CRAFCO® INC
PRESERVATION PRODUCTS PAVEMENT
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SPECIFICATIONS FOR 250 GALLON DIESEL FUELED MELTER APPLICATOR WITH 100CFM COMPRESSOR; WITH PUMP ON DEMAND

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NOVEMBER 2017

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.

	Comply	Does Not Comply
1. GENERAL SPECIFICATIONS		
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.	_____	_____
2. REQUIRED SAFETY FEATURES		
A. The unit shall have safety shut-off on the loading door that automatically stops the agitator when the lid is opened. When equipped with a conveyor loading option the safety shut-off will lock out the conveyor operation during loading.	_____	_____
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.	_____	_____

	Comply	Does Not Comply
D. The sealant delivery plumbing shall contain no valves which control, inhibit or divert the flow of the sealant between the material tank, sealant pump and wand tip.		
E. All components, except as required of the trailer running gear, shall be located above the bottom of the trailer frame side rails. No components including the engine, engine mounts, compressor, burner, burner box, hydraulic oil tank, fuel tank, material tank, etc. shall protrude below the bottom of the frame side rails.		
Other:_____ _____		

3. <u>TOWING FRAME AND JACK</u>

A. 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) depth, 5/16 inch (.79 cm) web thickness with 1.75 inch (4.5 cm) flange width.		
B. The configuration of the channel 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.		
C. The tongue shall be equipped with an appropriate 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.		
D. A screw-post tongue jack shall be furnished. It shall be heavy duty type with a capacity of 5,000 pounds (2,268 kg). It shall be side mounted and swing away for positive road clearance while under tow.		
Other:_____ _____		

4. <u>TRAILER RUNNING GEAR</u>

A. The unit shall be equipped with a dual independent rubber torsional suspension each with a safe load capacity of 5,200 pounds (2,358 kg), electric brakes, modular wheels and ST 225/75 R15 tubeless tires (Load Range D). This suspension eliminates springs and shackles that rust and reduce ground clearance.		

	Comply	Does Not Comply
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 48 inches (121.9 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 6,300 pounds (2857 kg).		
Other:_____ _____		

5. <u>HEATING TANK</u>

A. The material heating tank shall be a minimum of 50.50 inches (128.27 cm) in diameter by 29.50 inches (74.93 cm) deep having a minimum capacity of 250 gallons (946 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 rear plug outlet. A double boiler type jacket shall create a reservoir that shall hold a minimum of 47 gallons (178 l) and require no more than 55 gallons (207 l) of heat transfer oil at 70° F (21° 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 3/16 inch (.94 cm) 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: _____ _____		

	Comply	Does Not Comply
6. EXPANSION TANK		
A. A vented expansion tank for 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, pumping, and compressor 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.	_____	_____
E. All controls shall be mounted at the curb side rear on the trailer for easy access by the operator. Hydraulic controls located at the side or forward portion of the trailer are unacceptable.	_____	_____
F. The minimum 30 gallon (113.6 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.	_____	_____
G. The unit shall have a self-contained air to oil hydraulic cooler with an electric fan to maintain proper hydraulic oil temperatures.	_____	_____
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:_____ _____	_____	_____

	Comply	Does Not Comply
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.	_____	_____
B. The loading height shall not be less than 55 inches (139.7 cm) for operator safety. Loading Heights below 50 inches (127 cm) may expose the operator to splash hazards and fume exposer when loading and are unacceptable.	_____	_____
C. The dual opening shall have a minimum area of 252 square inches (1,625 sq. cm), approximately 14 inches (35.56 cm) by 18 inches (45.72 cm) and shall be hinged to allow placement of a block of sealant onto the loading hatch and closure of loading hatch for easy, anti-splash loading.	_____	_____
D. The loading door 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.	_____	_____
E. The loading hatch shall be easily adaptable for the addition of a retrofit powered loading conveyor with anti-splash tower.	_____	_____
Other:_____ _____	_____	_____
10. HEATING SYSTEM		
A. The heat transfer oil is heated by one 12-volt 270,000 BTU high efficiency forced air diesel fired burner directly at the bottom of the heat transfer oil tank	_____	_____
B. The burner shall fire into an easy access removable burner combustion box. The box will be insulated by a high temperature flexible insulation that is resistant to damage from the vibration and over road travel. Rigid insulation is unacceptable.	_____	_____
C. The burner and combustion box shall be positioned offset from the center of the machine towards the passenger side frame rail. To allow safe and easy access for maintenance and repair, no components shall be positioned between the passenger side frame rail and the burner/combustion box.	_____	_____
D. The total area exposed to the burner shall be a minimum of 7,655 square inches (49,387 square cm). The material tank shall have a minimum of 6,632 square inches (42,787 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 2,000 pounds (907.1 kg) per hour.	_____	_____
E. The burner shall be lit by a constant duty high voltage transformer powering an electric spark ignitor. This ignitor shall work in conjunction with a sensor that detects a lack of burn or ignition and shuts down the fuel supply.	_____	_____

