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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.

	<u>Comply</u>	<u>Does Not Comply</u>
<b>1. GENERAL SPECIFICATIONS</b>		
A. The machine shall be capable of starting at ambient temperature and bringing the sealant material up to application temperature in one hour at 70° F (21.1° C) ambient temperature.	_____	_____
B. All qualified bidders must have and maintain a complete inventory of replacement parts and have experienced factory-trained service personnel for this equipment.	_____	_____
C. A comprehensive safety manual and operational/maintenance CD shall be supplied with each unit.	_____	_____
D. A factory-trained person shall be made available for initial start-up and training in the operation of the melter.	_____	_____
E. Temperature indicating devices shall have intervals no greater than 1° F (2.8° C) and shall be calibrated as required to assure accuracy.	_____	_____
F. The melter shall have continuous sealant agitation and a mixing system to provide uniform viscosity and temperature of material being applied.	_____	_____
Other: _____	_____	_____
_____	_____	_____
<b>2. REQUIRED SAFETY FEATURES</b>		
A. The unit shall have a safety shut-off on the lid that automatically stops the agitator when the lid is opened.	_____	_____
B. The applicator wand shall be equipped with an automatic shut-off feature that will stop the rotation of the sealant pump, sealant flow, and all line pressure when the handle is released or dropped.	_____	_____
C. 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.	_____	_____
Other: _____	_____	_____
_____	_____	_____

<u>Comply</u>	<u>Does Not Comply</u>
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**3. TOWING FRAME AND JACK**

- A. This unit shall be trailer mounted. The longitudinal side frames and tongue members of the trailer shall be of hot rolled steel channel having the minimum dimensions of 3.15 inches (8.0 cm) web, 0.21 inch (0.53 cm) thickness with 1.69 inch (4.3 cm) flanges.
- B. 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 conversion to other type hitches.
- C. 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.

Other: \_\_\_\_\_  
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_____	_____
_____	_____
_____	_____

**4. TRAILER RUNNING GEAR**

- A. The unit shall be equipped with a single rubber torsional axle with a safe load capacity of 4,200 pounds (1,905 kg) and have two ST225/75 R15 tires (Load Range D). Trailers with springs and shackles are unacceptable as they require more maintenance and reduce ground clearance.
- 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.
- C. 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. Units that have components that extend below the trailer frame are unacceptable.
- D. The unit shall also be equipped with two safety chains not less than 100 inches (254 cm) of .38 inch (.97 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.
- E. Total shipping weight is approximately 3,200 pounds (1,451 kg).

Other: \_\_\_\_\_  
\_\_\_\_\_

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_____	_____
_____	_____
_____	_____
_____	_____

**5. HEATING TANK**

- A. 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. Oval or square sided tanks are unacceptable as they allow for uneven agitation resulting in a non-homogenous sealant and uneven heating of sealant.
- B. 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 (79.5 l) 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%).
- 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.
- D. The tank and jacket shall be made of not less than .157 inch (4 mm) rolled sheet steel.
- E. There shall be one plug to allow the entire heat transfer oil system to be drained.
- F. The heat transfer oil shall be of ISO grade 68.

Other: \_\_\_\_\_  
 \_\_\_\_\_


**6. EXPANSION TANK**

- A. 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.

Other: \_\_\_\_\_  
 \_\_\_\_\_


**7. HYDRAULIC SYSTEM**

- A. The hydraulic system shall incorporate a hydraulic pump to power the agitation and pumping system. Belt driven hydraulics is unacceptable.
- B. All valves shall be solenoid operated by toggle switch and wand handle switch.
- C. The controls will allow for bi-directional operation of the sealant pump and agitator.
- D. A flow control valve will be mounted on the rear of the unit to allow the operator to adjust the pump operational speed.


<u>Comply</u>	<u>Does Not Comply</u>
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E. 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.


Other: \_\_\_\_\_  
\_\_\_\_\_

**8. TANK INSULATION**

A. 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 (.07 cm) 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.


Other: \_\_\_\_\_  
\_\_\_\_\_

**9. LOADING HATCH**

A. 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 45 inches (114 cm) and shall not exceed 50 inches (127 cm) for correct ergonomic lifting and fume exposure.

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B. 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.

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C. 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.

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Other: \_\_\_\_\_  
\_\_\_\_\_

**10. HEATING SYSTEM**

A. The heat transfer oil is heated by one (1) 205,000 BTU diesel high efficiency forced air burner directly at the bottom of the heat transfer oil tank.

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<u>Comply</u>	<u>Does Not Comply</u>
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B. 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 480 pounds (217.7 kg) per hour.

	_____	_____
Other: _____		
_____	_____	_____

**11. IGNITION OF BURNER**

A. 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.

	_____	_____
Other: _____		
_____	_____	_____

**12. TEMPERATURE CONTROL**

A. The melter applicator shall have a thermostatic control device that will automatically regulate hot oil, material, and hose temperature.

	_____	_____
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B. The control shall have a digital readout for temperatures of hot oil, material, and hose.

