Danko Mobile Draftmaster

Fire Pump Testing and Pump Training Simulator Unit

(Meets NFPA-1911 2007 Standards)

The Danko Mobile Draftmaster unit is designed to conserve water by recirculating water while performing fire pump testing and department training. Also designed to cool the water while pumping into the water diffuser in the discharge tunnel.

The effect of the cooling will depend on the ambient temperature of the air.

The Draftmaster is also designed to train personnel on pump operations by creating simulated scenarios of the fire scene using the instructors electronic flow control and electronic water flow meter.

TRAILER FRAME

The trailer frame shall be fabricated of steel and mig welded and designed to form an integral structure. The perimeter of the trailer shall be constructed of 2" x 6" x ¼" wall steel rectangular tube to cradle and support the polypropylene tank and keep it from shifting. The trailer crossmembers shall be 2-1/2" x 2-1/2" x 1/4" thick. The frame will support the tank, compartments, fenders and rear step.

The completed unit shall have a folding tongue and a maximum length of 16' long.

Two (2), tandem tear drop steel trailer fenders shall be provided and welded to the frame.

Two (2), 10,000 lb. drop down adjustable stabilizers shall be welded to the rear of the trailer frame.

The complete trailer frame, hose rack, platform step and fenders shall be hot dipped galvanized after its fabrication and construction, and shall have a life time warranty for rust and corrosion. (NO EXCEPTION)

There shall be a minimum of 1/4" rubber pad installed between the frame and the bottom of the tank to prevent chafing. (NO EXCEPTION)

Two (2), aluminum tread plate overlays shall be bolted to the rear platform frame, one on each side.

TRAILER AXLES

The trailer shall have a 7,000 lb. GVWR and the axles shall be bolted to the bottom of the main undercarriage at a location that will provide for the proper tongue load and will assure stability of the trailer at highway speeds.

Two (2), heavy duty 3,500 pound rubber torsion axles with bearing protectors and electric brakes.

TRAILER TIRES

Four (4), ST205/75R15LRC radial Goodyear Tires with 15" steel rims. Each tire shall have a maximum capacity of 1,820 lbs.

One (1), spare ST205/75R15LRC radial Goodyear tire with 15" steel rims shall be provided and mounted to the bracket in front of the trailer.

SPARE TIRE BRACKET

One (1), spare tire bracket shall be fabricated of steel and built integral with the front trailer frame. The tire bracket shall be designed to paddle lock the spare tire to the trailer.

FRONT STABILIZER JACKS

Two (2), 7,000 lb. adjustable hand crank stabilizer jacks shall be provided and bolted to the front of the trailer frame.

TRAILER TONGUE

One (1), heavy duty folding tongue with class four 2” ball hitch shall be located at the front of the frame.

Two (2), DOT compliant 7/16" diameter, 37" long safety chains with hook and latch shall be provided and mounted at the front of the frame. The chain shall have a breaking strength of 25,000 lbs.

One (1), model J-BREK clamshell style breakaway kit with an LED test button and built in charger shall be provided and installed for the electric brakes.

One (1), 7-prong 12-volt electrical plug with a 8-wire cord shall be supplied and mounted near the tongue.

DOT LIGHTING

The rear combination brake, turn, and stop tail lights to be LED 4" round with red lens and license plate with mounting holes and light shall be installed in the rear aluminum treadbrite deck plate.

LED Clearance lights and reflectors, to comply with ICC regulations shall be provided and installed.

TANK

The capacity of the water tank shall be 2,400 U.S. gallons.

The tank shall be a UPF POLY-TANK II and shall be constructed of black 1/2" thick PT2 polypropylene sheet stock. This material shall be a non-corrosive stress relieved thermo-plastic and U.V. stabilized for maximum protection. The tank shall be designed and baffled in accordance to current NFPA 1901 specifications. (National Fire Protection Association)

The tank shall be a wet side low profile "T" square type design and be completely independent of the trailer frame and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removability. The transverse swash partitions shall be manufactured of 3/8" PT2 polypropylene (natural in color) and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of 3/8" PT2 polypropylene (natural in color) and extend from the floor of the tank through 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 swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

The tank shall have seven (7) cross baffles to direct the flow of water under and over each baffle, dissipating the water air bubbles before entering the fire apparatus pump intake.

The tank shall have a sump with two threaded tank outlets in the floor. One outlet shall be used as a 3” cleanout with plug and the other shall be for a 2” drain.

Two (2), 6” polypropylene tank suction flanges shall be provided at the rear of the tank one on each side.

The polypropylene tank shall have two mounting blocks built within the bottom of the tank; one in front and one in the rear of tank. The tank shall be fastened to the steel undercarriage crosstubing with two (2) steel U-clamps. Each U-clamp shall be fastened to the tank with six (6), 1/2" diameter steel bolts. Rubber pads shall be located between the U-clamps and the crossmembers of the undercarriage.

The tank shall be natural black in color unless otherwise specified.

The tank shall have a LIFETIME WARRANTY as supplied by the tank manufacturer.

VISUAL WATER TANK SITE LEVEL GAUGE

There shall be a standard built in visual site gauge 2" in width, natural in color, and 70% transparent located in the right side wall of the tank.

