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SPECIFICATIONS FOR 60 GALLON MELTER APPLICATOR WITH PUMP ON DEMAND FEATURES

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GENERAL

The purpose of these specifications is to describe a double-boiler type melter applicator that is specifically designed for and shall be capable of heating and applying all grades of asphalt rubber sealant, fiber modified asphalt sealant and specification joint sealant without any further equipment modification. It may be used for the application of resinous, colored sealant and fillers. This unit shall be the manufacturer's current production model manufactured in the United States of America. The machine shall be capable of starting at ambient temperature and bringing the sealant material up to application temperature in one hour or less. All qualified bidders must have and maintain a complete inventory of replacement parts and have experienced factory-trained service personnel for this equipment. A comprehensive safety manual and operational/maintenance CD shall 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 material should be heated in a kettle or melter constructed as a double boiler with space between the inner and outer shells filled with oil or other heat-transfer medium. Thermostatic control for the heat -transfer medium shall be provided and shall have sufficient sensitivity to maintain sealant temperature within the manufacturer's specified application temperature range. Temperature indicating devices shall have intervals no greater than 5°F (2.8°C) and shall be calibrated as required to assure accuracy. The melter shall have continuous sealant agitation and a mixing system to provide uniform viscosity and temperature of material being applied. Do not attempt to apply 2-component or PVC coal tar products with this unit.

REQUIRED SAFETY FEATURES

The unit shall have a safety shut-off on the lid that automatically stops the agitator when the lid is opened.

The applicator wand shall be equipped with an automatic shut-off feature that will stop the flow of sealant when the handle is released or dropped.

The sealant line pressure will automatically cease when the sealant flow is stopped. The operator shall not be required to perform any additional activity other than releasing the wand trigger switch to cease sealant line pressure. There shall be no valves in the line to allow interruption of sealant flow from the pump to the wand end. The heat transfer oil shall adequately and efficiently bring the sealant material to application temperature without the use of a heat transfer oil circulation pump. This eliminates the potential exposure of personnel to pressurized hot heat transfer oil.

TOWING FRAME AND JACK

This unit shall be trailer mounted. The longitudinal side frames and tongue members of the trailer shall be of one continuous piece construction composed of hot rolled steel channel having the minimum dimensions of 3 inches (7.62 cm) web, 3/16 inch (.48 cm) thickness with 1.41 inch (3.58 cm) flanges. The tongue shall be equipped with an appropriate heavy-duty ball or pintle hitch. The towing hitch shall be bolted to the hitch plate for easy conversion to other type hitches. A screw-post tongue jack shall be furnished. It shall have a caster wheel and a capacity of 500 pounds (226.8 kg). It shall be side mounted and swing away for positive road clearance while under tow.

RUNNING GEAR

The unit shall be equipped with a single rubber torsional axle with a safe load capacity of 2,000 pounds (907 kg) and have two ST175/80 D-13 tires (Load Range B). The unit shall have dual LED taillights, stoplights and turn signals. Lights shall be ICC approved. A license plate holder shall be attached to the driver's side taillight. All melter fluid tanks shall be positioned no lower than the deck level and mounted on top of the channel frame members to assure proper ground clearance. The unit shall also be equipped with two safety chains not less than 48 inches (121.9 cm) long of .25 inch (.63 cm) coil proof chain 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. Total shipping weight is approximately 1,500 pounds (680 kg).

HEATING TANK

The material heating tank shall be a minimum of 30 inches (76.2 cm) in diameter by 19 inches (48.3 cm) deep having a minimum capacity of 58 gallons (219.97 l) at ambient temperature. The tank will have a rear discharge from the pump and a rear plugged outlet. A double boiler type jacket shall create a reservoir that shall hold a minimum of 21 gallons (79.5l) and require no more than 25 gallons (95 l)of heat transfer oil at 70°F (21.1°C). (Note: At 500°F (260°C) the heating oil will expand approximately 18%). 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 not less than 3/16 inch (.94 cm) rolled sheet steel. There shall be one plug to allow the entire heat transfer oil system to be drained. The heat transfer oil shall be of ISO grade 68.

EXPANSION TANK

A sealed expansion tank shall be provided to minimize oil oxidation and prevent moisture condensation into the heat transfer oil. Overflow down tubes are unacceptable.

HYDRAULIC SYSTEM

The hydraulic system shall incorporate a single hydraulic pump to power the agitation and pumping system. All valves shall be solenoid operated by toggle switch and wand handle switch. The controls will allow for bi-directional operation of the sealant pump. A flow control valve will be mounted on the rear of the unit to allow the operator to adjust the pump operational speed. The minimum 26 gallon (98.42 l) hydraulic tank will be equipped with an internal 10-micron full flow filter. The filter shall be equipped with a restriction indicator to indicate the need for service. A sight gauge level indicator equipped with a thermometer to measure oil temperature will be mounted on the tank and located where it is easily viewed.

