

# SPECIFICATIONS

## For Black-Topper Centennial Bituminous Distributor

### GENERAL

It is the intent of these specifications to describe a Bituminous Distributor in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete Distributor, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The Distributor shall be a current model under standard production by the manufacturer.

Any units not conforming to these specifications will be rejected, and it will be the responsibility of the manufacturer to conform to the requirements unless deviations have been specifically cited by the bidder and acceptance made on the basis of the exception.

### FUNCTION

The Distributor shall perform the following functions:

- a. Fill tank by Distributor pump from outside source.
  - b. Circulate material in tank.
  - c. Circulate material in spray bar.
  - d. Spray at a constant desired application rate, regardless of variance in truck speed.
  - e. Return material in spray bar to tank by pump suction.
  - f. Handspray.
  - g. Return material in hand spray to tank by pump suction.
  - h. Transfer from an outside source to another outside source without having material enter Distributor tank.
  - i. Pump material back to supply source.
  - j. Automatically go from Circulate in Spray Bar to Spray mode and return to circulate without pushing material over relief valve.
- It is important that the Distributor be capable of returning all material in the spray bar, handspray and distributing lines to the Distributor tank by means of pump suction. This function is to be accomplished without reversing the asphalt pump.

Unit shall use volumetric metering with no bypass when spraying to insure accuracy of application.

Provision shall be made for easily draining the circulating system independently of the tank and for flushing circulating system and pump with not more than three (3) quarts of fuel oil so as not to dilute tank contents.

### TANK AND FITTINGS

- a. Capacity: \_\_\_\_\_ U.S. Gallons minimum.
- b. Shape: Oval in cross section, with the long axis horizontal.
- c. Material: Shell to be 10 gauge steel. Tanks to have 10 gauge steel heads, deep dished and flanged, welded to tank shell both inside and outside for strength and durability.
- d. Surge Plate: Tank to be supported with full section surge plate, deep dished and flanged, constructed of 10 gauge steel. To be spaced to provide adequate tank strength and proper surge control. Openings shall be provided in the surge plates for the free flow of material to the pump and large enough for a man to crawl through.
- e. Manhole: 20" inside diameter manhole with quick-opening cover.
- f. Overflow: 3" diameter overflow, extending at least 6 inches above the liquid, and draining internally only through the bottom of the tank in such a location as to clear all chassis members. Tank overflow design that drains asphalt material into the spill collar around manhole is not acceptable.
- g. Insulation: 2" fiberglass 1 lb. Density with spacers to prevent compression, protected by aluminum jacket sheet (.040").
- h. Tank Mounting: Mounting saddles shall be full bolster style. Includes aluminum fenders.
- i. Tank Gauge: Float type, with dial calibrated in 50 gallon increments, both front and rear of tank.
- j. Measuring Stick: Aluminum, calibrated in 50 gallon increments. To be designed and calibrated to read tank contents without dipping stick into material.
- k. Spillage collar and overflow drain, including refiners platform and ladder.
- l. Tank design and construction to meet all applicable Federal Cargo Tank Regulations 49 CFR 173.247 and including DOT-406, HM-183, HM-198A, with consideration for hot asphalt products. Must have ASME tank approval number to assure that federal cargo tank regulations can be met.

## **POWER UNIT**

- a. Type: Hydrostatic transmission, consisting of:
  1. Pump: Infinitely variable displacement pump with a minimum displacement of 3.1 cubic inches per revolution, axial piston type. Electronic stroker control.
  2. Motor: Piston motor with gearbox. 1.53 cubic inch per revolution displacement, direct coupled to the asphalt pump. Entire transmission unit shall be capable of operating speeds up to 2800 RPM. Hydraulic oil may reach temperature up to 200 degrees without damage to the unit. Unit shall have internal valving, and shall be fitted with relief valve and high oil temperature signal in cab.
- b. Crankshaft Take-Off: Hydrostatic pump driven by crankshaft take off; chassis must be equipped to accept crankshaft drive.
- c. Hydraulic Lines:
  1. High pressure hose with swaged type split flange "0" ring fittings, per S.A.E. standards. (90 series pump only)
  2. Low pressure hose installation shall be made according to transmission manufacturer's recommendations. Only top quality fittings, tubing and hoses to be used.
- d. Controls: Electronic micro-control of hydrostatic transmission for setting asphalt pump discharge rate shall be located in truck cab. Control to permit stopping the variable pump discharge without disconnecting the drive and be equipped with an override of the micro-control which shall allow increases in asphalt pump output for filling, sucking back, etc., without affecting application rate setting. Override control shall be located at rear of unit.
- e. Reservoir: Minimum 20 gallon hydraulic reservoir with dial thermometer and level indicator.
- f. Filter: A 10 micron, replaceable cartridge type filter with vacuum gauge shall be located in the line between oil reservoir and hydrostatic pump.