WATER TANK TEMPERATURE GAUGE

One (1), water temperature gauge 25-125 degrees shall be provided and installed in the water tank and located in the storage compartment.

TANK VENT OPENINGS

Two (2), tank air outlet towers shall be provided on top of the tank to release the air and dissipate heat from the tank during fire pump discharge into the water diffuser in the discharge tunnel. The outlet towers shall be approximately 24” W x 18” L with a 2” lip around the openings and located one on each side of the tank towards the rear. Two (2) treadbrite aluminum hinged covers to be fabricated and bolted to the outlet towers. The covers to have a pneumatic strut to hold open and closed.

TANK OVERFLOW

One (1), 3” vent/overflow tube shall be provided and piped to left side of the tank ahead of the trailer axles and terminate with a 2-1/2” female NPT bung.

One (1), 2-1/2” male NPT x 2-1/2” male NH black powder coated adapter shall be mounted to the overflow discharge.

TANK DRAIN VALVE

One (1), 2" quarter-turn tank drain valve shall be provided under the tank sump and accessible from the right side of the trailer.

TANK FILL

One (1), 1-1/2" quarter-turn valve shall be provided on the right side of the tank below the tank frame and ahead of the trailer axles to fill the tank.

One (1), 1-1/2” check valve shall be provided on the tank fill to prevent backflow into the water supply line.

One (1) 1-1/2” NPT male x 1-1/2” NH black powder coated female swivel adapter on the tank fill inlet.

This valve is used to add water to the tank to maintain the temperature of the water in the tank if needed while pumping.

REAR DISCHARGE MANIFOLD

One (1), 6" diameter round horizontal Manifold to be fabricated of 304 schedule stainless steel and painted red. The completed manifold shall be mounted at the rear of the tank with two (2) 6" stainless steel u-clamps. The manifold shall have a 1" quarter turn brass drain valve

The manifold shall have the following:

One (1), 4" NH male adapter inlet with a 4" rocker lug cap with chain. The adapter shall have a black powder coat finish.

Four (4), 2-1/2" NH gate valves with 2-1/2" female swivels.

One (1), 6" vertical water stream straightener built integral with the manifold and a 4" stream straightener tube shall be provided. The 4" discharge tube shall have a 90 degree elbow directed into the tank discharge tunnel and terminating with a 3" NH chrome male adapter.

WATER DISCHARGE DIFFUSER

One (1), water diffuser shall be fabricated of steel and hot dipped galvanized. The diffuser to be mounted in the discharge tunnel at the upper rear of the tank. The diffuser to be designed to disperse the force of the discharge stream into a fan pattern and atomize the water into small droplets so the water discharge creates a venture air flow to cool the water while pumping. *(NOTE: The cooling of the water will depend on the ambient temperature while flowing water.)*

LEFT SIDE TANK SUCTION OUTLET

One (1), 6" suction outlet with a quarter turn wafer valve. The valve shall have rotary gearbox with handwheel to control the valve. The valve can be controlled to create simulated inch pounds of vacuum (Feet/Lift) when pumping water.

One (1), 6" NPT x 6" NH female long handle chrome swivel adapter shall be provided on the inlet.

One (1), 1" quarter turn drain valve shall be provided.

RIGHT SIDE TANK SUCTION OUTLET

One (1), 6" suction outlet with a quarter turn wafer valve. The valve shall have rotary gearbox with handwheel to control the valve. The valve can be controlled to create simulated inch pounds of vacuum (Feet/Lift) when pumping water.

One (1), 6" NPT x 6" NH female long handle chrome swivel adapter shall be provided on the inlet.

One (1), 1" quarter turn drain valve shall be provided.

OVERHEAD DRAFTING SYSTEM

One (1), 6" overhead horseshoe type drafting system shall be located on the right side rear of the suction outlet, and draft water up to 5' above the water level in the tank. The inner tube of the drafting system shall have a clear lexon tube to visually see the water lift and flow during operation. The overhead draft system shall be capable of lowering to 8'-6" traveling height.

One (1), ½" valve shall be provided to release the siphon from the overhead draft tube.

FIRE HOSE STORAGE RACK

One (1), fire hose rack fabricated of steel and welded to the rear left side and built integral with the trailer frame.

An aluminum treadbrite enclosure with a horizontally hinged door and key locking latch shall be provided and mounted to the fire hose rack.

The hose storage rack shall have a capacity to store five (5), 3" x 50' and one (1), 1-1/2" x 50' fire hose rolls.

The rack shall be designed for air ventilation to dry the hose and to allow three (3), 3" x 50' hoses to be preconnected to the intake manifold.

UPPER REAR STEP PLATFORM

The upper step platform shall be fabricated of steel and welded to the right side of the hose rack and built integral with the trailer frame. The standing surface shall be covered with non-slip expanded metal and to be used for ease of changing nozzles on the pitot.

HARD SUCTION HOSE COMPARTMENT

A hard suction hose storage compartment fabricated of ½" polypropylene and built integral with the left side of the water tank shall be supplied and capable of storing four (4), 6" Diameter X 12' long handle hard suction hoses.