	_____	_____
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C. 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.

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D. The temperature controls shall be in a single weatherproof control box.

	_____	_____
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E. The controls shall be activated by a single power switch, which will then turn each function on at the proper time.

	_____	_____
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F. The control will have fully integrated electric over hydraulic lockout for the agitation system, which prevents the agitator from being powered until the material temperature reaches 275°F (135°C). This prevents hydraulic system damage caused by overheating of hydraulic oil and reduces wear.

	_____	_____
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G. The control shall have a fully integrated electric over hydraulic lockout for the pumping system, which will prevent the pump from being powered until the hose temperature reaches 325°F (162.8°C). This prevents hydraulic system damage caused by overheating of hydraulic oil and reduces wear.

	_____	_____
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Other: _____		
_____	_____	_____

<u>Comply</u>	<u>Does Not Comply</u>
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**13. DRIVE AND DRIVE CONTROLS**

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|--|-------|-------|
| A. The motive force to the agitator and material pump shall be hydraulic motors driven by a single hydraulic pump.                                       | _____ | _____ |
| B. The drive controls governing the rotational speed of the material pump shall be controlled by adjustable hydraulic valves.                            | _____ | _____ |
| C. The drive controls governing the rotational speed of the material pump shall be controlled by adjustable hydraulic valves.                            | _____ | _____ |
| D. 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. | _____ | _____ |
| Other: _____<br>_____  | _____ | _____ |

**14. AGITATION**

- |   |       |       |
|---|-------|-------|
| A. 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 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. | _____ | _____ |
| B. The agitation system shall be chain driven from the hydraulic motor to the agitator.   | _____ | _____ |
| C. The agitator rotates in both directions.   | _____ | _____ |
| D. For additional safety the agitator will shut off automatically when the loading hatch is opened.   | _____ | _____ |
| Other: _____<br>_____   | _____ | _____ |

**15. BI-DIRECTIONAL VARIABLE SPEED PUMPING UNIT**

- |   |       |       |
|---|-------|-------|
| A. A hardened steel gear pump is located in the center of the material tank attached to the bottom of the tank. | _____ | _____ |
| B. Pumping of material is controlled by a switch on the hand wand and output is controlled hydraulically.       | _____ | _____ |
| C. The pump and agitator drive shaft stands vertically attached to two motors on the top surface of the tank.   | _____ | _____ |
| D. One motor rotates an axial tube having radial mixing blades at the chamber bottom.                           | _____ | _____ |
| E. The second motor drives a coaxial shaft running through the tube to the pump.                                | _____ | _____ |

<u>Comply</u>	<u>Does Not Comply</u>
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- F. Sealant pumping shall be on demand. \_\_\_\_\_
  - G. When pumping stops, all line pressure and sealant flow shall stop. \_\_\_\_\_
  - H. No external plumbing or recirculation back into the tank is acceptable. \_\_\_\_\_
  - I. No internal or external valves shall be used in the pumping and sealant delivery system. \_\_\_\_\_
  - J. The pump shall be capable of delivering sealant at a rate that exceeds the melt rate of the unit. \_\_\_\_\_
- Other: \_\_\_\_\_  
\_\_\_\_\_

**16. ACTIVE PUMP PROTECTION**

- A. The pump shall be completely encircled by a protective screen. \_\_\_\_\_
  - B. 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. \_\_\_\_\_
  - C. The screen shall continuously rotate 360° around the pump whenever the sealant agitator is engaged. \_\_\_\_\_
  - D. 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. \_\_\_\_\_
- Other: \_\_\_\_\_  
\_\_\_\_\_

**17. SEALANT HOSE AND APPLICATOR WAND**

- A. Both the hose and wand are heated by 24 VAC voltage electric current and are temperature regulated. \_\_\_\_\_
- B. The combination length between the hose and wand shall not be less than 19 feet (5.79 m). \_\_\_\_\_
- C. Due to weight and safety considerations, an oil-jacketed hose is unacceptable. \_\_\_\_\_
- D. 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. \_\_\_\_\_
- E. Hose shall not be less than 15 feet (4.57 m) in length. \_\_\_\_\_
- F. For maximum operator safety it shall be made of stainless steel braid with a 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. \_\_\_\_\_

	<u>Comply</u>	<u>Does Not Comply</u>
G. Total diameter of the hose shall be not greater than 2 ¼ inch (5.72 cm). The total weight of the hose shall not exceed 20 pounds (9.07 kg).	_____	_____
H. 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.	_____	_____
I. The hand wand shall not be less than 4 feet (1.22 m) in length.	_____	_____
J. The hand wand shall be constructed of steel with sufficient strength to withstand normal day-to-day operation.	_____	_____
K. Material flow is controlled by a trigger switch.	_____	_____
L. For greater operator mobility, the connection between the wand and hose shall be through a 360° swivel.	_____	_____
M. There shall be no obstruction or valves between the material pump and the wand end.	_____	_____
N. The hose is supported by a 52 inch long boom (132.08 cm), which swivels side to side on dual pillow block bearings.	_____	_____
O. The boom is centered at the rear of the machine.	_____	_____
Other: _____ _____	_____	_____



