

# Specification:

## Diesel Fuel Day Tank with Supply Pump and Motor

### I. Manufacturer Qualifications

- A. Manufacturer shall have a minimum of ten years experience in the design and construction of day tank systems.
- B. Manufacturer must be Underwriters Laboratories (UL) listed

### II. Construction

- A. Day tank shall be **Engine & Compressor Accessories** DT Series or approved equal, and constructed in accordance with Underwriters Laboratories Standard UL-142. The day tank shall also be constructed in accordance with Flammable and Combustible Liquids Code, NFPA 30; and The Standard for Installation and use of Stationary Combustible Engine and Gas Turbines, NFPA 37. Day tank shall be made of heavy gauge steel lap joint construction. Tank shall include removable, welded steel top cover for indoor applications, and welded steel, weatherproof cover for outdoor applications. Tank interior shall be coated with a permanent, rust inhibiting, two part epoxy. *Interior temporarily coated with solvent-based or petroleum based film rust preventative shall be unacceptable.* Tank shall be primed and finish painted outside. The tank shall include the following fittings:
  - 1. 1" NPT engine supply
  - 2. 1" NPT engine return
  - 3. NPT fitting for emergency vent, sized as appropriate
  - 4. 1" NPT overflow
  - 5. 1" NPT alternate fuel return
  - 6. 1-1/4" NPT normal vent
  - 7. 5" square inspection port below electrical controls
- B. The tank shall be provided with atmospheric (normal) vent cap with screen and appropriately sized UL Listed emergency vent cap. UL Listed emergency vent cap shall be pressure operated. Opening pressure shall be 0.5 psig; full opening pressure 2.5 psig. Limits shall be marked on top of each vent.

### III. Fuel Containment Basin

- A. The day tank shall include a welded steel containment basin to prevent fuel spilling into the environment in the event of a tank leakage. The basin shall be primed and finish painted.
  - 1. RUPTURE BASIN (indoor applications only)
    - a. The basin shall consist of an open-top, welded heavy gauge steel structure sized at a minimum of 150% of the tank capacity.
  - 2. SECONDARY CONTAINMENT (outdoor applications and indoor applications where required by local codes)
    - a. The secondary containment shall consist of a welded heavy gauge steel structure. The secondary containment shall be provided with atmospheric (normal) vent cap with screen and appropriately sized UL Listed emergency vent cap.

#### IV. Leak Detection System

- A. A [rupture basin] [secondary containment] leak detector float switch shall be wired into the control circuitry. This will shut down the supply pump and motor, and de-energize the solenoid in case of a fuel leak into the containment basin.

#### V. Fuel Level Gauge

- A. The tank shall include a direct-reading fuel level gauge.

#### VI. Automatic Day Tank Level Controller

- A. The control circuitry shall be designed and supplied as an engineered system by **Engine & Compressor Accessories**. The controller shall have replaceable relays or approved equal: non replaceable relays shall be unacceptable. The controller shall have independent float switches to provide multiple signals to the control circuitry.

##### 1. CONTROL FUNCTIONS

- a. "Press-to-Test" fill control momentary switch
- b. Critical high fuel level (Pump/motor shutdown)
- c. High fuel level
- d. Low fuel level
- e. Critical low level [12V DC] [24V DC]
- f. Rupture basin alarm (Pump/motor shutdown)
- g. Pump/motor [and solenoid] control

##### 2. INDICATION FUNCTIONS

- a. Pump Running
- b. Critical high fuel level
- c. High fuel level
- d. Low fuel level
- e. Critical low level

##### 3. OUTPUTS (one set of normally open and normally closed 10 amp @ 120 VAC relay contacts for remote annunciation.)

- a. Critical high fuel level (Pump/motor shutdown)
- b. High fuel level
- c. Low fuel level
- d. Critical low level
- e. Rupture basin alarm (Pump/motor shutdown)

#### VII. Pumps

- A. The tank shall include a positive displacement bronze rotary gear fuel oil pump to draw fuel oil from the main tank to the day tank. Pump capacity shall be sized as appropriate and provide a minimum of 15 feet of vertical lift of diesel at sea level. A motor shall be provided of sufficient horsepower to operate the pump.

## **VIII. Duplex Pumping System (Supply Pumps)**

- A. In applications requiring a duplex pumping system the tank shall include two bronze rotary gear pumps and two motors.
  - 1. NON ALTERNATING SYSTEM
    - a. The lead pump shall activate when the fuel level declines to 86% of tank capacity; the second pump shall activate and operate in tandem with the lead pump if the fuel level declines to 82% of capacity.
    - b. Check valves shall be provided on the pump fuel inlets.
    - c. "Run-Off-Auto" switches replace standard "Press-to-Test" switch.
  - 2. ALTERNATING SYSTEM
    - a. The pump/motors shall alternate as the lead when the tank is pumping fuel. The lead pump shall activate when the fuel level declines to 86% of tank capacity; the second pump shall activate and operate in tandem with the lead pump if the fuel level declines to 82% of capacity.
    - b. Check valves shall be provided on the pump fuel inlets.
    - c. "Run-Off-Auto" switches replace standard "Press-to-Test" switch.

## **IX. Reverse Pumping System**

- A. A reverse pumping system shall be provided in applications where the primary tank's maximum fuel level is at a higher level than the day tank. The reverse pump/motor will return fuel to the primary tank in the event the day tank level exceeds its normal capacity. The reverse pump shall be activated by a separate float switch. The reverse pump capacity will be equal to or greater than the capacity of the supply pump. If the tank includes a duplex supply pumping system, the reverse pump shall be equal to or greater than the combined capacity of the two supply pumps.