## **BITUMEN PUMP**

- a. Type: Positive displacement rotary gear type. 4 1/2" suction x 4" discharge.
- b. Location: To be located below the bottom level of the tank so that the material will flow vertically from the suction to the discharge insuring complete drainage when tank contents valve is closed.
- c. Capacity: Minimum of 400 gallons per minute.
- d. Self Flushing line from fuel tank or heating system to fill line. Includes minimum 20 gallon capacity fuel tank with float level gauge. Located away from burners for safe operation.

## **HEATING SYSTEM**

- a. Flues: (1) with (LPG) liquid petroleum gas burner, with minimum of 1,000,000 BTU per hour per burner capacity. With pressure regulator, valves, piping, and 52 gallon frame mounted tank to be furnished.

## **SPRAY BAR**

Full circulating \_\_\_\_\_ feet in length, hinged to permit folding for traveling. Length of bar in folded position not to exceed 8 feet. Positive circulation from one end of the bar to the other end, regardless of bar length or asphalt pump rate.

To consist of 8' center section with (2) folding wing sections.

Electric-air on-off in 1' increments, cab controlled.

Electric-hydraulic spray bar shifting, lifting and wing folding, cab controlled.

Nozzles to be spaced on 4" centers on spray bar and shall have an individual valve for each spray nozzle. Each nozzle valve to have flip lever control so spray width can be adjusted, and allows individual valves to be disconnected without the use of tools or pulling pins. Right and left side wings (bar extensions) to relieve fore and aft. Pin replacement required when bar relieves.

Bar to adjust for positive or negative crown and also adjustment for pitch of bar to aim nozzle valves rearward. Sections to be interchangeable, right or left side.

## **AIR CONTROLS**

### **Driver Operated Cab Control:**

Distributor shall be equipped with air controls. Air for the controls shall be obtained from the air system on the truck chassis. The Distributor air system shall include its own air reservoir (using of truck chassis reservoir not acceptable) with check valve set at 80 pounds to prevent loss of air on truck chassis brakes in case lines are ruptured. System shall have its own air line oiling device and controls shall be electric, located in cab convenient to operator.

### **Air Operated:**

1. All air solenoid valves and hydraulic solenoid valves are to be mounted to be accessible and serviceable from the ground without climbing on the machine.

## **TOOL BOX, FENDERS, ETC.**

- a. Tool Box: All steel box with aluminum door, of sufficient size to store all necessary tools shall be furnished at side of the tank. Must have hinged door at side with flush-type lock. Door at top not acceptable.
- e. Fenders: Full dual flanged fenders (.080" aluminum) with rubber flaps. Use of skirting and flaps as a substitute for fenders not acceptable.

## CONTROLS / INSTRUMENTATION

a. Computer with in-cab operator controls which include:

- \* Computer controlled switches for ten (minimum) preset application rates.
- \* Distance/volume reset switch.
- \* Application rate adjustment switch.
- \* Display select switch.

In-cab instrumentation will include the following information on self-illuminated display(s):

- \* Truck travel speed feet/minute or meters/minute.
- \* Application rate in gallons/square yard or liters/square yard.
- \* Pump rate in gallons/minute or liters/minute.
- \* Resettable distance sprayed in feet or meters.
- \* Resettable volume sprayed in gallons or liters.
- \* Low tank level warning.
- \* Warnings that travel speed and/or applications rate are beyond system capability.

b. Radar type sensor to pickup ground speed.

c. System control of 4-way asphalt valve.

## ACCESSORIES

1. Hose trough for fill hose in lieu of hooks.
2. Thermometer well on side of tank.
3. Pencil thermometer.
4. Liquid sampling valve to be state approved for taking samples of liquid asphalt. Located in the rear tank head.
5. Hand Spray Attachment: Hand spray gun with cold handle and not less than 3 nozzles, with 25' of 3/4" flexible rubber hand spray hose.
6. Strainers: Asphalt system to be designed so all liquid asphalt pumped to the tank, from the tank or to the spray bar must pass through a screen.
7. Turn Signals: At rear of Distributor with truck supplying chassis control of signals.
8. Light: Federal Standard 108 requirements, including reflectors, clearance and identifications lights. Wiring in loom.
9. All necessary special tools for operation and maintenance of the Distributor shall be provided.
10. Painting: Distributor steel parts shall be painted Black Enamel.

## WARRANTY

Minimum 12 month warranty of Distributor components.

With the bid shall be included manufacturer's descriptive literature and specifications on unit being bid, and a list of any exceptions to these specifications. Bidder will supply parts manual and complete operating instruction manual with bid if requested.

Bid shall include mounting on customer's chassis at factory and instruction of operator on maintenance and operation at factory.

