

**Detailed Specification for: C1
150 Gallon Crack Sealer / Mastic Patcher**

1.0	Purpose:	Yes	No
1.1	<p>The combination crack sealing unit and mastic mixer must be able to safely melt, agitate, circulate and apply all grades of asphalt rubber sealants, specification joint sealants, jet fuel resistant sealants and fiber modified asphalt sealants. The machine must be capable of starting at ambient temperature and bringing material to pouring temperature in less than one hour. The unit must have continuous sealant agitation with internal recirculation of sealant (not hose recirculation) to eliminate temperature stratification of sealant being applied. This unit must also be capable of handling and heating local crushed aggregate and mixing it with sealants on board. The unit must be able to change ratio of sealant to aggregate on demand. The unit must be able to heat the aggregate to eliminate any moisture that will contaminate the the mixed mastic material. Mastic mix to be delivered by heated placement trough. Complete operation manual and parts list must be furnished with the unit. A factory-trained representative will be available for initial startup and training.</p>		
1.2	<p>The equipment being bid must be new, current year production and meet the needs of this specification without modification. The model must have a working volume of not less than 150 gallons called for in this specification. Hybrid, one-off or prototype equipment is unacceptable.</p>		

1.3

These specifications are not intended to be restrictive, but are meant to describe the kind and size of unit desired to be purchased in detail. If bidder is basing the proposal on equipment other than what is specified in these bid documents and wishes the equipment to be considered as an "approved equal" they shall submit on a separate sheet, an item by item description of that which is proposed. The bidder's specifications must be complete and of sufficient detail to cover all items included in this bid specification and in a manner that allows a direct comparison. Any item not covered will be deemed as not meeting specifications. Such bidder shall also include, but not as a substitute for the above, any manufacturer's literature. In addition, if the bidder takes exception to any item they shall note this and describe in detail the exception and how the proposal is an "approved equal". Failure to carry out the provisions noted herein may be deemed sufficient reason to reject the bidder's proposal.

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2.0 Basic Machine Requirements

- 2.1 Double Jacketed Boiler type material tank design.
- 2.2 Heated mixing chamber for producing mastic patch material.
- 2.3 Capable of heating local crushed aggregate to a minimum of 220 degrees Fahrenheit prior to blending sealant and stone into mastic mixture.
- 2.4 Receiving hopper for crushed aggregate with delivery system to mixing chamber. Hopper will have guard to prevent any aggregate larger than 3/4" from entering the system.
- 2.5 Trailer mounted and rated for highway class use.
- 2.6 Diesel powered and diesel heated.
- 2.7 Electric heated sealing hose equipped only.
- 2.8 Min. working capacity of 150 gallons.
- 2.9 One (1) insulated loading door on machine for sealant delivery
- 2.10 LED stop/ turn sealed lighting including clearance lights.

Yes	No

3.0 Melting System Minimum Requirements:

- 3.1 The material tank must be of double boiler design and have a minimum working volume of 150 gallons. Working volume can be described as the maximum usable amount of sealant at one time that can be contained in the material tank and pumped out the hose.

Yes	No

4.8	Oval LED stop, tail, and turn lights will be included. Clearance lighting will also be LED. A lighted license plate bracket will be attached to the fender.		
4.9	The lighting harness will be woven loom with weather proof connectors at all lights. The trailer harness shall use a junction box at the front to allow easy changeover to different types of towing vehicle plugs. A 7 pin flat RV round plug will be included.		
5.0 Pumping and Delivery System Minimum Requirements:		Yes	No
5.1	A positive displacement pump will provide material flow for mastic mixing trough, sealing, and recirculation. The material pump and all related plumbing must be contained within a heated chamber. External oil jacketed pumps are not acceptable. The re-circulation will be confined safely within the interior of the machine (Internal Machine Recirculation). Hose recirculation is not an acceptable alternative. Submerged pumping systems are unacceptable due to their reduction of sealant working volume, their inability to recirculate sealant and their excessive maintenance down time.		
5.2	The pump shall be direct coupled, driven hydraulically and run in either direction to permit cleaning of plumbing system.		
5.3	Pump size must have 2" inlet and 2" outlet and be rated for 20 GPM.		
5.4	A maximum of 35 rpm's is allowed to achieve maximum pump output to provide long pump life.		
5.5	When sealing valve or mastic valve is closed, sealant must be recirculated back to machine to provide fast recovery and heat up time.		
5.6	Sealing hose will be electrically heated. For safety, only floating ground designed systems will be acceptable. Due to weight, length and flexibility considerations, Oil or DC heated hoses will not be considered. The hose will be a minimum of 5/8" inner diameter (ID) and no less than 20 feet long.		
5.7	Hose boom will be located at the rear center of the heating chamber. Boom height must be high enough as to allow a 6' 2" operator to walk under without risk of personal injury. The boom must be supported by heavy duty collar and oil lite maintenance free bushing.		
5.8	The wand will utilize a ball valve attached at the end of the wand to eliminate dripping when valve is shut off. Rubber tips are not an acceptable substitution. Should the wand be accidentally dropped, all flow and line pressure must cease.		
5.9	A 2.5" swivel disk will be included.		
6.0 Temperature and Flow Control Minimum Requirements		Yes	No

