

TOP MOUNT SLIP-ON FIREFIGHTING UNIT

DRAWINGS

To ensure unit will be built to the customer's specifications, C.A.D. drawings from multiple angles of the complete package will be provided to the buyer prior to construction of the unit. Drawings must be kept on file for five years at the contractor's facility.

SPECIFICATIONS

1.0 General Description

The purpose of these specifications is to describe a self-contained modular slip-on firefighting unit consisting of tank, reel, control panel, engine and pump that can be easily mounted or removed from a pickup bed truck chassis of sufficient payload capacity for the unit, full of all fluids. The bidder shall note any exceptions or variations to these specifications.

1.1 Capacity and Dimensions

The unit shall have a water tank with capacity of ___ Gallons (U.S.) with the overall dimensions set according to customer's specifications. Empty weight shall be approximately ___ pounds.

1.2 Frame

The entire unit shall rest on an aluminum square tubular 2" frame that supports tank and platform. The frame is constructed so that the tank is fully supported with the areas between the interior frames not exceeding 540 square inches. The tank shall be isolated from the frame with 60 durometer, minimum .25 inch thick by 2 inch wide, hard rubber cushion between the frame and tank. The frame shall provide mounting flanges to truck bed. Frame shall be manufactured by the contractor.

1.3 Water Storage Tank Construction

The tank shall be constructed of 1/2" thick polypropylene sheet stock. This material shall be non-corrosive stress relieved thermo-plastic, natural black in color and U.V. stabilized for maximum protection. Materials used shall be compatible with fire fighting foams, retardants and wetting agents, and meet FDA requirements for potable water. All joints and seams shall be extrusion double welded and tested for maximum strength and integrity. The transverse baffle partitions shall be manufactured of 1/2" stock of the same material and extend from the floor of the tank to the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All baffle partitions shall interlock with one another and be welded to each other, as well as to the walls of the tank. Grooves on tank wall to be cut on a computer numerical controlled machine to ensure baffle stability. Tank fill connections shall be backed with flow deflectors to diffuse the stream entering the tank. The end wall of tank shall have a vertical translucent panel sight gauge.

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The tower shall have a 1/4" thick, removable polypropylene screen and a polypropylene stainless steel hinged cover. A combination vent and overflow pipe inside the fill tower, approximately 1 1/2" down from the top, shall be fastened to a combination vent outflow pipe. The vent overflow shall be a schedule 80 polypropylene pipe.

Tank shall have internal sump/baffle system of same material and construction. The sump shall have a minimum 1 1/2" threaded outlet on the bottom for a drain plug. This shall be used as a combination clean out and drain. A foot valve and anticavitation suction strainer will be

incorporated in the tank. The foot valve device will be supported by a 2" stainless steel pipe and flange. The foot valve will be removable for maintenance and cleaning. The tank shall be equipped with an anti-cavitation device. The tank in its entirety shall be manufactured by the contractor.

1.4 Diamond Plate

The entire top of the water tank shall be covered with .125 aluminum diamond plate with broken edges minimum 1", welded and finished. All proportions of frame not covered by the tank shall be covered in similar manner, with a minimum 2" broken edge. All components shall be mounted on top of the tank. Diamond plate shall be sheared, bent, and welded by the contractor.

2.0 Pump

The pump shall be a CFE #24191 single stage centrifugal pump. The pump head shall have 2" NPSH suction and 1.5" NH discharge. The volute and the body shall be high strength aluminum alloy, hard coat anodized for corrosion resistance. The impeller shall be of a fully enclosed all bronze construction with double hubs to balance hydraulic thrust and reduce vibration. The bronze wear ring and carbon/ceramic mechanical seal shall be longwearing and easily replaced. All external areas of the pump shall be powder coated. The pump shall be rated 110 GPM at 100 PSI and 23GPM at 300 PSI, when powered with an 18 hp engine. Pump shall be provided with an electric primer. Pump shall be manufactured by the contractor.

