



## SPECIFICATIONS FOR 400 GALLON DIESEL FUELED MELTER APPLICATOR WITH DOUBLE MATERIAL PUMPS AND APPLICATOR HOSES

420 N. Roosevelt Ave. • Chandler AZ 85226  
1-800-528-8242 • (602) 276-0406 • FAX (480) 961-0513  
www.crafco.com

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### GENERAL

The double boiler type melter applicator should be the manufacturer's current production model. This unit shall be capable of heating and applying all grades of asphalt rubber sealant, specification joint sealant and fiber modified sealant without any further equipment modification. 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 as well as having experienced service personnel for this equipment. 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 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. If equipped with an application system to deliver sealant to the pavement, the melter shall incorporate a recirculation pump or other means of maintaining sealant temperature in the delivery system. Sealant that has been damaged due to overheating, reheating or prolonged heating may experience poor adhesion, softening or bleeding, difficult application or jelling in the melter.

### FRAME

This unit shall be trailer mounted. The tongue shall be equipped with a suitable towing means 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. The longitudinal side frames and tongue members shall be of one continuous piece construction composed of hot rolled steel channel having the minimum dimensions of 5 inch (12.7 cm) web, 5/16 inch (.79 cm) thickness and 17/8 inch (4.76 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.

### RUNNING GEAR

The unit shall be equipped with dual torsional axles, each axle to have a safe load capacity of 6,000 pounds (2,721.6 kg), 2 inch (5.08 cm) by 12 inch (30.5 cm) electric brakes, four modular wheels and LT 235/85 R16 tubeless tires (Load Range E). A screw post tongue jack will be furnished. It shall be a heavy-duty type with a load capacity of 7,000 pounds (3175kg) and is side mounted for positive road clearance while undertow. 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 chain, attached to the tongue with a 9/32" (.71cm) shackle connecting link on the end attached to the frame and screw type clevis pin on the opposite end. Total shipping weight (less material in the tank) is approximately 5,900 pounds (2,676.20 kg).

### LIGHTS

The unit shall have dual taillights, stop lights and turn signals. A license plate holder shall be attached to the driver side taillight.

### HEATING TANK

The material heating tank shall be minimum of 60 inches (152.4 cm) diameter by 32½ inches (82.56 cm) deep having a capacity of 400 gallons (1,514.2 l) at ambient temperature. A double boiler type jacket shall create a reservoir, which shall hold a minimum of 51 gallons (193 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.

## **LOADING HATCH**

A low profile angled lid opening for loading shall be required at the top of the material. The loading height shall not exceed 61 inches (154.9 cm), for operator convenience. The openings shall have a minimum area of 380 square inches (2,477.4 square cm) approximately 16 inches (40.6 cm) by 24 inches (60.9 cm) capable of accepting 60 pound blocks of material. The dual lids shall be hinged and have a shelf to put material on to provide easy anti-splash loading as well as a locking pin.

## **INSULATION**

The heating tank shall be insulated with a minimum of 1½ inch (3.8 cm) thick high temperature ceramic insulation and covered by a 22-gauge (.07cm) steel outer wrapper.

## **COLD SEAL TANK**

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

## **HEATING**

The heat transfer oil is heated by one 12 volt 420,000 BTU high efficiency forced air diesel fired burner directly at the bottom of the heat transfer oil tank. The total area exposed to the burner shall be a minimum of 9,935 square inches (64,097 square cm). The material tank shall have a minimum of 8,996 square inches (58,039 square cm) of contact with the heat transfer oil. The oil shall be continuously circulated by means of a hydraulically driven helical gear pump at 1.1 gallons (4.2 l) per minute so as to provide consistent and uniform transfer of heat to the material tank. This provides for a melt rate of a minimum of 2,000 pounds (907.2 kg) per hour.

## **IGNITION OF BURNER**

The burner shall be lighted via a constant duty high voltage transformer powering an electric spark igniter. The thermostatic control shall be located on the curbside of the machine for operator safety.

## **PUMPING UNITS AND PIPING**

The material pumping units shall be two 2-inch (5.1 cm) positive displacement helical gear pumps. Each shall be hot oil jacketed for fast heating and piped in series with the heat transfer oil circulation pump. All piping and material valves shall be heated by enclosure within the heating chamber. Controls for opening and closing the recirculation valve, applicator valves, and main tank valve shall be located outside the heating chamber at the rear curbside of the machine for operator convenience. There are separate controls for both pumps so each can be operated independently.

## **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. Provision shall be made for operation of applicator hose while doors are closed to insure continuous heating of piping extraneous to the material tank.

## **TEMPERATURE CONTROL**

The melter applicator shall have a thermostatic control device that will automatically regulate hot oil temperature. Two digital readouts indicate actual temperature of heat transfer oil and at the discharge side of the material pump and are located in the control box on the curbside of the unit. One dial type temperature gauge visually indicates material tank temperature and is located on the top curbside of the unit. The thermostat shall control burner ignition for a temperature range from a low of 200°F (93.3°C) up to a high of 400°F (204.4°C) for a wide variety of sealants.

## **AGITATION**

The sealant material shall be mixed by a hydraulically driven full sweep vertical agitator with two opposing horizontal paddles. This feature insures 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.

## **DRIVE AND DRIVE CONTROLS**

The motive force to the agitator and the material pump shall be hydraulic motor-driven by a double hydraulic pump, driven by a 3 cylinder diesel engine. The drive controls governing the speed and rotation direction of the agitator and material pump shall be 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 pumps 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 start-up upon subsequent use. The unit shall be equipped with an air-to-oil hydraulic cooler for improved performance.

## **ENGINE**

The unit shall be equipped with an Isuzu diesel engine or equal complying with the following specifications:

Electric Start	3000 Rated Speed
3.27" (83mm) Bore	23 to 1 Compression Ratio
Three Cylinders	33.3 H.P.(24.83Kw)
3.62" (92mm) Stroke	Full Flow Oil Filter
91.3cubic inch (1.49 l) Displacement	
Constant Speed Mechanical Governor	

## **SEALANT HOSES AND APPLICATOR WANDS**

Two applicator hoses should be one inch (2.54 cm) inside diameter and not less than 20 feet (6.1 m) in length, insulated, rubber coated, steel braid reinforced and neoprene lined. The hoses are specifically manufactured for handling all petroleum-based products up to temperatures of 400°F (204.4°

C) at 350 psi working pressure. The hand applicators shall be constructed of steel with sufficient strength to withstand normal day-to-day operation. They 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.

## **SHOE BOXES**

Two external boxes shall be supplied capable of holding and recirculating a wand tip or shoe of at least 6 inches in diameter. A locking device shall also be incorporated that will lock the hand wand to the shoebox or the recirculating tube.

## **FUEL CAPACITY**

The melter shall have a 32 gallon (121 l) diesel fuel tank for operation of diesel engine and burner.

## **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
- \_\_\_\_ 2½ inch Pintle Hitch
- \_\_\_\_ 1/2 inch Round Sealing Tip
- \_\_\_\_ 3 inch Pintle Hitch
- \_\_\_\_ V-shaped Squeegee (Qty. \_\_\_\_)
- \_\_\_\_ Spare Applicator Hose
- \_\_\_\_ Spare Hydraulic Filter
- \_\_\_\_ Lockable Battery Box

- \_\_\_\_\_ Lockable Engine Cover
- \_\_\_\_\_ 10 lb. Fire Extinguisher
- \_\_\_\_\_ Tool Box
- \_\_\_\_\_ Strobe Light
- \_\_\_\_\_ Flash Bar

**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.