



MISSOURI DEPARTMENT OF TRANSPORTATION
TRAILER MOUNTED ENGINE-DRIVEN SMALL MELTER APPLICATOR
SPECIFICATIONS

General

This double type Melter/Applicator should be the manufacture's current model. This unit shall be capable of heating and applying (without modification) all grades of asphalt rubber sealants, specification joint sealants and fiber modified sealants. The machine shall be capable of starting at ambient temperature, bringing the sealant material up to application temperature in one hour or less.

Frame

This unit shall be trailer mounted. The tongue shall be adjustable in height above ground level at least 15 to 30 inches permitting practically level towing with a wide range of towing vehicles. The towing hitch shall be a pintle hitch with a minimum of a 3 inch opening bolted to the hitch plate for easy height adjustment and/or conversion to other type hitches. The frame shall be constructed of either 4 inch steel channel or 2 inch by 6 inch tube steel design.

Running Gear

The unit shall be equipped with a single independent rubber torsional axle; having a safe load capacity of 5,200 pounds, electric brakes, modular wheels and 15" radial tires (Load Range D). A swing away screw type tongue jack shall be furnished. It shall be a heavy-duty type with a load capacity of 7,000 pounds and be a side mounted for positive road clearance while undertow. The unit shall also be equipped with two safety chains not less than 48 inches of .25 inch coil proof design, attached to the frame with a drilled type clevis pin and hooks on the opposite end with safety clips.

Lights

The unit shall have dual taillights, stop lights and turn signals. A license plate holder shall be attached to the driver's side taillight. The light connectors shall be a 7-way receptacle type.

Heating Tank

The material heating tank shall have a minimum capacity of 110 gallons to a maximum capacity of 125 gallons at ambient temperature. A double boiler type jacket shall create a reservoir, which shall hold no more than 35 gallons of heat transfer oil at 70 degrees F (21.1 degrees C). The oil jacket shall wrap around 100% of the outside area of the material tank sides and bottom and allow for complete circulation of the heat transfer oil. The tank and jacket shall be constructed of minimum 10-gauge steel.



Loading Hatch

A low profile opening for loading shall be required at the top of the material tank and located on the curbside of the machine for operator safety. The loading height shall not exceed 59 inches for operator convenience. The opening shall have a minimum area of 252 square inches. The lid shall be hinged to allow placement of a block of sealant to provide easy anti-splash loading.

Insulation

The heating tank shall be insulated with a minimum of 1" thick high temperature ceramic or industrial insulation and covered by a 22-gauge steel outer skin.

Cold Sealed Tank

A sealed cold tank shall be provided to minimize oil oxidation and prevent moisture condensation into the heat transfer oil.

Heating System

The heat transfer oil is heated by one (1) 12 volt 250,000 BTU high efficiency forced air diesel burner fired directly into a lined combustion chamber and at the bottom of the heat transfer oil tank. The total area exposed to the burner may be up to 5,244 sq. in. The material tank may be up to 4,267 sq. in. with the heat transfer oil. This provides for a melt rate of approximately 800 pounds per hour. There will be a shroud installed over the burner for protection.

Ignition Burner

Burner shall be lit by a constant duty voltage transformer powering an electric spark ignitor. This ignitor shall work in conjunction with a sensor that detects a lack of burn or ignition and shuts down the fuel supply. The thermostat control is located on the curbside of the machine for operator safety.

Pumping Unit

An internal hardened steel gear pump located in the center and bottom of the material tank or an external 2 inch helical gear pump must be provided for pumping of sealant from tank. If the pump is mounted externally it shall be located inside an insulated heated cabinet. The cabinet will have insulated doors at the rear of machine. If the pump is mounted internally, a heated cabinet shall not be required. The pump must be reversible for cleanout. Sealant delivery shall be on demand and pumping of sealant is to be controlled by a switch on the hand wand. The pump shall be capable of sealant delivery at a rate that exceeds the melt capacity of the unit.



Temperature Control

The melter applicator shall have 3 thermostatic control devices, which will automatically regulate hot oil, material and hose temperature. Each control shall have a digital readout for temperatures of hot oil, material and hose temperature. Melter shall have control of temperature for a broad range of sealants from a low of 200 degrees F up to a high range of 400 degrees F. All temperature controls will be mounted inside a weather resistant box. A single power switch shall activate the controls. These controls may include temperature interlocks which when activated by the single power switch, will then automatically turn on the agitator and pump at the proper time.

Agitation

The sealant material shall be mixed by a hydraulically driven full sweep vertical agitator with two opposing horizontal paddles with vertical risers attached to the ends. The agitator shall rotate in two directions. Agitator shut off automatically when the loading hatch is opened.

Drive and Drive Controls

The motive force to the agitator and material pump shall be hydraulic motors driven by a single hydraulic pump located on the diesel engine. The drive control governing the rotational speed of the material pump shall be controlled by a hydraulic valve and located at the rear of the machine. The sealant material output will be controlled by a switch on the operator hand wand. Sealant delivery system may or may not have material flow shut off valves. If the wand is dropped, sealant must automatically stop being extruded from the sealing hose.

Engine

The unit shall be equipped with a diesel engine complying with the following specifications: direct injected, electric start, Three Cylinder (min. 25 H.P.), full flow oil filter, electric fuel pump, water cooled and constant speed mechanical governor. Engine speed must be preset at factory to operate alternator output to power the heated wand and hose. The engine and radiator shall be protected by a lockable engine enclosure for operator protection and to prevent vandalism.



Sealant Hose and Applicator Wand

Hose shall be: minimum 3/4" ID, minimum 18 feet in length, insulated with steel inner core, Teflon lined and may include an electrically heated wand. The hose is to be wrapped with electrical wires for heating. The wires will be capable of heating the hose to 400 degrees F in less than 30 minutes and have variable temperature control capability. The hose is manufactured for handling products up to 500 degrees F at 500-psi working pressure. Due to weight considerations oil jacketed sealing hoses will not be accepted. The hand wand shall be constructed with sufficient strength to stand up to normal day-to-day operation. The hose shall be heated by low voltage electric current from a generator on the diesel engine. Material flow is controlled by a trigger switch. The connection between the wand and hose shall be through a 360-degree swivel.

Fuel Capacity

The melter shall have a 25-gallon diesel fuel tank for operation of the entire unit. The unit will be capable of operating for minimum of 12 to 15 hours on one tank of fuel.

Color

Manufacture standard over a prime coat.

Miscellaneous

All parts, tools and/or accessories not specifically called for, but required to properly operate the above equipment, shall be provided. Delivered equipment is subject to the Department's inspection and approval.

All qualified bidders must have and maintain a complete inventory of repair parts as well as having experienced factory trained in-house service personnel for this equipment. Bidder must demonstrate the ability to provide replacement parts and qualified service technicians within 48 hours of equipment failure. A video manual as well as a comprehensive safety manual will be supplied with each unit. A factory-trained person shall be made available for initial start-up and training in the operation of the melter.

The Missouri Department of Transportation Commission reserves the right to waive technicalities and to reject any or all bids and no bid is final until formally accepted by the Commission.