INSULATION
The heating tank shall be insulated with a minimum of 1-1/2 inch (3.81 cm) thick high temperature ceramic insulation and covered by a 22 gauge (.07cm) steel outer wrapper. Fiberglass and rock wool insulation are unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value over an eighteen-month period.

LOADING HATCH
A low profile opening for loading shall be required at the top of the material tank and shall be located on the curbside of the machine for operator safety. The loading height shall be a minimum of 50 inches (127 cm) and shall not exceed 54 inches (137 cm) for correct ergonomic lifting and fume exposure. This will allow the operation of the equipment, including sealant loading, from curbside. Loading systems that require the operator to step onto the melter are unacceptable. The opening shall have a minimum area of 180 square inches (1,161 square cm), while not exceeding 200 square inches (1290 square cm) in order to prevent heat loss, and shall be hinged to allow placement of a block of sealant onto lid and closure of lid for easy, anti-splash loading.

HEATING SYSTEM
The heat transfer oil is heated by one (1) 180,000 BTU vapor fuel LP burner directly at the bottom of the heat transfer oil tank. Total area exposed to the burner shall be a minimum of 3,335 square inches (21,516 square cm). The material tank shall have a minimum of 2,538 square inches (16,374 square cm) of contact with the heat transfer oil. No other mechanical circulation of the heat transfer oil by pump shall be accepted. This provides for a melt rate of 400 pounds (181.4 kg) per hour.

IGNITION OF BURNER
The burner shall be lit by an electric spark igniter. This igniter 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.

TEMPERATURE CONTROL

The melter applicator shall have a thermostatic control device that will automatically regulate hot oil and material temperature. The control shall have a digital readout for temperatures of hot oil and sealant material. The thermostat shall control burner ignition for a temperature range from a low of 200°F (93.3°C) up to a high of 425°F (218.3°C) for a wide variety of sealants. The temperature controls shall be in a single weatherproof control box. The controls shall be activated by a single power switch, which will then turn each function on at the proper time. The control will have an interlock for the agitation system, which will not allow the agitator to be activated until the material temperature reaches 275°. It will also have an interlock for the pumping system, which will not allow the pump to be activated until the hose temperature reaches 325°.

DRIVE AND DRIVE CONTROLS
The motive force to the agitator and material pump shall be hydraulic motors driven by a single hydraulic pump. The drive controls governing the rotational speed of the agitator and material pump shall be controlled by adjustable hydraulic valves. The material pump will have infinite speed control and is electrically actuated by a toggle switch on the control panel or a switch on the hand wand. Material pump can be reversed with a toggle switch if necessary.

AGITATION
The sealant material shall be mixed by a hydraulically driven, full sweep vertical agitator with two opposing horizontal paddles and vertical risers attached to the ends. This feature ensures that the material remains in complete suspension and that 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 agitation system shall be chain driven from the hydraulic motor to the agitator. The agitator rotates in both directions. For additional safety the agitator will shut off automatically when the loading hatch is opened.

BI-DIRECTIONAL VARIABLE SPEED PUMPING UNIT
A hardened steel gear pump is located in the center of the material tank attached to the bottom of the tank. Pumping of material is controlled by a switch on the hand wand and output is controlled hydraulically. The pump and agitator drive shaft stands vertically attached to two motors on the top surface of the tank. One motor rotates an axial tube having radial mixing blades at the chamber bottom. The second motor drives a coaxial shaft running through the tube to the pump. Sealant pumping shall be on demand. When pumping stops, all line pressure and sealant flow shall stop. No external plumbing or recirculation back into the tank is acceptable. No internal or external valves shall be used in the pumping and sealant delivery system. The pump shall be capable of delivering sealant at a rate that exceeds the melt rate of the unit.

ACTIVE PUMP PROTECTION
The pump shall be completely encircled by a protective screen. The screen shall not allow anything larger than 1/2 inch (1.27 cm) in size to pass from the sealant tank into the pump suction port. The screen shall continuously rotate 360º around the pump whenever the sealant agitator is engaged. The active screen will protect the pump from foreign object damage and will self-clean as it rotates around the sealant pump and suction port.