	Comply	Does Not Comply
F. The burner fuel system is to be self-priming with a removable in-line filter along with its own feed and return lines to the main fuel tank.		
G. The thermostat control is located on the curbside of the machine for operator safety.		
Other:_____ _____		

11. <u>INTERGRATED CONTROL SYSTEM</u>

A. The control box shall provide a fully integrated control system for the engine, heating system, agitation system and application system.		
B. The melter applicator shall have a thermostatic control device that will automatically regulate hot oil, material, and hose temperature.		
C. The control shall have a digital readout and independent dial control for each heat transfer oil, material and applicator hose temperatures.		
D. 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.		
E. The temperature controls shall be in a single weatherproof control box.		
F. The controls shall be activated by a single power switch, which will then turn each function on at the proper time.		
G. The controls will automatically turn power on to the agitation system when the material reaches 275°F (135°C).		
H. The controls will automatically activate the application system when the material temperature reaches 325°F (162.8°C).		
I. The controls will lock out operation of the agitation system, hose heating system, and application system when the material temperature is below the minimum operation temperature for operator safety and to prevent damage to the operational components.		
J. The burner has an audible 105db alarm that will sound in the event the burner goes into lockout mode. There is a reset switch to reset the burner if it does go into lockout mode.		
K. The controls will run the engine at “warm up” RPM for 30 seconds before it automatically adjusts to a standard engine idle RPM. When the material reaches 275°F (135°C), the engine will automatically idle up to the operational RPM.		

	Comply	Does Not Comply
L. If the machine is equipped with an air compressor, in the event the air compressor is turned on before material reaches 275°F (135°C), the RPM will automatically increase in order to provide enough power to run the air compressor.		
Other: _____ _____		

12. DRIVE AND DRIVE CONTROLS

A. The motive force to the agitator and material pump shall be hydraulic motors driven by a hydraulic pump.		
B. The drive controls governing the rotational speed of the material pump shall be controlled by adjustable hydraulic valves.		
C. 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:_____ _____		

13. 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. To ensure proper material agitation and movement of sealant blocks, the distance between the vertical riser and tank sidewall shall not exceed 2" at any point.		
C. Agitator shall be factory preset and not adjustable at 30 RPM		
D. The agitation system shall be chain driven from the hydraulic motor to the agitator.		
E. The surface area of the agitator paddles shall be a minimum of 509 square inches (3,283.86 square cm). Surface areas of less than 100 square inches (903.22 square cm) are unacceptable.		
F. The agitator rotates in both directions.		
G. For additional safety the agitator will shut off automatically when the loading hatch is opened.		
Other: _____ _____		

	Comply	Does Not Comply
14. 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. The pump inlet shall be elevated 1.5" (3.81cm) off the bottom of the tank to provide a sump designed to retain and prevent foreign debris from infiltrating and damaging the pump, hose and wand.	_____	_____
C. Pumping of material is controlled by a switch on the hand wand and output is controlled hydraulically.	_____	_____
D. The pump and agitator drive shaft stands vertically attached to two motors on the top surface of the tank.	_____	_____
	_____	_____
E. One motor rotates an axial tube having radial mixing blades at the chamber bottom.	_____	_____
F. The second motor drives a coaxial shaft running through the tube to the pump.	_____	_____
G. Sealant pumping shall be on demand. The pump shall only operate when the hand trigger switch is engaged.	_____	_____
H. When pumping stops, all line pressure and sealant flow shall stop.	_____	_____
I. When the hand wand trigger switch is disengaged, the pump and sealant flow shall stop and all line pressure shall be removed.	_____	_____
J. No external plumbing for recirculation back into the tank is acceptable.	_____	_____
K. No internal or external valves shall be used in the pumping and sealant delivery system.	_____	_____
L. The pump shall be capable of delivering sealant at a rate that exceeds the melt rate of the unit.	_____	_____
Other: _____ _____	_____	_____
15. 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 360º around the pump whenever the sealant agitator is engaged.	_____	_____

	Comply	Does Not Comply
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:_____ _____		

16. <u>SEALANT HOSE AND APPLICATOR WAND</u>

A. Both the hose and wand are heated by 24 VAC voltage electric current and are temperature regulated.		
B. Both the hose and wand will be serviceable (designed to be factory rebuilt). The manufacturer must have an established re-build program to service these components.		
C. The combination length between the hose and wand shall not be less than 22 feet (6.70 m).		
D. Due to weight and safety considerations, an oil-jacketed hose is unacceptable.		
E. The hose shall be specifically manufactured for handling liquid asphalt products up to 400° F (204° C) at 500 psi (34.47 bar) working pressure.		
F. Hose shall not be less than 18 feet (5.48 m) in length.		
G. For maximum operator safety it shall be made of 3/4 inch (1.91 cm) inside diameter PTFE Teflon® inner core and reinforced with a stainless steel outer braid. This braid serves a dual purpose; it provides a protective covering for the inner core and allows the hose to carry pressure. It shall also be insulated and have a cover to prevent damage to the hose or allow hot material from leaking out. Further, it shall have an abrasive sleeve to protect the operator from heat.		
H. 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).		
I. The hose and wand are to be wrapped and heated 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.		
J. The hand wand shall not be less than 4 feet (1.22 m) in length.		
K. The hand wand shall be constructed of steel with sufficient strength to withstand normal day-to-day operation.		
L. Material flow is controlled by a trigger switch.		
M. For greater operator mobility, the connection between the wand and hose shall be through a 360° swivel.		

