



Model FTI-20A

Single Tank

Engineering Specifications

Automated Diesel Fuel Maintenance System

Single Diesel Fuel Tank up to 60,000 Gallons

1. Description

- a. Diesel fuel storage tank shall be equipped with an **FM APPROVED**, and **NFPA EQUIPMENT COMPLIANT** automated fuel maintenance system.
- b. Filtration system shall remove particulates to 1 micron and water to 99.5% from stored diesel fuel.
- c. Fuel stabilizer shall be added to the diesel fuel in storage.
- d. Fuel biocide shall be added to the diesel fuel storage annually.
- e. **Includes: Modbus RTU, RS485 Serial Communications.**

2. Pump / Motor Ratings

- a. Pump: 20 GPM, Rotary gear, mechanical seal, positive displacement, pressure relief valve.
- b. Motor: 1 1/2 HP, 1725 RPM, 115/208-240V AC @ 12.4 / 6.2 Amps, 1 Phase, 50/60Hz, TEFC.

3. Filtration Process

- a. Stage 1: Strainer, 100 mesh (spin on filter)
- b. Stage 2: 10 micron, particulate removal (spin on filter)
- c. Stage 3: 3 micron particulate removal (spin on filter)
- d. Stage 4: Final filter, 1 micron particulate removal. (element type)
- e. Stage 5: Water coalescer and separator to 5 PPM. (element type)

4. Filter Replacement Kit: FRK-20A-S (Kit includes filters listed below.) (Not included with system)

- a. FL-50-100M – Strainer, 100 mesh, spin-on, 2 ea.
- b. FL-70-10N – 10 micron, spin-on, 2 ea.
- c. FL-70-03N – 3 micron, spin-on, 2 ea.
- d. FL-FBO-60336 – 1 micron / water separator, 2 ea.

5. Controller Specifications

- a. Control panel shall be UL 508.
- b. Siemens 1200 Series PLC, UL/CSA/CE/FM approvals.
- c. Siemens CB1241 RS485 Module (**Modbus Module included**)
- d. Motor contactor: UL/SA/CE approvals.
- e. Motor overload: UL/SA/CE approvals.
- f. Terminal block: 26 Amps, 18-12 AWG
- g. Lockable disconnect switch: UL/CE approvals.
- h. Dry contact general alarms: One set of dry contacts provided. (Normally open for all alarms)
- i. Siemens basic touch screen display.





- j. PLC shall monitor items 1-9
- k. Alarm conditions 1-9 shall be indicated by an audible horn.
- l. Visual alarm descriptions for items 1-9 shall be shown on the touch screen.
 - i. Strainer plugged (Vacuum switch gauge)
 - ii. 10 Micron filter plugged (Differential pressure switch gauge)
 - iii. 3 Micron filter plugged. (Differential pressure switch gauge)
 - iv. Water level in separator bowl at maximum. (Water detected)
 - v. Leak in cabinet. (Leak detected)
 - vi. Motor overload. (Motor/Pump issue)
 - vii. System pressure. (Pressure switch gauge)
 - viii. 1 Micron filter plugged (Differential pressure switch gauge)
 - ix. Loss of prime (Low set point on pressure switch gauge)
- m. Signal device (audible alarm):120/230V AC, Slow pulse, 80 to 95 Db.
- n. Controller shall be programmable to time delay the following 6 operations:
 - i. Vacuum / Strainer plugged (Vacuum switch gauge)
 - ii. 1, 3 and 10 micron filter plugged (Differential pressure switch gauge)(one alarm delay for 1, 3 and 10 micron)
 - iii. Water level in bowl at maximum. (Water detected)
 - iv. Leak in Cabinet. (Leak detected)
 - v. Low Flow. (Loss of prime)
 - vi. System pressure (Pressure switch gauge)
- o. One dry contact to turn off FTI system when generator starts.
- p. One dry contact to stop FTI system for any reason.
- q. One dry contact for leak detector alarm.
- r. One dry contact for motor running.
- s. **Connection for on Solenoid Valve.**

6. Enclosure

- a. Cabinet shall have 2 lift off removable doors.
- b. Cabinet shall be treated with **“Zinc Primer”** for corrosion resistance and **“Powder Coat”** finish.
- c. Cabinet shall be manufactured to **“NEMA 3R”** standards and designed for rack or wall mounting.
- d. Cabinet size: 48”W x 48”H x 16.5”D.
- e. Leak detection: Provided in cabinet.
- f. System weight: 550 Lbs.
- g. Cardinal Powder Coat PN: T075-WH34 Semi-Glass Vein White/Black

7. Voltage Options

- a. Choose one (115V AC, 1 Phase, 50/60Hz) (208-240V AC, 1 Phase, 50/60Hz)

8. Leak Detector

- a. 24V DC, N.O. (closes with liquid present)

9. Plumbing

- a. Supply line shall be installed at the sump, or low end of the fuel tank.





- b. Supply line shall be installed 1" from the bottom of the fuel tank, with foot valve.
- c. Return line to be installed at the opposite end of the fuel tank.
- d. Caution should be taken not to exceed the 15 feet lift capability to the fuel circulation pump.
- e. Inlet Connection = 2" NPT.
- f. Outlet Connection = 1.5" NPT

10. Installation Precautions:

- a. Model FTI-20A Single Tank has no protection against thermal expansion for the fuel lines. If the fuel lines are installed without pressure relief, damage may occur to the pump, motor or filters.
- b. Installer should prevent any closed loop with the FTI-20A system in the middle.
- c. FTI will not be responsible for any damage due to excessive line pressure caused by thermal expansion.

**Model FTI-20A Single Tank System as Manufactured by
Fuel Technologies International**

