



E1221 LG
March 8, 2005

MISSOURI DEPARTMENT OF TRANSPORTATION
TRAILER MOUNTED ENGINE-DRIVEN LARGE 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 any further modification all grades of asphalt rubber sealants and specification joint sealants. The machine shall be capable of starting at ambient temperature and brining the sealant material up to application temperature in one hour or less.

Frame

This unit shall be trailer mounted. The tongue shall be equipped with a suitable towing means, the center of which shall be a minimum of 25 inches from the nearest obstruction on the tongue and shall be adjustable in height above ground level from at least 15 inches 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" opening bolted to the hitch plate for easy height adjustment and/or conversion to other type hitches. Trailer frame shall consist of 5" "C" channel or 2" x 6" tube frame construction.

Running Gear

The unit shall be equipped with Tandem independent rubber torsional axles having a safe load capacity of 5,200 pounds, electric brakes, and 15" radial tires (load range D). A screw post tongue jack shall be furnished. It shall be a heavy-duty type (7,000 pound capacity) 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, attached to the tongue with a drilled type clevis pin on the end attached to the frame and screw type clevis pin on the opposite end.

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 be a minimum capacity of 230 gallons to a maximum capacity of 250 gallons at ambient temperature. A double boiler type jacket shall create a reservoir, which shall hold a minimum of 30 gallons to a maximum of 55 gallons of heat transfer oil at 70 degrees F (21.1 degrees C). The jacket shall wrap around 100% of the outside area of the circular material tank and bottom and allow for complete circulation of the heated transfer oil. The tank and jacket shall be made of 10-gauge hot rolled sheet steel minimum.



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 correct ergonomic lifting and fume exposure. The opening shall have a minimum area of 384 square inches. The lid shall be hinged to provide easy anti-splash loading.

Insulation

The heating tank shall be insulated with a minimum of 1.5" thick high temperature ceramic or industrial insulation and covered by a minimum of 22 gauge steel outer wrapper.

Cold Sealed Tank

A sealed cold seal 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 290,000 BTU high efficiency forced air diesel fired directly to the bottom of the heat transfer oil tank. The total area exposed to the burner shall be a minimum of 6,798 square inches. The material tank shall have minimum of 6,142 square inches of contact with the heat transfer oil. This provides for a melt rate of approximately 1400 pounds per hour.

Ignition Burner

Burner shall be lit by a constant duty voltage transformer powering an electric spark ignitor. The 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

A hydraulically driven external helical gear pump or an internal hardened steel gear pump located in the center and bottom of the material tank is required. Sealant delivery shall be on demand. Pumping of sealant is to be controlled by a switch on the hand wand and output is controlled hydraulically. The pump shall be capable of delivery sealant 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. Also each control shall have a digital readout. 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 550 degrees F. A single power switch shall activate the controls.



These controls may include temperature interlocks which when activated by the single power switch, will then turn on the agitator and pump at the proper time.

Agitation

A hydraulically driven full sweep vertical agitator with two opposing horizontal paddles shall mix the sealant material with vertical risers attached to the ends. This feature in sure the hot material stays in the lower area of the tank and does not get splashed or thrown to the upper areas of the tank. The agitator shall rotate in two directions and shuts 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. The agitator shall rotate in either direction. The drive controls governing the rotational speed of the agitator and material pump shall be controlled by hydraulic valves. The drive controls governing the rotational speed of the material pump shall be controlled hydraulically from the rear of the machine. The hydraulic tank shall have a minimum capacity of 26 gallons and be equipped with a sight gauge to indicate oil level. The hydraulic system will be equipped with 10-micron replaceable filter and one extra filter will be supplied with the unit.

Engine

The unit shall be equipped with a diesel engine complying with the following specifications: Electric Start, Three Cylinder (23 HP) or (25.4 HP), Full Flow Oil Filter, Water Cooled, Constant speed mechanical governor. Engine speed preset at factory to operate alternator output to power the heated wand and hose. The engine and radiator shall be enclosed for protection.

Sealant Hose and Applicator Wand

Hose shall be 3/4" nominal size and minimum of 18 feet in length, insulated, with steel inner liner, Teflon lined and may include an electrically heated 48 inch wand. The hose is to be wrapped with electrical wires with terminal ends. 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. The hand wand and shall be constructed with sufficient strength to stand up to normal day-to-day operation. The hose shall be heated by electric current from a generator on the 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 minimum of 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.



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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 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.