**OJK-125 Oil Jacketed Kettle**

**Bidding Specifications**

**1.0 Intent**

It is the intent of this specification to provide for the purchase of one (1) new and unused Oil Jacketed Kettle to be used for the purpose of melting and applying rubberized material to seal cracks in road surfaces

The following specification is based upon a Stepp Mfg Oil Jacketed Kettle Model OJK-125.

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| **GENERAL:**  The machine shall be the manufactures current production model, trailer mounted, and completely self-contained. It shall be capable of heating, melting, and applying all grades of rubberized asphalt crack sealer, joint sealants, and waterproofing compounds without the need for additional equipment. | **YES** | **NO** |
| The machine shall be capable of heating sealing material from ambient to application temperature in 60 minutes or less. |  |  |
| **TANK CONSTRUCTION:**  The material tank shall have a total capacity of 125 gallons with 5% to allow for material expansion. |  |  |
| The tank shall be of triple wall construction with the inner wall of 10 gauge, oil jacket of 10 gauge, and the outer wall of 12 gauge steel. |  |  |
| A safety loading chute shall be included on the top, curbside of the tank to allow “splash-free” loading of block material into the kettle, and shall have opening dimensions of 16”x16”. The maximum loading height shall be no more than 53” from the ground. |  |  |
| The base unit shall include gravity drain of material from the tank, with an optional pumping system with hose and wand also available. |  |  |
| A minimum 2-1/2” draw-off cock with inside closing valve feature, to eliminate valve freeze-up, shall be located at rear of machine. |  |  |
| All tanks are positioned higher than the axles on the unit to ensure proper ground clearance. |  |  |
| **LIGHTS:**  Combination stop, turn, and clearance lights with license plate bracket wired in protective loom with 7 pin RV connector. Shall be a 2 light LED system. |  |  |
| **TRAILER:**  Frame shall be A-frame style constructed of 2” x 4” x 11 gauge high strength, rectangular steel tubing reinforced at all stress points with 1/4” x 6” x 15” fish plates. Open channel shall not be used. |  |  |
| Suspension shall be of leaf spring type. |  |  |
| Shall have a one-piece, bolt-on shackle. |  |  |
| Shall have electric brakes with break-away kit and tires. Hydraulic surge brakes are also available. |  |  |
| Hitch shall be of 3” pintle or 2-5/16” ball style (customer specified) and have adjustable height from 21”-34”. |  |  |
| Fenders shall be heavy duty, minimum 12 gauge steel and be of bolt-on design and able to support 500 lbs. without damage. |  |  |
| Trailer electrical system shall be 12 volt DC battery with charging system, with a 6 pin round or 7 pin RV light plug (customer specified). |  |  |
| Turn signals and brake lights shall be sealed beam grommeted. Side markers shall be mounted at the rear and sides of unit. |  |  |
| A minimum 5,000 lbs. capacity tongue jack, with swing away feature for road clearance, shall be installed. |  |  |
| Safety chains shall be grade 40 with attached eye bolts. |  |  |
| All wiring and fuel lines shall be run through the inside frame for protection from outside elements. |  |  |
| All options for this unit are of bolt-on design for easy installation after unit is delivered. |  |  |
| **CONTROLS:**  Shall be equipped with the Stepp AKC Advanced Kettle Control, can-buss PLC control system. It shall monitor and control all burner functions, pumping and agitation controls, kettle interlock safety systems, autoloader controls and operations, auger safety shutdown, and diagnostics for the burner control system. |  |  |
| AKC controls shall operate the automatic spark ignition and shall light the burner with the flip of a switch and include flame-out protection to shut off the fuel supply if the flame is blown out. |  |  |
| Shall have an easy-to-adjust thermostat with a setting range from 0-550 degrees F. |  |  |
| Shall have a large, color display for easy monitoring of the product temperature in the tank. |  |  |
| Once the operator sets the desired temperature, the burner operation and temperature controls shall be fully automated with this system. |  |  |
