



Revision Date: 09/2020

| 1.0 | Purpose: | Yes | No |
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| 1.1 | The crack sealing unit (melter/applicator) 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 handling, heating, and mixing aggregate and sealant binder in a consistent process. 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. Complete operation manual, parts lists, and training video must be furnished with the unit. A factory-trained representative will be available for initial startup and training. | | |
| 1.2 | The equipment being bid must be new, current year production and meet the needs of this specification without modification. The model must be currently advertised, have been in production for a min. of two years and have a working volume of not less than called for in this specification. Hybrid, one-off or prototype equipment is unacceptable. | | |
| 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. Check yes if demonstration has been performed prior to bid letting. | | |

| 2.0 | Basic Machine Requirements: | Yes | No |
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| 2.1 | Double jacketed boiler type material tank design. | | |
| 2.2 | Trailer mounted and rated for highway class use. | | |
| 2.3 | Diesel powered and diesel heated. | | |
| 2.4 | Electric heated sealing hose equipped only. | | |
| 2.5 | Minimum sealant working capacity of 150 gallons. | | |
| 2.6 | Single insulated loading door on curb side of machine. | | |
| 2.7 | LED sealed lighting including stop/turn and clearance lights. | | |
| 2.8 | Aggregate hopper receiver. | | |

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| 2.9 | Mixing chamber for sealant and aggregate with individual flow controls for mix design. | | |
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| 3.0 | Melting System Minimum Requirements: | Yes | No |
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| 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 that can be contained in the material tank at one time and pumped out of the hose. | | |
| 3.2 | The material and oil tanks must be constructed of no less than 7 gauge (.179") steel. The oil tank must hold a maximum of 25 gallons of heat transfer oil (HTO) at ambient temperature. The oil reservoir will be surrounded by a 10 gauge (.134") air reservoir that will be filled with hot burner gases heating both the bottom and sides of the oil tank for best heat transfer. | | |
| 3.3 | Tank must be insulated on top, sides and bottom with a min. 1.5" ceramic or FBX insulation. | | |
| 3.4 | Full sweep vertical direct driven reversible agitator design. Agitator shaft must include auger flighting for best mixing. | | |
| 3.5 | Minimum 15 x 26 inch, insulated/angled loading door will be curbside and of "splash-free" design. | | |
| 3.6 | For safety, material loading height will be no more than 50 inches for proper lifting ergonomics. | | |
| 3.7 | For safety, unit must include a vented HTO expansion tank. Sealed expansion tanks will be considered a fatal deviation. | | |
| 3.8 | Diesel burner maximum of 250,000 BTU for best fuel efficiency and fastest heat-up. | | |
| 3.9 | Minimum 6 inch round wand recirculation port located on the rear of the machine is required. | | |
| 3.10 | The material tank will have a minimum capacity of 150 US gallons. | | |

| 4.0 | Mastic Mixing System Minimum Requirements: | Yes | No |
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| 4.1 | Aggregate hopper receiver with grizzly grate protection. | | |
| 4.2 | Aggregate heating chute 96 inches in length with hardened screw for material lifting to mixing chamber. | | |
| 4.3 | Aggregate chute heated using 250,000 BTU diesel burner with outfire protection. | | |
| 4.4 | Aggregate chute heat controlled by digital controller and temperature probe to maintain proper aggregate temperature. | | |
| 4.5 | Aggregate lifting screw to be controlled hydraulically with variable speed control. | | |
| 4.6 | Insulated mixing trough 57" in length with .75" hardened screw for material mixing. | | |
| 4.7 | Sealant binder to be introduced to aggregate for mixing within first 6" of mixing chamber. | | |
| 4.8 | Sealant binder flow to be controlled hydraulically with variable speed control. | | |
| 4.9 | Mixing trough to be capable of handling a variation of mix design. | | |
| 4.10 | Mastic to be placed from mixing trough using a heated placement chute 46" long with 180 degrees of rotation to left or right for ease of placement. | | |

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| 4.11 | Placement chute to be heated with 1400 watt heating blanket. | | |
| 4.12 | Heated tool box provided for storage of standard iron tool and standard lute box placement tool. | | |
| 4.13 | Hand Iron size of 8" x 10.5" and lute box 8" x 10" x 2.5" deep. | | |

| 5.0 | Trailer Minimum Requirements: | Yes | No |
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| 5.1 | The melting unit will be trailer mounted and capable of being towed at safe highway speeds when fully loaded. The frame shall include minimum flat horizontal surface steel fenders to facilitate handling and loading of material blocks. All lighting will be LED. | | |
| 5.2 | The frame is to be constructed of minimum 6"x 2"x 3/16" gusseted steel tube for safety and strength. | | |
| 5.3 | A 2-1/2" towing ring that has 10" of adjustment in setting up and down | | |
| 5.4 | Minimum 12 gauge flat horizontal surface steel fenders to facilitate handling and loading of material blocks. | | |
| 5.5 | A swing-away weight appropriate adjustable screw jack must be provided. | | |
| 5.6 | To insure towing mobility in both forward and reverse directions, the melter shall have a dual torsion axles system and be rated at a GAWR (Gross Axle Weight Rating) of 7000 lbs | | |
| 5.7 | Electric brakes, emergency breakaway switch, radial tires, and two 3/8" x 4 foot long safety chains with slip hooks will be included. | | |
| 5.8 | 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. | | |
| 5.9 | 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 seven (7) pin flat RV round plug will be included. | | |

