

Engineering Specifications

Automated Diesel Fuel Maintenance System

Diesel Fuel Tanks Up To 15,000 Gallons

Model Number: FT-I-5A



1. Diesel fuel storage tank shall be equipped with a **FM APPROVED**, and **NFPA EQUIPMENT COMPLIANT**, automated fuel maintenance system to remove particulate through 1 micron and 99.5% water from stored diesel fuel.
2. **Pump / Motor Ratings**
 1. Pump: 5-GPM, rotary gear, positive gear displacement.
 2. Pump motor: 1/3 HP, 120V AC, 1 phase, 60HZ, TEFC.
3. **Filtration Shall Consist Of:**
 - Stage 1: 100 Wire Mesh Strainer (149 Micron Spin on Filter).
 - Stage 2: 10 Micron Particulate Removal (Spin on Filter).
 - Stage 3: 3 Micron Particulate Removal (Spin on Filter).
 - Stage 4: Water Separation and Removal (Element type).
 - Stage 5: 1 Micron Particulate Removal (Element type).

(All filters shall be spin-on removable and / or replaceable element types)
4. **Suggested Filter Replacement Kit:**

(2 ea.) FL-30-100M, (2 ea.) FL-FBO-60327, (2 ea.) FL-30-10N, (2 ea.) FL-30-03N
5. **Controller Specifications:**
 1. Controller shall be a **UL LISTED, ASSEMBLY CONSISTING OF:**
 - A) **Siemens S7-224 PLC** - Inputs/Outputs: 24, Program Memory: 8 Kbytes, Bit Processing Time: 0.37 ms.
PLC Shall Monitor: 1. Motor Contactor and Overload, 2. Five Stages Filtration, 3. Leak Detection, 4. Water Level Sensor, 5. System Pressure, 6. Strainer Vacuum, 7. Flow Switch (Flow or no Flow)
 - B) **Siemens Circuit Breaker** - 2 Pole, 16 Amp
 - C) **Lockable Disconnect Switch**
 - D) **Siemens Motor Contactor and Thermal Overload** -16 Amp, Single Phase, 120V AC, 1/3HP, Class 10
 - E) **Siemens Multi Pole Terminal Block** - 26 Amp, 18-12 AWG
 - F) **Siemens TP177 Touch Screen** – Siemens Windows Based Software, 50,000 Hrs, 32 Bit
 - G) **Signal Device (audible alarms)** - 120 VAC, Slow Pulse, 80 to 95 dB
 2. Controller is programmable to operate up to four (4) separate diesel fuel storage tanks.
 3. Controller is programmable to time delay the following operations:
 - (A) Turning on of the fuel circulation pump (1-90 seconds). Required for Actuated ball Valves.
 - (B) Closing of Solenoid Valves or Actuated Ball Valves (1-90 seconds)
 - (C) Alarm status delay. (1-90 seconds)
 - (D) Flow Switch Alarm Delay 1-6 minutes.
 4. Controller includes an **audible alarm** and visual description for each alarm condition.
 5. Controller includes **two dry contacts** (one normally closed and one normally open) for remote **general alarm status**.
 6. **Optional- controller box strip heater** shall be a 50-watt, thermostat controlled, with UL component recognition (UR).
 7. Controller is capable of operating up to **(8) Solenoid valves** or **(8) Electric actuated ball valves**.
There are 4 relays, which operate 2 valves to each tank. One supply valve and one return valve per tank.
(Actuated ball valves must have 2 internal-SPDT switches. The two switches will turn the motor off when it reaches the full open and the full closed position).

6. **Enclosure**
 1. Complete FTI assembly is housed in a 2-door cabinet with **Powder Coat Finish** (doors are removable). Manufactured to NEMA 3R standards and designed for rack or wall mounting.
 2. Cabinet size: 33.50" W x 38.0"H x 14.0"D
 3. **Leak detection:** Provided in cabinet.
 4. **Total System Shipping Weight: 350 lbs.**

7. **Electrical Connection**

120V AC, Single Phase, 60 Hz, 20 Amp. **(120V AC Standard)**

8. **Plumbing**
 1. The **supply** or suction line shall be installed at the **sump**, or low end of the Diesel Fuel storage tank, with a **Foot Valve**, 1" from the bottom.
 2. The return line shall be installed to the opposite end of the storage tank.
 3. Caution should be taken **not to exceed the 15-ft. lift** capability of the fuel circulation pump.
 4. Should vertical suction lift exceed 15 ft., the circulation pump in FTI cabinet should be removed and replaced with a submersible pump in the storage tank. Submersible pump shall be wired to FTI control panel. A flow control valve and a flow meter may be required to set flow at 5 GPM. ***(The FTI inline Flow Switch (Flow or No Flow) will be removed for this application.)***
 5. **Inlet** – 3/4" NPT connection
 6. **Outlet** – 3/4" NPT connection
 7. **Minimum Suggested Supply Line Pipe Size: (1").**

Model FT-I-5A as Manufactured by
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