| Controls shall be located in a weather proof enclosure. Enclosure shall have a transparent cover so the temperatures can be monitored without the need to open the cover. The operator shall be able to read the product temperature when standing 6 feet from the machine. |  |  |
| **The AKC control shall be capable of the following functions:**  Pump: on/off, adjustable pump speed control, and pump speed indication. |  |  |
| Auger: on/off and forward/reverse |  |  |
| Wand and hose heat: on/off |  |  |
| Heat transfer oil: actual temperature and set temperature |  |  |
| Material: actual temperature and set temperature |  |  |
| Hose: actual temperature and set temperature |  |  |
| Pumping system interlock: shall not allow the operator to start the pump or auger until product and hose have reached 275 degrees F. |  |  |
| Burner control diagnostics: turns warning light on when component fails. |  |  |
| Burner lock out with warning: warning light flashes until temperature is reached. |  |  |
| US/metric conversion: user selectable US or metric temperature controls. |  |  |
| User adjustable lock out settings. |  |  |
| **Optional features the AKC operates:**  Exact flow wand control: controls pump speed from wand.  Autoloader: on/off. |  |  |
| Autoloader auto/manual: auto mode automatically dispenses a block into the kettle when one is pumped through the wand. |  |  |
| Pump hour meter: totalizes pump hours with autoloader option. |  |  |
| Block counter: totalizes the blocks used with autoloader option. |  |  |
| Material dispensed: totalizes gallons used with autoloader option. |  |  |
| Strobe light control |  |  |
| **HEATING SYSTEM:**  **Diesel Burner**  To be equipped with one Beckett, forced air diesel burner with an operating output of 250,000 BTUs. |  |  |
| Burner shall be completely self-contained with automatic ignition and safety shut off circuitry to stop the fuel flow if the flame goes out. |  |  |
| The burner is designed to operate on 12V DC power without the need for additional adaptors or apparatus. |  |  |
| Shall use either #1 or #2 diesel fuel which shall be supplied from a 25 gallon capacity fuel tank. |  |  |
| **Heat Transfer Jacket**  The heat transfer oil jacket is to be constructed of 10 gauge material and have a total capacity of 30 gallons. |  |  |
| The heat transfer oil used shall be ISO 460 with a COC flash point of 550° F and a pour point of 25° F. |  |  |
| A cold seal expansion tank shall be provided to eliminate moisture condensation and reduce oil oxidation in the heat transfer oil. The expansion tank shall include a vented down-tube to direct the flow of oil to the ground in the event of an overflow. |  |  |
| A center heat riser shall be installed to direct more heat into the center of the product tank. Heat transfer oil will be circulated in the heat riser by convective means. The heat riser shall be vented to the outside oil jacket to assure the heat riser remains full of heat transfer oil. |  |  |
| **Insulation Jacket**  The oil jacket shall be insulated with a minimum of 1" of ceramic refractory insulation. The outer shell that covers the insulation shall be fabricated from 12 gauge steel (minimum). |  |  |
| **Combustion Chamber**  The combustion chamber shall be engineered and constructed in a configuration that assures the highest efficiency available based upon the BTU output of the burner. Baffling shall be used to direct the heat across the heating chamber and around the side walls for maximum efficiency. Heating fins shall be installed in the combustion chamber to maximize the heat transfer area. The minimum heat transfer surface area to the heat transfer oil shall be 5468 sq. in. |  |  |
| A minimum of 2" of ceramic refractory insulation will be used in the combustion chamber. |  |  |
| For operator safety, the burner and combustion chamber shall be located in front of the product tank to keep noise and exhaust fumes as far away from the operator as possible. |  |  |
| **ENGINE:**  The engine shall be a two cylinder, water cooled, Kubota® model Z602-E diesel engine complete with air, fuel, and oil filters, electric starter, alternator, muffler with rain cover, battery and lockable steel battery box, hour meter, warning lights, engine cover, and all necessary controls. A glow plug system for cold weather starting shall be included. An automatic engine shut down system to prevent engine damage caused by low oil pressure or high engine coolant temperatures shall be included. |  |  |
