



## SPECIFICATIONS FOR 100 GALLON DIESEL FUELED MELTER APPLICATOR WITH COMPRESSOR

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### GENERAL

The purpose of this specification 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 sealants and specification joint sealants without any further equipment modification. This unit shall be the manufacturer's current production model. 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 repair parts and have experienced, factory-trained service personnel for this equipment. A comprehensive safety manual 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.

### 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 5 inches (12.7 cm) web, 3/16 inch (.48 cm) thickness with 1 3/4 inch (4.4 cm) flanges. The configuration of the channels shall be cold formed with the flanges on the outside resulting in a one-piece frame member with no cross welding of or on the flanges to avoid any possibility of flange stress cracking. The tongue shall be equipped with an appropriate heavy duty ball or pintle hitch and shall be adjustable in height above ground level from a minimum of 14 inches (35.6 cm), to a maximum of 32 inches (81.3 cm), permitting practically level towing with a wide range of towing vehicles. The towing hitch shall be bolted to the hitch plate for easy height adjustment and/or conversion to other type hitches. A screw-post tongue jack shall be furnished. It shall be a heavy duty type with a load capacity of 7,000 pounds (2,268 kg) and it shall be side mounted and swing away for positive road clearance while under tow.

### RUNNING GEAR

The unit shall be equipped with dual torsional axles, each axle to have a safe load capacity of 3,500 pounds (1,588 kg), 2 1/4 inch (5.7 cm) by 10 inch (25.4 cm) electric brakes, four modular wheels and ST205/R75-14 tubeless tires (Load Range C). The melter shall have dual taillights, stop lights and turn signals. 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, 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) of 3/8 inch (.95 cm) coil proof, attached to the tongue with a 9/32" shackle connecting link on the end attached to the frame and screw type clevis pin on the opposite end. Total shipping weight is approximately 4,000 pounds (1,814 kg).

### HEATING TANK

The material heating tank shall be minimum of 36 inches (91.4 cm) diameter by 24.5 inches (62.2 cm) deep having a capacity of 108 gallons (408.8 l) at ambient temperature. A double boiler type jacket shall create a reservoir which shall hold a minimum of 27 gallons (102.2 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 allow for complete circulation of the heated transfer oil. The tank and jacket shall be made of 3/16-inch (.48 cm) hot rolled sheet steel minimum. There shall be a 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 cold seal expansion tank for heat transfer oil shall be provided to minimize oil oxidation and prevent moisture condensation into the heat transfer oil.

## **INSULATION**

The heating tank shall be insulated with a minimum of one inch (2.5 cm) thick high temperature ceramic insulation and covered by a 22 gauge (.08cm) wrapper. Fiberglass and rock wool insulations are unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value.

## **LOADING HATCH**

A low profile angled lid 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 not exceed 52 inches (134.6 cm), which will allow the operation of the equipment, including sealant loading, from curbside. Loading systems that require the operator stepping onto the melter are unacceptable. The opening shall have a minimum area of 252 square inches (1,625.8 square cm) approximately 14 inches (35.6 cm) by 18 inches (45.7 cm) and shall be hinged to allow placement of a block of sealant onto it and then simply closing the lid for easy anti-splash loading. There shall be a locking pin to secure the lid during transport.

## **HEATING SYSTEM**

One 12 volt 250,000 BTU high efficiency forced air diesel fired burner directly to the bottom of the heat transfer oil tank heats the heat transfer oil. The total area exposed to the burner shall be a minimum of 4,618 square inches (29,793.5 square cm) or 32½ square feet (3.0 square m). The material tank shall have a minimum of 3,817 square inches (24,625.8 square cm) or 26½ square feet (2.5 square m) of contact with the heat transfer oil. This provides for a melt rate of a minimum of 800 pounds (362.9 kg) per hour.

## **IGNITION OF BURNER**

The burner shall be lit by a constant duty high voltage transformer powering 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 controls for ignition shall be incorporated into the thermostat control 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 temperature. A high temperature limit switch will automatically shut off the burner if the heat transfer oil reaches 600°F (315.5°C). Two dial type temperature gauges visually indicate actual temperature of heat transfer oil and material and are located on the top curbside of the unit. A third temperature gauge shall be located at the discharge side of the material pump to positively show the sealant temperature just prior to placement. 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.

## **DRIVE AND DRIVE CONTROLS**

The motive force to the agitator and the material pump shall be hydraulic motors driven by a double hydraulic. The drive controls governing the speed and rotation direction of the agitator and material pump shall be by independent 3-way hydraulic valves with pressure compensated flow control spools located at the rear curbside of the machine. The reversing ability of the material pump allows material to be pumped back through all extraneous piping and into the material tank so as to leave all lines clean and unobstructed when cooling and to facilitate easy start-up upon subsequent use.

## **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 extreme ends. This feature insures that 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 where it can collect and build up. The agitator shall rotate in either direction with infinite speed control.