## OPTIONAL ITEMS

### a. Tank and Accessories:

1. Manhole strainer, 6" only required when filling tank overhead storage.
2. Manhole strainer, 20" only required when filling tank overhead storage.
3. Dial Thermometer, 2".
4. Dial thermometer, 4".
5. Dual scale stick and dial (English and metric).
6. Additional cone type strainer in fill line in front of asphalt pump strainer.

### b. Circulating System:

1. Front suction valve (in addition to rear) Electric/air cab control valve and line that allows asphalt pump to suck liquid from front of tank when going down hill, etc.
2. Power wash down system including electric fuel pump, 15' hose with gun.

### c. Spray Bar:

#### Standard Spray Bar

1. Extra pair of folding bar joints (requires minimum 16' spraybar).
2. Standard bar extensions with 1' electric-air on-off, up to 24', per foot.
3. Powered bar latch with cab and rear controls.
4. Extra nozzles, each foot (3 nozzles).
5. Wet storage box with drain plug & hinged lid.
6. Bar end markers, per set. (Standard & Big Bars only)
7. Provisions for later addition of bar extensions with 1' controls, per foot.

**Variable width spraybar**, \_\_\_\_ total feet in length (18' up to 24'). The sliding/variable width spray bar configuration is to be full circulating bar, made up with (2) 8' center bars with the remaining length made up of right and left folding extensions, the width in the travel position not to exceed 8'.

The spray bar configuration will supply asphalt to spray bar through solid metal piping utilizing swivel type joints. Flexible feed hose is not acceptable.

Spray bar to have hydraulically powered bar lift, shift and folding wings.

Each spray nozzle shall have an individual air controlled internally mounted valve and operate in individual 4" increments turning on and off automatically throughout bar extension and retraction.

Cab controls shall be provided for bar extension/retraction, bar shift, master on and off, individual 1' on and off controls, wing fold and bar raise and lower.

Bar to have a "tack" feature which allows the operator to with one control to turn off /disarm every other nozzle.

1. Bar Extensions for variable width bar (24' max/ bar width), per foot

**"Big Bar"** 12' spray bar with 1' electric/air on-off controls. Larger cross section (recommended for use with hotter or hard to handle products)

1. Bar extensions for big bar with 1' electric/air on-off (24' max bar width), per foot
2. Heavy duty air lines
3. Extra pair of folding bar joints, requires 16' minimum bar
4. Power bar latch with cab and rear controls

#### **d. Power System:**

1. PTO off transmission in lieu of crankshaft drive.
2. Flywheel PTO. (chassis must be set-up with provisions)

#### **e. Controls/Instrumentation:**

1. Electric analog gauges in lieu of computer control with digital readout.
2. Liquid asphalt temperature digital readout in computer display window.
3. Additional display in rear control box.

#### **f. Heating System:**

Flues: (1) or (2) 8" x 6" U-type return flues running the full length of the tank. The inlet and exhaust opening of each individual set of flues shall be in the same horizontal plane, allowing heating with a minimum of material in the tank. (1-flue is standard)

Flues shall have stainless steel external stack.

1. No flue or burner in lieu of one flue with LPG burner and 52 gallon L.P. tank.
2. Two flues with LPG burners. Includes 52 gallon LP. tank, frame mounted.

3. One flue with high pressure fuel oil burner (includes auto ignition and outfire), in lieu of standard.

4. Two flues with high pressure fuel oil burner (includes auto ignition and outfire), in lieu of standard.

6. Outfire protection for LPG burners.

7. Automatic Controls: Thermostatic controls and out-fire protection for propane burners (pushbutton ignition).

8. Automatic Controls: Thermostatic controls and out-fire protection for fuel oil burners (pushbutton ignition)

9. Portable burner, kerosene or LPG (specify).

10. Electric Belly Heat – 220V or 440V, 3-phase, with thermostat to maintain heat (Specify which voltage & phase you want)

11. Chassis driven Hydraulic/electric generator for electric belly heat (item #10 above)

#### **g. Miscellaneous Accessories:**

1. 12' x 3" steel fill hose.(450 Deg) or 12' x 3" rubber fill hose (350 Deg)
2. Power right side 4-way mirror. (when truck design permits)
3. L.E.D. Lights, Sealed system.
4. Special paint.
5. Skid mounting.
6. Hand Spray hose reel.
7. Aluminum handspray gun with swivels (in lieu of standard)
8. 3" cam lock fittings.
9. Export Processing:
  - Skid mounted.
  - Truck mounted.
10. Back-up alarm
11. Wet storage box with drain plug and hinged lid.
12. Strobe light mounted on top of front of tank.

#### **h. Severe service options:**

1. High output asphalt pump hydraulic drive (4.57 pump, 2.1 motor). Recommended for hard to handle asphalt and 24' spray bar.
2. High output asphalt pump drive (6.1 CID hydraulic pump).
3. Hydraulic oil cooler
4. Manifold style 1' bar control valves.
5. Heated pump, sump and drop tubes from truck cooling system