

## Specifications for Slurry/Microsurfacing Machine

### A. **New Current Year Production Model**

It is the intent of this specification to describe a slurry machine in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete slurry paving machine, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided the “trade” in general.

The slurry machine shall be a current model under standard production by the manufacturer.

**Note:** Unit must have micro-surfacing capability.

Any units not conforming to this specification will be rejected and it will be the responsibility of the manufacturer to conform with the requirements, unless deviations have been cited by the bidder and acceptance made on the basis of the exceptions.

### B. **Slurry Machine With the Following Minimum Specifications**

**State Make, Model, and Production rate (Tons/Minute).**

### C. **Pugmill:**

1. Twin shaft design
2. 60 replaceable tip, overlapping auger paddles
3. Variable mixing speed up to 225 rpm
4. Mixing chamber shaft dimension not less than 57 inches (1.45 meter) long
5. Shaft bearings to be tripled sealed, with shaft slingers on each shaft end inside mixing chamber

### D. **Auxiliary Engine:**

1. Water-cooled, diesel engine, generating minimum of 115 hp (84 kW) @ 2200 rpm
2. Engine to be U.S. EPA Tier-III emission compliant
3. Engine to be computer controlled and operator control panel to include diagnostic display for monitoring of all measured functions
4. Engine speed electronically controlled for idle, intermediate and run speeds with computer control to put engine at operating speed automatically when operator starts production

5. Engine speed to automatically return to idle after an operator adjustable time period when production stops
6. Electrical system: 12 volt, negative ground and connected to truck battery.
7. Engine to include all filtration/cleaner systems and gauges to include oil pressure, coolant temperature and tachometer
8. Automatic safety shut down system for low oil pressure and high coolant temperature
9. Engine to draw fuel off the truck fuel tank.

**E. Hydraulic System:**

1. Powered by a rotary gearbox coupled to variable displacement hydraulic pump system developing a total of 105 gpm (397 lpm) @2200 rpm
2. Triple pump system to supply the pugmill, emulsion pump and aggregate conveyor group, and the main system individually and simultaneously.
3. Main system provides power for the hydraulic distribution system without chain/sprocket drives
4. Hydraulic reservoir capacity of 130 gallons (490 liters) with magnetic suction line screens and return line filter
5. Hydraulic air-to-oil cooler to maintain correct hydraulic oil temperature

**F. Emulsion System:**

1. Pump to be a positive displacement, hot-water heat-jacketed pump
2. Emulsion pump and aggregate belt directly coupled through a hydraulically operated clutch; with no chains, sprockets or manual clutches
3. Three-way valve to divert emulsion from circulating mode to production mode upon engagement of automatic sequencing.
4. Quick cleaning strainer installed so that all emulsion flows through it prior to entering the pump

**G. Additive System:**

1. Tank to be stainless steel, 150 gallon (565 liter) capacity
2. Pump to be stainless steel capable of 15 gpm (57 lpm)
3. To include electronic flow meter
4. To be automatically sequenced to production start and stop

**H. Automatic Sequencing:**

1. To have “one button main start” to initiate and stop production
2. Production controlled with hydraulic sequence system
3. Adjustment of sequence timing to be by machine control computer and readily adjustable by operator

4. Emulsion pump and conveyor drive to be mechanically linked to assure constant metering at any delivery speed

I. **Hydraulic Controls:**

1. Controls for speed of pugmill, emulsion pump, right and left side spreader box augers, water pump, additive pump and fines feeder
2. Heavy-duty hydraulic on/off and directional control valves for pugmill, spreader box side shift & raise/lower, diverter chute, emulsion pump, main control, aggregate conveyor
3. Hydraulic gauges for all three hydraulic circuits, plus filter indicator and conveyor clutch pressure

J. **Material Monitoring:**

1. Monitoring system to be electronic computer with display at operator's station
2. Display to be weatherproof and include locking cover
3. To include water and liquid additive flowmeters; fines, aggregate, emulsion, water and additive material totalizers; emulsion pump RPM and display of actual percentages on fines, water and additive meters
4. To include low aggregate shutdown with alarm
5. System to assist in calibration with step-by-step instructions shown on display along with calibration data entry into display unit