| 6.0 | Pumping and Delivery System Minimum Requirements: | Yes | No |
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| 6.1 | A positive displacement pump will provide material flow for 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. | | |
| 6.2 | The pump shall be direct coupled, driven hydraulically and run in either direction to permit cleaning of plumbing system. | | |
| 6.3 | A minimum 20 gpm is required output. Pump speed will variable. | | |
| 6.4 | A maximum of 32 rpm's is allowed to achieve maximum pump output to provide long pump life. | | |
| 6.5 | When sealing valve is closed, sealant must be recirculated back to machine to provide fast recovery and heat up time. | | |
| 6.6 | Sealing hose will be electrically heated. For safety, only floating ground design 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 3/4" inner diameter (ID) and no less than 20 feet long. | | |

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| 6.7 | Hose boom(s) 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 oilite type maintenance free bushing. | | |
| 6.8 | 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. | | |
| 6.9 | A 2.5" swivel disk will be included. | | |

| 7.0 | Temperature and Flow Control Minimum Requirements: | Yes | No |
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| 7.1 | For sealant placement temperature quality, the material temperature will be measured outside of the sealant tank and before the placement hose. The digital control system must be able to operate in manual or automatic mode. Sealant flow will be digitally controlled. | | |
| 7.2 | 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 water tight operators box on rear curbside of machine. | | |
| 7.3 | The control panel will contain (3) LED status indicators for pump, agitator and hose. When all three indicators are green, operator can begin to work. | | |
| 7.4 | Digital controllers must display an error code and shut burner down should a thermocouple failure occur. | | |
| 7.5 | 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 Down / Off | | |
| 7.6 | Pump forward/reverse and agitator 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. | | |
| 7.7 | 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. Nine (9) preset positions are available to adjust sealant flow. | | |
| 7.8 | Additional status LED indicators shall provide burner, pump and hose heating status. | | |
| 7.9 | Additional analog gauges shall be included for agitator and material pump pressure and backup material temperature. | | |

| 8.0 | Engine, Burner and Hydraulics Minimum Requirements: | Yes | No |
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| 8.1 | The unit will be equipped diesel engine with spin-on type oil and fuel filters. It will be joined to the frame with rubber engine mounts to prevent vibration transfer. The management system will be located near the engine for ease of operation and maintenance. A self-igniting diesel fired burner will be included. | | |
| 8.2 | 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. | | |
| 8.3 | The engine will be protected by a digital engine management system including integrated hour meter and also burner failure indicator lamp. | | |
| 8.4 | Auto shutdown protection will be provided for alternator, oil pressure and coolant temperature. | | |
| 8.5 | The exhaust will exit through a noise reduced cowl muffler. | | |

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| 8.6 | 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. | | |
| 8.7 | The system will include separate dual spin-on type fuel filters 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. | | |
| 8.8 | The hydraulic system shall have a minimum 33 gallon reservoir, shall be equipped with a suction strainer and a return filter and a sight level with integrated temperature gauge. | | |
| 8.9 | One 12 volt 250,000 BTU diesel burner will fire into an angled ceramic lined combustion chamber. The burner will have a self-contained electronic spark igniter and proof of flame protection. To minimize downtime the burner must be self-priming and be equipped with a fuel pressure gauge. | | |

| 9.0 | Paint and Safety Decals Minimum Requirements: | Yes | No |
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| 9.1 | The unit shall be painted using safety green and black accents. It will be equipped with required safety decals and signage. | | |

| 10.0 | Warranty Minimum Requirements: | Yes | No |
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| 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. | | |

| 11.0 | Included Options: (if box is "X" items must be included) | Yes | No |
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| | Engine protection canopy. | | |
| | Agitator stop (stops agitator when loading door opens). | | |
| | Single strobe, mounted on mast. | | |
| | LED directional arrow stick, mounted with controller. | | |
| | Tool box, mounted. | | |
| | 10 lb. fire extinguisher, mounted with bracket. | | |
| | Operator horn, audible communication system. | | |
| | Spare tire, mounted on frame. | | |
| | Light weight aluminum sealing wand, 4' with heated hose in lieu of standard wand and heated hose. | | |

| 12.0 | Machine Upgrades: (if box is "X" items must be included) | Yes | No |
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| | Skid mount air compressor: The unit will be a stand alone skid mounted air compressor with independent engine. Skid mount will fit into or onto standard truck beads and will have a boom with pivot to swing over truck cab to front of vehicle. Will include air hose and cold air lance. | | |
| | A 50 ft. self-retracting hose reel will be included. | | |

| 13.0 | Air Compressor Heat Lance Upgrade: (if box is "X" item must be included) | Yes | No |
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| | Integrated heat lance upgrade: As an upgrade to the skid mount air compressor, the unit shall include an integrated heat lance package including the following: 50ft of 1/2" air line and 1/4" gas line. A heat lance with regulator and a rack for a 40 lb. propane bottle. | | |