SEALANT HOSE AND APPLICATOR WAND
Both the hose and wand are heated by low voltage electric current and are temperature regulated. Due to weight and safety considerations, an oil-jacketed hose is unacceptable. The hose shall be specifically manufactured for handling liquid asphalt products up to 500°F (260°C) at 500 psi (34.47 bar) working pressure. Hose shall be not less than 15 feet (4.57 m) in length. For maximum operator safety it shall be made of stainless braid with 3/4 inch (1.91 cm) inside diameter and shall be Teflon lined. Further, it shall be heavily insulated to prevent hot material from leaking out. Total diameter of the hose shall not be greater than 2 ¼ inch (5.72 cm). The total weight of the hose shall not exceed 20 pounds (9.07 kg). The hose is to be wrapped with a minimum of three electrical wires with terminal ends. The wires will be capable of heating the hose to 400°F (204°C) in less than 45 minutes and have variable temperature control capability. The hand wand shall be constructed of steel with sufficient strength to withstand normal day-to-day operation. Material flow is controlled by a trigger switch. For greater operator mobility, the connection between the wand and hose shall be through a 360º swivel. There shall be no obstruction or valves between the material pump and the wand end.

The hose is supported by a 6 ft. boom (1.83 m), which swivels side to side on dual pillow block bearings. The boom is centered at the rear of the machine.

ENGINE
The unit shall be equipped with a propane engine complying with the following specifications:
Four cycles, Single Cylinder
17.1 HP (12.1 kw) at 3600 RPM
Electronic Ignition
High efficiency air cooling fans
2.64 (67 mm) Stroke
38 cu inches (624 cu cm) Displacement
3.03 inches (77 mm) Bore
Overhead valve design and hydraulic valve lifters
8.5 to 1 Compression Ratio
Full-pressure oil flow lubrication with 4 pints (1.91 liters) oil capacity
Optimum engine speed is preset at the factory to power the heated wand and hose.

FUEL CAPACITY
The melter shall have a 100 pound (45.36 kg) vapor propane bottle supplied for operation of the entire unit. The unit will be capable of operating for one working day on one tank of fuel.

PAINT
All painted surfaces shall be coated with DuPont two-part epoxy primer and DuPont two-part urethane paint applied by DuPont certified painters.

OPTIONS (X if to be included):
_____2 5/16 inch Ball Hitch
_____2 inch Pintle Hitch
_____2 inch Ball Hitch
_____3 inch Pintle Hitch
_____V-Shaped Squeegee (Qty.___)
_____1/2 inch Round Sealing Tip
_____Extra Hydraulic Filter
_____Lockable Battery Cover
_____Tool Box
_____Fire Extinguisher Mounted on the Trailer Frame
_____Mast Mounted Strobe Light
_____Custom Paint
_____Hitch Extension, 29”
_____Hitch Extension, 34”
_____Overnight Heater

TRAINING
An authorized, factory-trained representative will be made available for a full day of training at a facility designated by the bidding agency. At this training session a complete operational, mechanical and safety overview will occur. The CD manual will be viewed and discussed with all concerned personnel. Additionally, the representative will be available at that time for "on the job" safety and field training.

SAFETY AND TRAINING MANUALS
A written Safety Manual will be provided to the bidding agency.

PARTS
Bidders must show proof that a large stock of parts for the model of equipment upon which he is bidding is maintained at his facility.

AWARD
Equipment is for use by the Highway Department and must meet the requirements of that agency as interpreted by the Highway Commissioner. Prior to award, the Purchasing Agency may require a visit to the supplier's facility to assure supplier has plant capacity to manufacturer and deliver equipment on time as required. If it is determined that the supplier cannot supply as requested, this is just cause for cancellation.

WARRANTY
The manufacturer shall warranty the equipment for one year or as otherwise noted in the manufacturer's standard warranty policy.

QUALIFICATIONS OF BIDDERS
No bid will be considered unless the bidder can meet the following conditions:
1. That it has in operation a parts/service location and keeps a sufficient stock of parts on hand at all times.
2. That it is bidding upon the stock model chassis that meets the requirements of the specifications without material changes or modifications, the model is regularly advertised and sold as having a capacity of not less than called for herein. The bidder has been engaged in the manufacture of equipment of the type bid upon for at least twenty-four months.

APPROVED EQUAL
The approved make and model for this specification is a Crafco Super Shot 60 Propane Fueled Melter Applicator for crack sealing. Bidders offering to supply other than the approved make and model must supply a detailed description of the equipment being offered. For purposes of comparison a separate list of all deviations to this specification must be attached to your bid document.

Prior to bid award an on-site demonstration to verify that their unit complies with all specification requirements of the equipment offered may be requested. All bidders offering other than the approved model listed will be required to provide an on-site demonstration before their bid will be considered.