K. **Water System:**

1. Pump to be variable speed, capable of 120 gpm (450 lpm)
2. To include electronic flow meter
3. Front spray bar, on/off controlled from operator station to provide full-width fogging without extending beyond truck width, spray nozzles to have check valves
4. Adjustable side joint spray nozzles with on/off control and check valves
5. 15 ft. (4.6 m) hand hose with spring-loaded pistol grip nozzle to be located on operator platform
6. Tank capacity to be 850 gallons (3200 liters)
7. Tank interior to have rust and corrosion resistant coating
8. Tank to have liquid level indicator
9. Tank to be vented and to have manhole equipped with locking lid
10. Tank strainer to be mounted outside tank and have removable screen
11. Tank to be constructed of 3/16" plate, welded both inside and outside

L. **Emulsion Tank:**

1. Tank capacity to be 850 gallons (3200 liters)
2. Tank to be vented and to have manhole equipped with locking lid

3. Tank to be constructed of 3/16" plate, welded both inside and outside

**M. Aggregate System:**

1. Hopper to be constructed of 3/16" steel plate, double welded.
2. Reinforced hopper top with 2" x 6" tubular steel structural members to be installed in top corners to prevent damage to hopper side when loading aggregate
3. Hopper walls to have a 51° slope.
4. Hopper capacity to be 12 cu. yard (9.2 cu. meter)
5. Hydraulic vibrator operated with main automatic sequencing
6. Aggregate conveyor to be continuous belt over roller bed type with top carriers on not more than 8 in. (20.3 cm) centers, lagged drive roller, bottom idler roller, adjustable head roller for correct belt tension
7. Conveyor rollers to have no-maintenance type bearings
8. Aggregate flow rate to be controlled by variable opening gate
9. Automatic alarm and shutdown for when hopper is empty

**N. Fines Feeder System:**

1. Hopper to be constructed of 3/16" steel with steep slopes, 12 cu. feet (.34 cu. meter) capacity with anti-bridging agitators with clean-out door, lid with handle and opening stop.
2. Fines to be fed by hydraulically driven, variable speed auger.
3. Fines feeder system to be automatically sequenced to production start and stop.
4. Control at operator station to provide ratio of fines to aggregate

**O. Hydraulically Expandable Spreader Box:**

1. Spreader Box:

The spreader box shall be a standard 9 ft. to 14 ft (2.74 to 4.27 m) wide, infinitely adjustable. The sections of the box shall be double-plated so that when the box is extended, one plate slides out with the extended part, and no extra pieces are required.

The box shall have dual spiral-type, 9 in. (22.5 cm) diameter augers, and their direction shall be such as to assure maximum movement of the slurry product within the box. Two pairs of two independent hydraulic motors shall power the augers in each side of the box so the left side auger and the right side augers operate independently.

There shall be three box skids. The outside skids shall be a minimum of 6 ft. (1.8 m) long to provide for some longitudinal leveling. Each skid shall have abrasion-resistant plate shoes that are removable. The side shoes

shall be 3 in. (7.6 cm) in width. Each skid shall have an adjustment that shall allow setting of the height of the box augers in relation to the pavement.

The rear texture flap shall expand and contract with the box width adjustment. There shall be six adjustments for the rear texture flap to allow setting the desired height and angle of the rear texture flap rubber in relation to the road surface.

There shall be a handrail across the back of the box to protect personnel. The handrail shall have built-in telescoping sections to accommodate box expansion. Across the back of the box shall be a diamond plate walkway for use by personnel as needed in slurry laying operations. The walkway shall have built-in telescoping sections to accommodate box expansion.

2. Hydraulic Expansion:

The box shall have four hydraulic cylinders to permit rapid expansion. The cylinders will push or pull the end sections in place so the front, rear and auger sections can be rapidly adjusted. There shall be a hydraulic valve to control the cylinders. There shall be hydraulic quick-couplings that plug into the slurry machine's hydraulic system for power

P. **Miscellaneous:**

1. 12 cu. foot (.34 cu. meter) waste material box
2. Four (4) lift eyes
3. All lights and reflectors per state and federal codes
4. High pressure water cleaning system with 50 ft. (15.2 m) hose, reel and gun to be installed
5. Heavy-duty automatic tarping system with tarp material to be treated for asphalt and the arm with spring-loaded mechanism or equivalent
6. Two copies of factory service, parts and operators manuals for slurry machine
7. Submit a recommended parts list and dollar amount that should be stocked for maintenance support
8. Submit a list of at least five users who have had models similar to the unit being bid, in current service
9. Submit production capacities and performance ratings

Q. **Training:**

1. To include 3 to 5 days set up and on the job training for operation and maintenance – factory authorized trainer only