The hoses shall be loaded from the rear of the compartment and have a ½" diameter stainless rod at the rear to secure the hoses in the compartment. It shall be designed for use with a padlock.

COMPARTMENT

One (1), smooth aluminum cabinet shall be located on the right rear side of the tank. The compartment shall be approximately 48" W x 56" H x 12" D and enclosed with a single roll-up door with keyed lock.

The compartment shall be painted red in color.

The roll-up door shall be Robinson Shutter type, with 34mm aluminum slats that roll onto a spool at the top of the compartment. Each slat has interlocking end shoes to prevent each slat from moving side-to-side and binding the door. Between every slat is a co-extrusion PVC & Rubber inner seal to prevent metal-to-metal contact, dirt and moisture from entering the compartment. This inner seal is hidden to provide a consistent image of the door.

Each individual roll-up door shall have a four inch diameter counterbalance operator drum to assist in lifting the door along with a two inch wide finger pull integrated as part of the bottom rail extrusion for easy one hand opening and closing. There shall be nylon end shoes on every slat to assure operation without constant lubrication.

The slats, track and trim shall have an anodized satin finish to eliminate oxidation and rusting.

The roll-up door latch system shall be a full width one-piece lift bar operable by one hand. A key lock cylinder shall be installed to provide security, with lock rods operating through the bottom rail of the door.

One (1), nozzle flow chart *(ranging from size 1" to 3" tips and flow up to 2,500 GPM)* shall be attached to the rear of the compartment.

This compartment is used to hold the training controls, flow test equipment, adapter, tools, and a tripod with test gauges and hoses.

REMOTE TEST GAUGE TRIPOD

One (1), aluminum adjustable height tri-pod stand shall be provided to accommodate the pump test gauges for remote operation and testing.

The remote tripod shall have the following mounted in a stainless steel frame:

One (1), pressure gauge (0-400 PSI) for apparatus discharge pressure.
One (1), 20' length blue hose shall be provided with quick disconnect fittings.

One (1), exaggerated vacuum gauge (-30-0 VAC) for apparatus vacuum.
One (1), 20' length black hose shall be provided with quick disconnect fittings.

One (1), pressure gauge (0-160 PSI) for discharge pitot pressure.
One (1), 20' length red hose shall be provided with quick disconnect fittings.

All test gauges shall be certified and stem mounted for easy removal. A gauge certification shall be supplied at final delivery.

The tripod stand with gauges shall be stored in the compartment on the right side. The tripod shall have a quick disconnect to remove easily from the compartment.

FIRE HOSE TEST EQUIPMENT AND ADAPTERS

The equipment listed below shall be provided with the completed pump testing unit:

Four (4), Maxi-flex 6” Diameter x 10’ Long hard suction hose with 6” NH long handle female swivel x 6” NH male pyrolite couplings.

One (1), 3” NH female x 2 ½” NH male tapered reducer adapter shall be provided and attached to the stream straightener discharge tube for the Akron FK-25 test barrel.

One (1), Akron FK-25 2-1/2” NH Female Barrel test kit with a (testing range of 250-1500 GPM) shall be provided. The kit shall come with an adjustable tube positioned in the waterway discharge for accurate GPM testing and include ¾”, 1”, 1-1/4”, 1-1/2”, 1-3/4”, 2”, 2-1/4” and 2-1/2 Bore Tips

One (1), Akron FK-30 3” NH Female test barrel with a permanent pitot tube positioned in waterway discharge for accurate GPM testing. *(Pump Test 1,750-2500 GPM)*

One (1), Red Head Brass 148-3 spanner wrench set shall be provided and mounted in the storage compartment.

One (1), 5” F NH X 6” M NH Adapter

One (1), 4-1/2” F NH X 6” M NH Adapter

One (1), 4” F NH X 6” M NH Adapter

One (1), 3” F NH X 6” M NH Adapter

One (1), 3” M NH X 2-1/2” F NH Adapter

One (1) 5” Screw Mounting Plate

One (1) 4-1/2” Screw Mounting Plate

One (1) 4” Screw Mounting Plate

Two (2), 3” Screw Mounting Plate

Nine (9), 2-1/2” male NH mounting plates for the straight bore tips.

DANKO MOBILE DRAFTMASTER
OPTIONS

☐ PUMP TRAINING CONTROLS

One (1), 3” full flow quarter-turn valve shall be located ahead of the 3” discharge directed into the upper tunnel. The valve shall be controlled with an electronic actuator.

An electronic digital read-out module valve controller located in the compartment shall control the valve during pump training of personnel. The controller and valve shall regulate the flow of the discharge. The digital read controller shall have preset stops set at 250-500-750-1000 GPM flow to the Draftmaster.

☐ ELECTRONIC FLOW METER

One (1) flow meter adapter port built into 4” discharge tube after the water straighteners with a Fire Research electronic paddlewheel sensor.

One (1), Fire Research digital readout electronic flowmeter with a capacity of 300-2500 GPM to be located on the test gauge tripod.

The flow meter shall be used for pump testing as well as pump personnel training.