| The engines available horse power shall be a minimum of 16HP. The digital engine management Deep Sea Control shall have a glow plug system for cold weather starting, an automatic engine shutdown to prevent engine damage caused by low oil pressure or high engine coolant temperatures. |  |  |
| **AGITATOR**:  The agitator shall be a full sweep type, and located in the vertical position in the center of the tank. The agitator shall be driven by a reversible hydraulic motor at approximately 25 rpm. With a variable speed, 4-way, pressure compensated flow control allowing rotation in either direction at speeds from approximately 0 to 25 rpm. |  |  |
| Shall be equipped with an agitator disconnect (agitator safety shutdown) which protects the operator when loading chute is open. |  |  |
| **HYDRAULIC SYSTEM:**  The hydraulic system shall include a crankshaft driven pump. The agitator will be equipped with a 4-way, pressure compensated flow control allowing rotation in either direction at variable speeds. The product pump shall use a 4-way, pressure compensated flow control allowing rotation in either direction at variable speeds. |  |  |
| Hydraulic Oil filtration shall be a suction strainer located in the reservoir and by a 10 micron "spin-on" type filter in the return line. All hydraulic lines to be a minimum of 5/8" high pressure steel tubing. Hoses are only to be used where required for component flexibility purposes. For extended component life, hydraulic system pressures shall not exceed 1500 psi. |  |  |
| Pump shall be submerged in the tank, allowing it to heat with the product, thus eliminating the need to pre-heat the pump. |  |  |
| Pump shall be removable without the need for maintenance personnel to enter the tank. Shall be designed and mounted in such a way that clearance adjustments can be made from outside the tank without removing the pump. Any leakage from the pump packing shall drain back into the tank. |  |  |
| The hydraulic reservoir shall have a total capacity of 10 gallons. |  |  |
| **PUMPING SYSTEM:**  The product pump shall be a Haight rotary gear positive displacement pump with 20 GPM capacity with the actual output variable from approximately 0 to 4.1 GPM for greater operator controllability and extended service life. The pump shall be driven by a reversible hydraulic motor with variable speed, 4-way pressure compensated flow controls with approximately 0 to 190 rpm operating range. The reversible feature will purge the pump of material to facilitate cold start-up. The pump suction tube shall be located in a sump in the bottom of the tank to allow complete removal of the contents in the tank. Shall include a screen to prevent 1/2” or larger sized debris from entering the tank. A 0 to 550° F dial type thermometer shall be installed to monitor the discharge temperature of the sealant from the product pump. |  |  |
| The pump will be submerged in the tank allowing it to heat with the product, thus eliminating the need to pre-heat the pump. The pump shall be removable without the need for maintenance personnel to enter the product tank. |  |  |
| Pump shall be designed and mounted in such a way that any leakage from the pump packing shall drain back into the tank. To eliminate high maintenance and replacement costs, oil jacketed pumps will not be accepted. |  |  |
| Shall include a pump saver product pump control system. The system shall automatically engage and disengage the product pump based upon demand for product at the application wand to eliminate unnecessary pump wear. The pump saver option shall include a one year warranty against product pump failure caused by wear. |  |  |
| **APPLICATION WAND**  A 68" x 3/4" i.d. (minimum) insulated application wand with insulated handles shall be included. The wand valve shall be located at the application end of the wand to immediately stop the flow of product, without excess dripping when the valve is shut off. |  |  |