## **PUMPING UNIT AND PIPING**

The material pumping unit shall be a 2 inch (5.1 cm) positive displacement helical gear pump, quiet operating with equal efficiency in either direction of rotation. All piping shall be no less than 2 inches (5.1 cm) in diameter. The piping and material valves shall be heated by enclosure within the heating chamber. A "T" pipe shall be incorporated into the material plumbing system that will allow for the optional connection of a valve for filling pour pots with or without utilizing the applicator hose. The control handles for opening and closing the recirculation

valve, applicator valves, and main tank valve shall be located outside the heating chamber at the rear curb side of the machine for both operator convenience and protection from handling excessively hot control valve handles. A return portal shall be constructed to facilitate the recirculation of sealant through the piping and sealant hose then back to the tank. The portal shall allow the operator to place and withdraw the delivery wand from ground level. A second recirculation return portal, also accessible from ground level, shall also be constructed to allow for a maximum of a 6 inch (15.2 cm) sealing disc. A locking device shall also be incorporated that will lock the hand wand to the shoebox or the recirculating tube.

### **SEALANT HOSE AND APPLICATOR WAND**

Hose should be one inch (2.5 cm) inside diameter and not less than 15 feet (4.6 m) in length, insulated, rubber coated, steel braid reinforced and neoprene lined. The hose is specifically manufactured for handling all petroleum based products up to temperatures of 450°F (232.2°C) at 350 psi working pressure. Hot oil jacketed sealant delivery hoses are unacceptable. The hand applicator shall be constructed of steel with sufficient strength to stand up to normal day-to-day operation. It shall have two insulated handles, one of which is connected to a quarter turn ball valve used to control flow of material. The applicator wand shall disconnect in the center allowing for easy storage in the heat chamber. A variety of nozzles must be available and attachable to the applicator wand. The connection between the hose and applicator is made through a 360° swivel.

### **HOSE HEATING CHAMBER**

The machine, heating chamber, and wand shall be so designed and constructed that under normal day-to-day operations no clean out procedure is required, thereby eliminating the use of hazardous, volatile cleaning solvents and the associated conformity to EPA standards for their disposal. Provision shall be made to attach air hoses for compressed air cleaning after using exceptionally thick and heavy sealants or when preparing the machine for a period of time in storage. Hose heating chamber shall be equipped with a temperature gauge to insure proper regulation of temperature to hose and application wand while in heating chamber. An adjustable damper will be furnished over the flue vent for the heating chamber. Incorporated in the heating chamber are hose and applicator wand storage racks with drains in the floor. Doors and sidewalls are to be 100% insulated. Hinged doors should be lockable and designed to overlap and interconnect and provision shall be made for operation of applicator hose while doors remain closed to insure continuous heating of piping extraneous to the material tank.

### **ENGINE**

The unit shall be equipped with a 33.3 HP (24.83 kw) @ 3000 RPM Isuzu Diesel engine complying with the following specifications:

Electric Start     3.27" (83.mm) Bore  
Three Cylinders   3.62" (92 mm) Stroke  
3000 RPM         22:1 Compression Ratio  
91.3" (1.49 l) Displacement

### **NOISE LEVEL**

At an average of 6 feet (1.8 m) from the unit, the D.B.A. shall be a maximum of 85 D.B.A.

### **FUEL CAPACITY**

The melter shall have a 32 gallon (121 l) diesel fuel tank for operation of diesel engine and burner. The unit will be capable of operating a minimum of one full working day on one tank of fuel.

### **AIR COMPRESSOR**

The melter shall be equipped with a 53.8 cfm (1525 l/m) @ 100psi (6.89 bar), Rotary Vane Air Compressor. The compressor shall be driven hydraulically and the air pressure is controlled by a continual intake valve modulation which adjusts the air flow to increase or decrease depending on the user's demands. The compressor has an integral toroidal cooler to maintain proper oil temperature, along with a high temperature shutdown switch for safety. The unit shall also be equipped with a self-contained air to oil hydraulic cooler with an electric switch to turn on/off the cooling fan. The noise level which the compressor puts out is 78 dba @ 1 meter.

### **PAINT**

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

**OPTIONS (X if to be included:)**

- 2 5/16 inch Ball Hitch
- 3 inch Applicator Disk
- 2 1/2 inch Pintle Hitch
- 1/2 inch Round Sealing Tip
- 3 inch Pintle Hitch
- V-shaped Squeegee (Qty.)
- Extra Applicator Hose
- Extra Hydraulic Filter
- Lockable Battery Box
- Lockable Engine Cover
- Fire Extinguisher
- Tool Box
- Strobe Light
- Flash Bar
- Self-Propelled Power Wheel

**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 manufacture 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**

These specifications are not intended to be restricted, but are meant to describe the kind and size of unit desired to be purchased in detail. If a bidder is basing his proposal on other equipment than what is specified in these bid documents and wishes the equipment he proposed to be considered as an "approved equal" he will submit on a separate sheet, attached to the Technical Specifications contained herein, an item by item description of that which he proposes. For purposes of comparison, include only those items on each sheet as given in these technical specifications. Such bidders shall also include, but not as a substitute for the above, any manufacturer's literature or specifications. In addition, if the bidder takes exception to any item, he will note the item and describe in detail the

exception and how his proposal is an "approved equal". Failure to carry out the provisions noted herein may be deemed sufficient reason to reject the bidder's proposal.