2.1 Engine-Gas

An 18 hp Briggs & Stratton Vanguard Engine, Model 350400 shall power the pump. Engine to be four cycle, twin V cylinder, air cooled, overhead valve design, using regular gasoline fuel. Lubrication shall be full pressure, with spin on oil filter, oil fill tube and dipstick. The oil drain shall be extended for easy changing. The engine shall have manual recoil and a 12-volt electric starter. Engine shall be mounted on a separate 1" thick platform, constructed of same material as the tank. Engine platform shall be attached to unit with stainless steel studs, flat washers and nuts, which do not require access to underside of platform. Fuel tank shall be a four-gallon metallic, powder coated remote tank mounted on the unit, with fuel line, and fuel level gauge. Fuel tank shall be manufactured by the contractor. Pump to be fitted with automatic shut-off system, actuated by pressure sensing switch and designed to shut down engine upon loss of water supply, reducing possible pump seal damage. System shall have provision for manual override.

2.2 Control Panel

The control panel shall consolidate pump and engine controls at operator's position. Panel shall be constructed of stainless steel. Using CNC router, labels shall be etched into control panel, identifying each function. Wiring is to be protected by a circuit breaker, and enclosed in protective loom. The sides and rear of the panel shall be protected with a removable weather resistant cover. Panel to include the following:

- Vernier throttle control, twist-lock type with quick release center button
- Choke control
- Ignition switch with pilot light
- Start push-button
- Primer control switch
- Hour meter
- Automatic pressure loss switch
- Combo gauge, 30", 0-400 PSI, silicone-filled, 3½" freeze-protected, with polished stainless steel trim ring

3.0 Plumbing-General

Plumbing pipe shall be 304 seamless schedule 40 stainless steel, welded, sanded and shot-blasted to a smooth finish. Steel braided hydraulic hose with reusable end couplings shall provide vibration control to tank and reel stainless steel plumbing manifolds. Tank to pump line shall be 2" full flow suction hose. All valves to be fire service quality with self-locking feature. Valves that are 1" or larger shall be full flow, quarter turn, swing out style bolted to stainless steel flange in order to provide maximum performance and ease of maintenance. All valves shall be labeled as to function.

3.1 Suction/Discharge Ports

The pump plumbing will include the following:

- Pump to tank 3/8" recirculation line with shutoff shall be provide to reduce danger of pump over heating.
- Pump to tank 1" refill line equipped with a valve to permit refilling the tank directly from the pump.
- Tank to pump 2" suction line, equipped with a valve to control tank or overboard suction supply.
- Pump to reel 1" 304 seamless schedule 40 stainless steel, welded, sanded, and shot-blasted to a smooth finish, and high-pressure flexible line with full flow valve, to supply reel booster hose.
- Auxiliary overboard 1½" discharge valve, (M), NH, with chrome cap and retainer chain, to supply additional hose line.
- Auxiliary overboard 2" draft connection, (M), NPSH, with chrome cap and retainer chain, to permit water supply from another source to suction inlet of pump.

3.2 Components

All fasteners and adjustable plumbing brackets used shall be stainless steel. All tubing shall use quick connect metal camozzi fittings, rated to 500 psi and requiring no tools. Brass knife inserts will be used to secure diamond plate and components to top of tank, for ease of installation and removal of components. No underside nuts or bolts shall be used. Non-slit corrugated loom shall cover all water and foam auxiliary lines. A complete installation kit shall be included.

3.3 Hose Reel – Electric

A single hose reel shall be mounted on the tank top platform. Reel shall have electric rewind capability, powered by a 1/3 HP motor through a chain and sprocket drive. Reel to be equipped with 200' of ¾" booster hose, coupled with 1" Barway couplings and complete with dual nozzle manufactured by the contractor. Rotary join to be 1" full-flow replaceable and suitable for repacking; designed to operate at pressures up to 1000 psi and temperatures from -80°F to +185°F. The base support shall be of all welded aluminum construction. Overall height will not exceed 30", overall length not to exceed 18¾" and width not to exceed 28¾". Water service provided through 1" full-flow valve with flexible, high-pressure hose fitted and secured with reusable couplings. Reel shall be provided with a pinion brake and a removable auxiliary hand crank for rewinding hose reel shall be mounted to tank on 1" x 3" x 5" polypropylene and heli-coils, no underside nuts or bolts.