| The wand shall be equipped with an internal electric heating element designed to melt the crack sealant from within the wand. The wand heating system shall operate at no more than 28 volts DC to eliminate the risk of hazardous electrical shock. The heating system will be capable of heating the crack sealant in the wand from ambient temperature (60°F) to application temperature in 30 minutes or less. This system shall eliminate the need for heating compartments and flushing procedures. |  |  |
| The wand heating system shall add no more than 12 oz. to the total weight of the wand. The wand heating system shall be a separate component and not part of the wand or hose. The wand and heating components shall be individually replaceable. The wand shall be attached to the hose with a quick-disconnect 360° swivel. |  |  |
| **HEATED HOSE SYSTEM:**  A 3/4” smooth bore Teflon with internal stainless steel liner and external stainless steel braid, insulated hose, specially designed for use with heated petroleum products, shall be attached to a 1” i.d. insulated overhead delivery boom. |  |  |
| The material shall pass through the inside of the boom to the hose. The boom shall swivel on sealed ball bearings and be mounted at a height that shall allow the boom to safely pass over a 6’ 2” person. |  |  |
| The boom shall be mounted on the right rear corner of the machine to allow crack filling operations across two lanes. |  |  |
| A safety stop shall be installed to prevent the boom from swinging to the left or right traffic lane when the safety stop is engaged. |  |  |
| The design of the boom shall allow the use of a less expensive, shorter hose length of 12’ while maintaining a work area of no less than 21’. Shall also prevent the hose from contacting the ground, eliminating abrasion damage. |  |  |
| Hose and boom shall be equipped with individual, internal electric heating elements designed to melt the crack sealant from within. |  |  |
| The heating system shall operate at no more than 28 volts DC to eliminate the risk of hazardous electrical shock. Shall be capable of heating the crack sealant in the hose and boom from ambient temperature (60 degrees F) to application temperature in 30 minutes or less. This system shall eliminate the need for hose heating components and hose flushing procedures. |  |  |
| The hose and boom heating system shall add no more than 12 oz. to the total weight of the hose. |  |  |
| The heating elements shall be a separate component and not part of the hose or boom. For economic replacements, the hose and heating components shall be individually replaceable. |  |  |
| **PAINT:**  Surfaces of the unit will be properly prepared and primed per standard industry practices. Shall have a two (2) part PPG polyurethane paint. |  |  |
| **WARRANTY:**  Shall be one year on parts, materials, and workmanship. Product pumps and hoses that handle heated materials shall have a 12 month pro-rated warranty. Component parts such as engines, hydraulic components, tires, etc., shall be covered by the component manufacturer’s warranty. |  |  |
| **OPTIONAL FEATURES** |  |  |
| **EXACT FLOW WAND CONTROL**  Optional exact flow wand shall consist of a rheostat mounted on the wand To change the speed of the product pump while pumping product. |  |  |
| **FIRE EXTINGUISHER:**  10 lb. ABC dry chemical fire extinguisher. |  |  |
| **BEACON STYLE STROBE LIGHT:**  12 volt powered. Controlled from operators control panel. Strobe mounted on the top rear of unit. |  |  |
| **SPARE TIRE:**  Spare tire with holder mounted to frame of unit. |  |  |
| **ELECTRIC OVERNIGHT HEATER:**  Available to reduce startup time and maintain heated material at temperatures. Provides low temperature heat that will not scorch material. 110V 1500W |  |  |
| **ARROWBOARD:**  12 volt powered directional arrowboard. Controlled from operators control box. Mounted on rear of unit. |  |  |
| **DIESEL BURNER ENCLOSURE:**  Lockable enclosure to protect burner from outside elements. |  |  |
| **ENGINE ENCLOSURE:**  Shall be a lockable, weather protector, vandal proof, vented enclosure for the engine. Sound deadening insulation shall quiet the machine to 40% less noise. Enhances overall security and appearance of the machine. |  |  |

**Exceptions & Deviations**

Bidder shall fully describe every variance, exception, and/or deviation. List the item number here and fully explain any items in non-compliance with specification. Additional sheets may be used if required.

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