevent dry rot of the valve seal should the valve be required for future installations.

END OF SECTION 33 52 43.15