



Insight  Onsite

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SMARTPUMP Sample Specification

Engineer's specifications for a storage tank fill box with automatic overflow prevention and automatic fill shutoff.

1.0 Tank Fuel Filling System

Provide a grade level fuel transfer pumping system with spill containment; overflow prevention and automatic fill shutoff. The SMARTPUMP shall be used for filling fuel oil storage tanks. The SMARTPUMP is for use with class II, flammable liquids, those having a flash point greater than 100 degrees F: fuel oil, diesel fuel, and kerosene.

- 1.1 The SMARTPUMP shall be installed outdoors upon a concrete pad at a location as specified elsewhere.
- 1.2 The SMARTPUMP shall transfer fuel from a gravity tanker truck to storage tanks via the pump system on-board the unit, as described below. The SMARTPUMP shall permit full draining of the truck delivery hose upon completion of fuel delivery.
- 1.3 The SMARTPUMP shall include the following fittings and features:
 - 1.3.1 Steel, weatherproof, lockable containment box with hinged door finished in Simplex white with blue doors
 - 1.3.2 External, stainless steel ground stud for attachment of delivery truck ground cable
 - 1.3.3 4" quick disconnect coupling for attachment of user's delivery hose
 - 1.3.4 4" bypass connection for use with user's delivery hose from pumper truck delivery service
 - 1.3.5 Inlet shutoff manual valve
 - 1.3.6 Motorized valves, shipped loose, Qty 1
 - 1.3.7 Thermal expansion pressure relief valve, shipped loose
 - 1.3.8 15-gallon spill containment sump with drain to pump inlet with handpump
 - 1.3.9 Outlet check valve
 - 1.3.10 Outlet shutoff manual valve
 - 1.3.11 3" threaded fitting for attachment of outlet pipe to tank.
- 1.4 The SMARTPUMP shall include a motor driven high capacity fuel transfer pump as follows:
 - 1.4.1 Pump: 300 GPM at 55 foot of head, 3600 RPM, cast iron, bronze fitted, carbon-ceramic / BUNA-N mechanical shaft seal
 - 1.4.2 Motor: Totally enclosed, fan cooled, rigid base, 3600 RPM, 5 HP, (208/230/460) VAC, 3-phase
- 1.5 The SMARTPUMP shall include a PLC and 3" HMI controlled system with overflow alarm and shutoff system as described below. The system shall require an external source of AC power, 208/230/460, 3-phase. The control system shall include:
 - 1.5.1 TYPE 3R rainproof, lockable enclosure with hinged door
 - 1.5.2 4-20mA Level transmitter for installation in the storage tank, Qty 1
 - 1.5.3 Leak sensor float switch for installation in the storage tank's interstitial space, Qty 1
 - 1.5.4 Level display reading in Percent and Gallons
 - 1.5.5 High visibility notification on HMI: 90% level
 - 1.5.6 High visibility red alarm banner on HMI: 95% level
 - 1.5.7 90 dB audible alarm horn activated at 90%, 95%, and on storage tank leak



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- 1.5.8 Control power ON/OFF switch
 - 1.5.9 Fill Start/Stop controlled via HMI
 - 1.5.10 Automatic valve closure at 90% level
 - 1.5.11 Override circuit and 30 second timer to permit override of 90% shutoff to allow pump-out of delivery hose or spill containment. 95%, and leak lockout cannot be overridden.
 - 1.5.12 Leak sensor alarm circuit input which activates automatic valve closure
 - 1.5.13 Indicators for:
 - 1.5.13.1.1 Power available
 - 1.5.13.1.2 Fill valve disarm/closed
 - 1.5.13.1.3 Fill valve open
 - 1.5.13.1.4 Tank leak
 - 1.5.14 Transfer pump motor starter with overload relay
 - 1.5.15 Control power transformer for 120 VAC operation of controls
 - 1.5.16 Control power fuses
 - 1.5.17 Remote alarm contacts:
 - 1.5.17.1.1 Tank High
 - 1.5.17.1.2 Leak
 - 1.5.17.1.3 Tank Full
 - 1.5.18 Modbus via RS-485
- 1.6 The SMARTPUMP system shall be supplied with manufacturer's warranty.
- 1.7 The services of a factory-authorized or factory based, field service technician to provide start-up services, including inspection, calibration and first operation are available for the SMARTPUMP.
- 1.8 System shall be a Simplex SMARTPUMP, Model "SP-4" as described above. To be supplied by Simplex, Inc, 5300 Rising Moon Rd., Springfield, IL 62711. 217-483-1600.