	Comply	Does Not Comply
N. There shall be no obstruction or valves between the material pump and the wand end.		
O. The applicator wand shall have a self-closing silicone valve at the delivery point of the sealant delivery. This valve will automatically close when sealant application pressure stops and shall not require the operator to manually close any valves.		
P. The hose is supported by a 6 ft. boom (1.83 m), which swivels side to side on dual pillow block bearings.		
Q. The boom is centered at the rear of the machine.		
Other:_____ _____		

17. ENGINE

The unit shall be equipped with a diesel engine with the following specifications:
Electric Start
Four Cylinder 48 HP (35.8kw) @ 2350 RPM, Tier 4 Final compliant
3.78" (96 mm) Stroke
134.3 Cu. In, (2.2l) Displacement
Full Flow Oil Filter
3.35" (85 mm) Bore
17.6 to 1 Compression Ratio
Water Cooled
High Water Temperature Shut Down
Low Oil Pressure Shutdown
Engine controller shall have a gauge package that includes oil pressure, water temperature, voltage, torque percentage, hour meter, and RPM. It shall also have an Auto Start function which preheats and starts engine. The engine speed electronically adjusts automatically, and is preset in the engine controls for optimal machine performance.

Other:_____ _____

18. FUEL CAPACITY

	Comply	Does Not Comply
A. The melter shall have a 30 gallon (113.61 l) diesel fuel tank for operation of the entire unit.		
B. The unit will be capable of operating for a minimum of 12 hours 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:_____ _____		

	Comply	Does Not Comply
19. AIR COMPRESSOR		
A. The melter shall be equipped with a 100 cfm @ 125 PSI (2832 l/m @ 8.62 Bar), rotary vane air compressor.	_____	_____
B. The compressor shall be driven hydraulically. Belt drive compressors are non-conforming.	_____	_____
C. Air pressure shall be controlled by a continual intake valve modulation, which adjusts air flow to increase or decrease depending on user demand. The maximum pressure relief is set to 85psi (5.86 Bar).	_____	_____
D. The compressor has an integral toroidal cooler to maintain proper oil temperature.	_____	_____
E. There shall be a high temperature shut down.	_____	_____
	_____	_____
F. 50 foot of 3/4" (19mm) air hose with Chicago quick couplers on each end and a storage rack shall be supplied along with a cold air lance.	_____	_____
G. For greater operator mobility, the connection between the cold air lance and air hose shall be through a 360° swivel	_____	_____
Other:_____		
_____	_____	_____
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.	_____	_____
D. Additionally, the representative will be available at that time for "on the job" safety and field training.	_____	_____
Other:_____		
_____	_____	_____
22. SAFETY AND TRAINING MANUALS		
A. A written Safety Manual will be provided to the bidding agency.	_____	_____

	Comply	Does Not Comply
23. PARTS		
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.		
24. AWARD		
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.		
25. WARRANTY		
A. The manufacturer shall warranty the equipment for one year or as otherwise noted in the manufacturer's standard warranty policy.		
26. QUALIFICATIONS OF BIDDERS		
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.		

Comply	Does Not Comply

OPTIONS REQUIRED (X if to be included)

(Customer to insert quantity for each option required)
_____2 1/2 inch Pintle Hitch
_____3 inch Pintle Hitch
_____Sealant Tip Adapter
_____V-shaped Squeegee (Qty.___)
_____3 inch Applicator Disk
_____1/2 inch Round Sealing Tip
_____Extra Electric Hose
_____Hot Air Lance
_____Lockable Battery Cover
_____Extra Hydraulic Filter
_____Auto Loader
_____Lockable Engine Cover
_____Fire Extinguisher Mounted on the Trailer Frame
_____Mast Mounted Strobe Light, Class II. _____Mast Mounted Strobe Light, Class I/CA Title 13
_____Tool Box
_____Overnight heater
_____Custom Paint
_____Hitch Extension, 28”
_____Hitch Extension, 39”
_____Water Separator Kit for the ¾” Cold Air Lance
_____Self Retracting Hose Reel Kit with 3/4” Air Hose
_____Stainless Steel Self Retracting Hose Reel Kit with 3/4” Air Hose

APPROVED EQUAL

The approved make and model for this specification is a Crafco SS250 100 CFM. 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 Crafco 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.