6.1	The control system must be able to operate in Manual or Automatic mode. Sealant flow will be controlled variably with the 0 to 9 flow control knob.		
6.2	The Display must have adjustable digital controllers with readout for oil, material, and heated hose temperatures. Control must have intervals no greater than 1 degree F and continuously monitor thermocouples. Controllers must be stowed in a weather tight operators box on rear curbside of machine.		
6.3	The Control panel will contain (3) LED Status indicators for Pump, Agitator and Hose. When all three indicators are green, operator will have sealant flow.		
6.4	Digital controllers must display an error code and shut burner down should a thermocouple failure occur.		
6.5	The control system must be able to operate in Manual or Automatic mode. When in "Auto", the system will control agitation and pump start up by temperature automatically. Control is to be placed on outer control box with operator selection for Run / Clean Out / Cool and Mix / Off		
6.6	Pump forward/reverse will be electrically controlled from rotary switch on the control station door panel without having to open the weather proof box. A clear cover will allow viewing of status LED's and digital temperature readout without opening box.		
6.7	A single hydraulic manifold system shall be provided with cartridge valves, which permit maintenance without hose removal. Pressure relief valves included for protection of motors. 9 Preset positions are available to adjust sealant flow.		
6.8	Additional status LED indicators shall provide Burner, pump and Hose heating status.		
6.9	Additional analog gauges shall be included for agitator, material pump and aggregate conveyance pressure and backup heat transfer oil temperature.		

7.0 Engine, Burner and Hydraulics Minimum Requirements:

Yes No

7.1	The engine will be joined to the frame with rubber engine mounts to prevent vibration transfer. The engine management system will be located near the engine for ease of operation and maintenance. Two self-igniting diesel fired burners will be included.		
7.2	The unit will be equipped with a 3 cylinder direct injected, 25hp, tier 4 final, diesel engine. The engine will have spin-on type oil and fuel filters.		

- 7.3 The engine will be protected by a Digital Engine Management System including integrated hour meter.
- 7.4 Auto Shutdown protection will be provided for alternator, oil pressure coolant temperature.
- 7.5 The exhaust will exit through a noise reduced cowl muffler.
- 7.6 The unit will include a min. 33 gallon Diesel fuel tank. The tank will incorporate a fuel fill cap with integrated fuel gauge. For Safety, hose type sight gauges are strictly forbidden.
- 7.7 The system will include separate spin-on type fuel filter with ball valve shut offs to simplify filter replacement and supply fuel to the burner and engine. Filters will be located near the fuel tank for ease of maintenance.
- 7.8 The min. 33 gallon reservoir shall be equipped with a suction strainer and a return filter and a sight level with integrated temperature gauge.
- 7.9 Two 12 volt 250,000 BTU diesel burners will fire into separate angled ceramic lined combustion chambers. One assembly for sealant tank, and one assembly for aggregate. The burners will have a self-contained electronic spark igniter and proof of flame protection. To minimize downtime the burners must be self-priming and be equipped with a fuel pressure gauge.

8.0 Mastic Patch Mixing System Requirements

Yes No

- 8.1 Weather proof control panel will contain digital temperature read out for aggregate heating system as well as single operational switch for the following functions: mastic patch, mastic clean out, aggregate only, and off positions
- 8.2 Aggregate hopper to receive crushed aggregate sizes 3/4" and less. Hopper is to be protected by an upper grate for operator safety.
- 8.3 Aggregate will be carried up a dual section mastic mixing station by 2 centerless augers powered by the machine hydraulic system. Machine must be capable of heating aggregate to a minimum of 220 degrees prior to entering the second mastic mixing chamber where sealant is introduced.
- 8.4 Mastic delivery will be controlled by the application valve on the rear mastic mixer chute, and will be delivered to the ground using the heated placement trough.
- 8.5 The mastic placement trough is heated using electric heating blanket for safety. Chutes heated by propane or heat transfer oil will not be accepted for safety.
- 8.6 Mastic patch material must exit the machine in continuous operation at application temperature.

8.7	The mastic chute must be a minimum of 34" high to be able to fill mastic buggies		
8.8	The mastic chute must be able to reach the center of the road without the trailer leaving the right hand lane.		
8.9	Aggregate must be controlled on demand hydraulically with 9 speed settings.		
8.10	Sealant mixture rate must be controlled on demand hydraulically using the curb side 9 speed hydraulic control.		
8.11	A mastic patch mixing ratio chart must be supplied with the unit.		

9.0 Paint and Safety Decals Minimum Requirements:

Yes No

9.1	The unit shall be painted using safety green and black accents. It will be equipped with required safety decals and signage.		
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10.0 Warranty Minimum Requirements

Yes No

10.1	The manufacturer shall warranty the equipment for a period of one year. Engine must be covered for Major Components for a period of 2 years or 2000 hours. Bidder warranty policy must be included with bid submittal.		
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11.0 Included Options: (if box is "X" items must be included)

Yes No

<input type="checkbox"/>	Engine Cover		
<input type="checkbox"/>	2 5/16" Ball Hitch		
<input type="checkbox"/>	Single Strobe, mounted on mast.		
<input type="checkbox"/>	LED Directional Arrow stick, mounted with controller		
<input type="checkbox"/>	Tool Box, mounted		
<input type="checkbox"/>	10 lb. fire extinguisher, mounted with bracket		
<input type="checkbox"/>	Operator Horn, audible communication system		
<input type="checkbox"/>	Spare Tire, mounted on frame		
<input type="checkbox"/>	Heated Aluminum Sealing Wand 4' with heated hose in lieu of standard wand and heated hose. Combined length of hose and wand not less than 20'.		