**18. ENGINE**

The unit shall be equipped with a diesel engine complying with the following specifications:

- Electric Start
- Three Cylinder 19 HP (14.2 kW) @ 3000 RPM, Tier 4 Final Emissions
- 3.03" (77 mm) Stroke
- Constant Speed Mechanical Governor
- 61.02 cu in. (1.0 l) Displacement
- Full Flow Oil Filter
- 2.91" (74 mm) Bore
- The engine speed is preset at the factory for optimal alternator output to power the heated wand and hose.
- Engine Shutdown Package (low oil pressure & high temperature)

Other: \_\_\_\_\_  
 \_\_\_\_\_

_____	_____
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**19. FUEL CAPACITY**

- A. The melter shall have a 26 gallon (98.42 l) diesel fuel tank for operation of the entire unit.
- B. The unit will be capable of operating for one working day on one tank of fuel.
- C. The tank shall be equipped with full length sight gauges for fuel level indication protected in a steel cover.

Other: \_\_\_\_\_  
 \_\_\_\_\_

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_____	_____

**20. PAINT**

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

Other: \_\_\_\_\_  
 \_\_\_\_\_

_____	_____
_____	_____

**21. TRAINING**

- A. An authorized, factory representative will be made available for a full day of training at a facility designated by the bidding agency.
- B. At this training session a complete operational, mechanical and safety overview will occur.
- C. Both safety and operational manuals will be viewed and discussed with all concerned personnel.

_____	_____
_____	_____
_____	_____

	<u>Comply</u>	<u>Does Not Comply</u>
D. Additionally, the representative will be available at that time for "on the job" safety and field training.	_____	_____
Other: _____ _____	_____	_____
<b>22. <u>SAFETY AND TRAINING MANUALS</u></b>		
A. A written Safety Manual will be provided to the bidding agency.	_____	_____
<b>23. <u>PARTS</u></b>		
A. 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.	_____	_____
<b>24. <u>AWARD</u></b>		
A. Equipment is for use by the Highway Department and must meet the requirements of that agency as interpreted by the Highway Commissioner.	_____	_____
B. 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.	_____	_____
C. If it is determined that the supplier cannot supply as requested, this is just cause for cancellation.	_____	_____
<b>25. <u>WARRANTY</u></b>		
A. The manufacturer shall warranty the equipment for one year or as otherwise noted in the manufacturer's standard warranty policy.	_____	_____
<b>26. <u>QUALIFICATIONS OF BIDDERS</u></b>		
A. No bid will be considered unless the bidder can meet the following conditions:	_____	_____
B. Bidder must have a parts/service location and keeps a sufficient stock of parts on hand at all times.	_____	_____
C. The equipment offered is the stock model chassis that meets the requirements of the specifications without material changes or modifications.	_____	_____
D. The model is regularly advertised and sold by the manufacturer.	_____	_____
E. The bidder has been engaged in the sale and support of this make and model of equipment for at least twenty-four months.	_____	_____

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

(Customer to insert quantity for each option required)

- \_\_\_\_\_ 2 5/16 inch Ball Hitch
- \_\_\_\_\_ 2 inch Pintle Hitch
- \_\_\_\_\_ 2 inch Ball Hitch
- \_\_\_\_\_ 3 inch Pintle Hitch
- \_\_\_\_\_ Sealant Tip Adapter
- \_\_\_\_\_ 3 inch Applicator Disk
- \_\_\_\_\_ V-Shaped Squeegee (Qty.\_\_\_\_)
- \_\_\_\_\_ 1/2 inch Round Sealing Tip
- \_\_\_\_\_ Extra Electric Hose
- \_\_\_\_\_ Extra Hydraulic Filter
- \_\_\_\_\_ Lockable Battery Cover
- \_\_\_\_\_ Tool Box
- \_\_\_\_\_ Fire Extinguisher Mounted on the Trailer Frame
- \_\_\_\_\_ Mast Mounted Strobe Light, Class II.
- \_\_\_\_\_ Mast Mounted Strobe Light, Class I/CA Title 13
- \_\_\_\_\_ Custom Paint
- \_\_\_\_\_ Hitch Extension, 18"
- \_\_\_\_\_ Hitch Extension, 39"
- \_\_\_\_\_ Overnight Heater
- \_\_\_\_\_ Shot Timer Kit
- \_\_\_\_\_ Foot Pedal Kit

**APPROVED EQUAL**

The approved make and model for this specification is a Crafc0 SS60. Bidders offering to supply equipment other than the approved make and model must supply a detailed description of the equipment being offered. Bidders offering to supply equipment other than the approved make and model shall also supply a list of references who have successfully heated, mixed and applied Crafc0 sealants through 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 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 at the agency's location within 7 days of request to verify that their unit complies with all specification requirements before their bid will be considered. Failure to carry out the provisions noted herein is deemed sufficient reason to reject the bidder's proposal.