CSI - GUIDE SPECIFICATION

Possible Sections:
Section 26 32 00 Packaged Generator Assemblies
Section 23 11 13 Facility-Fuel Oil Piping
Section 23 13 00 Facility Fuel-Storage Tanks
Section 23 10 00 Facility Fuel Systems
Other sections applicable

Automated Smart Fuel Filtration System
Model: FPS LX-F

A. **Manufacturers**: Subject to compliance with requirements, provide product by the following:

1. AXI International

B. **Description:** Stand alone, factory complete, automated programmable, fuel filtration and maintenance system shall be provided for each diesel fuel storage tank. The system shall be capable of removing water, sediment, particulate and microbial contamination below levels stated in ASTM D975 (Standard Specification for Diesel Fuel Oils).

1. **Assembly:** All system components shall be mounted on a powder-coated, corrosion-resistant, aluminum back plate with spill tray monitored by leak detection sensor.

2. **Mounting:** Provision for wall or rack mounting to be included.

3. **Environment:** System shall be installed indoors, protected from the elements in climate-controlled environment.

4. **Dimensions:** Dimensions of mechanical assembly are not to exceed 26” x 34” x 12” (HxWxD).

5. **Plumbing:** System shall be furnished with JIC male connector size 1” 37° #16 flare on both inlet and discharge. Plumbing shall be stainless steel fittings within fixture.

6. **Installation:** System shall provide customer plumbing connection. System shall be located as close as possible to designated fuel tank. The fuel oil supply and return lines to the system should be independent and separate from other fuel lines with the supply line originating at the bottom of the tank in the deepest spot and the return line as far away as possible from the supply line in the tank.

7. **Filtration/Water Separation**: 4 stage filtration/water separation process:
   a. Stage 1: Centrifugal water and particulate separation
   b. Stage 2: Water collection (99.9% water removal) and 30 micron hydrophobic particulate filter element - with water detection sensor and "push and turn" safety drain valve

c. Stage 3: LG-X Fuel Conditioner – to break down sediments and solids naturally forming in diesel fuel to submicron levels
d. Stage 4: Secondary 3 Micron particulate and/or water adsorbing spin-on filter

2. **Water Sensor:** Watect Model 550 microcontroller-based water sensor alarm module.

3. **Controls/Display Functions:** System control features, indicator lights and Manual/Off/Auto selector switch shall be located on a descriptive control panel on the front of the controller for easy operator access. Additional alarm and system status information shall be displayed on PLC text screen. System shall provide following control and display function:
    a. Programmable Digital Timer – Memory backup to retain program memory during power outages
    b. Pump operating hour counter
    c. Pump control switch (Auto/Off/Manual), weatherproof
    d. Alarm Reset - weatherproof push button
    e. Power available, Green indicator
    f. Pump running, Amber indicator
    g. High vacuum, high pressure, high water alarm, no flow, and leak detection, red indicator

4. **Electrical Enclosure/Controller:** All electrical control features shall be contained within a separate UL 508A listed industrial control panel connected to the mechanical assembly. The controller shall monitor the following system alarm points:
    a. Leak detection in drip tray (system shutdown)
    b. Primary filter high vacuum sensor (system shutdown)
    c. Primary filter high water sensor (system shutdown)
    d. Secondary filter high pressure sensor (system shutdown)
    e. Flow sensor (system shutdown)
    f. External system shut down input

5. **Pump:** Positive displacement, gear pump, direct coupled. Pump flow rate 10 gallons per minute.

6. **Motor:** UL, TEFC, Thermal overload protection

C. **Performance/Design Criteria:** Manufacturer must have a minimum of 10 years experience within industry. System shall be capable to turn complete tank volume over at least once a week with a required run time of no more than 48 hours for the total volume. Sufficient contaminant and water holding capacity should be ensured, which will vary with climate, tank layout, fuel delivery, refueling intervals, etc.

D. **Operation:** System shall provide dry contacts for summary alarm and leak detection to interface with building monitoring or alarm system. An external shut down feature shall be provided to disable or control pump operation from a remote point.

DISCLAIMER STATEMENT

This guide specification is intended for use by a qualified construction Specifier. The guide specification is not intended to be verbatim as a project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm, and the particular requirements of a specific construction project.