



# VSS Macropaver

Full Line of Customizable Asphalt Emulsion Plants

# VSS Emulsion Plants

Quality Asphalt Emulsion – Made Simple

VSS Macropaver® offers a wide range of custom-designed solutions for batch, continuous, or semi-continuous emulsion production. Plants are available in both stationary or mobile configurations. Customers receive individualized solutions - from plant layout to design to construction - based on their specific business requirements.

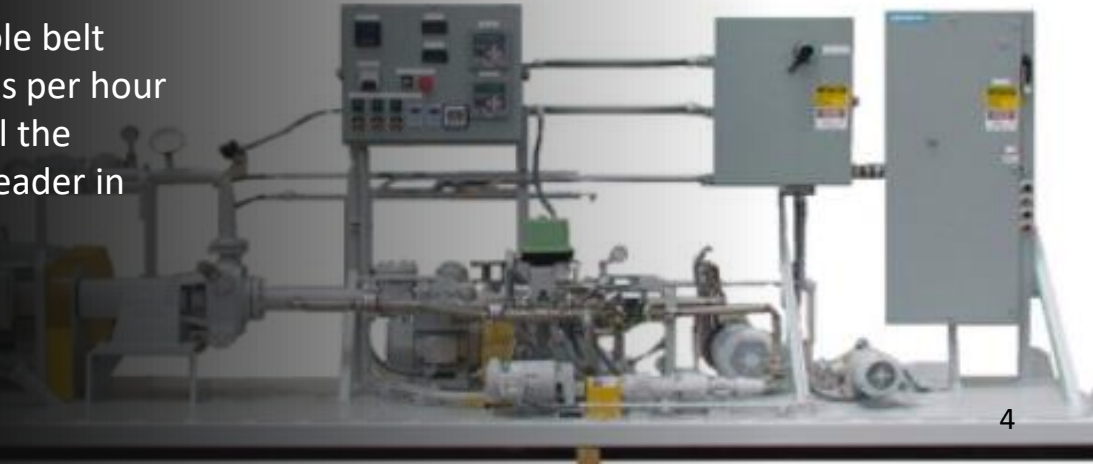
# The Right Solutions, Right Now

The VSS Macropaver asphalt (bitumen) emulsion plants are comprised of several components, engineered so that the desired emulsion is produced precisely to formulation. Each plant properly controls the various combinations of asphalt, water and chemicals to produce the specific emulsion required. Emulsifier solution, additives, polymers and asphalts are metered into a specifically-designed manifold before being injected into the colloid mill. We will work with you to assess your complete needs – including plant layout, design and construction. We'll help you evaluate your local market and create an individualized solution. An available flow control option greatly simplifies operation by automatically adjusting the flow of water and chemicals. The formulation is controlled precisely based on the material flows, regardless of temperature fluctuation. Our technology transfer and laboratory services offer cutting-edge emulsion design for any job. Our expertise covers the full range of asphalt, binders and emulsifiers, and allows us to create quality emulsions with your raw materials. We can help with your project from beginning to end, or advise and assist in any selected area. VSS Emultech has the operations and application skills to commission and assist in the marketing and application of your products.

Introducing the new direct-drive model SD Emulsion Plants. This series of Emulsion Plants are smaller, lighter and with a few less features than the full-size line of plants. Quality emulsions, made simple.



Full-size XD Emulsion Plants with variable belt drive capable of producing up to 75 tons per hour of high quality asphalt emulsion with all the features you come to expect from the leader in Emulsion manufacturing products.



# SD Emulsion Plant Specifications

- The skid mounted Emultech plant is shipped fully assembled and tested ready for easy installation and connection to your plant plumbing and electrical system.
- The mill is equipped with a stainless steel rotor and stator and features an adjustable gap. The mill is equipped with a packing-type seal assembly.
- The Asphalt Pump includes electric heat jacketing and is gear driven at a constant speed. The Asphalt plumbing includes a 3-Way Teflon-lined plug valve for selecting circulation back to the Asphalt Storage Tank or for selecting asphalt flow into the mill for production. The 3-Way plug valve is open-crossover so that it can be operated while material is flowing without blocking the flow. The Teflon-lining allows easy operation with asphalt without requiring the use of heat jacketing.
- The Soap Pump is a multi-stage centrifugal stainless steel pump. The Soap Pump includes a high quality mechanical seal. Soap flow rate is controlled manually from the control panel. The operator uses the emulsion output temperature and adjusts the soap flow to hold the critical emulsion temperature constant.
- Controls are mounted central to the plant in a NEMA 4 enclosure. Displays for Emulsion Exit Temperature, Soap Temperature and Asphalt Temperature are installed in an intuitive pattern for ease of operation. Start-stop buttons for Mill and start-stop-speed keypads for Asphalt Pump and Soap Pump are included along, with switches for Instrument Power and Emergency Stop. Milling power is displayed on an analog ammeter in the panel.
- The electrical system is complete and ready for your power connection to the 150-amp main disconnect. Electrical system can be configured for 380-volt – 50-Hz or 480-volt – 60-Hz 3-phase supply. The electrical system includes a soft start for the large mill motor to decrease starting current and provide a smooth start for the mill. Electrical system uses all UL/CSA/CE listed components and is assembled per NEC standards. System may require customer to obtain local assembly certification depending on local code and/or permit requirements.

## Available in Two Sizes:

- Model 27 - 8.8 tons/hour - 2,000 GPH
- Model 70 - 20 tons/hour - 5,000 GPH

## Available in Multiple Configurations:

- Skid-mounted
- 20' container
- 40' container with optional laboratory or office inside
- Mobile on trailer



### **Optional Mill Mechanical Seal:**

This optional seal is a water cooled double mechanical seal. The mill housing is connected to cooling water to provide cooling and flushing for the mill seal.

### **Optional Mill Electric Heat Jacketing:**

This optional mill jacketing can be used to provide for heating of mill head. Heating of mill head is preferred when making emulsions using polymer modified asphalts or very hard asphalts.



# Temperature Control:

This option provides for “hands-off” control of the emulsion exit temperature. It includes an additional controller that allows the operator to control temperature automatically by inserting a target emulsion exit temperature into the controller. The controller then adjusts the soap pump output to maintain this target exit temperature. The controller can also be operated in manual mode during soap recirculation or for batch starting and finishing.





# XD Emulsion Plant Specifications

- The skid mounted Emultech plant is shipped fully assembled and tested ready for easy installation and connection to your plant plumbing and electrical system.
- The mill is equipped with a stainless steel rotor and stator and features an adjustable gap. The mill housing is connected to cooling water to provide cooling and flushing for the mill seal. The mill output plumbing includes a 3-Way Teflon-lined plug valve for selecting recirculation of soap back to the soap tank or for selecting emulsion output to the storage tank.
- The Asphalt Pump includes hot oil jacketing and is belt driven. Speed of pump can be varied using variable frequency drive. The Asphalt plumbing includes a 3-Way Teflon-lined plug valve for selecting circulation back to the Asphalt Storage Tank or for selecting asphalt flow into the mill for production. Includes a +/-0.5% accuracy mass flow sensor for measuring asphalt flow rate and GPM or LPM rate and total is shown with a display on the control panel.
- 3-Way plug valves are open-crossover so that they can be operated while material is flowing without blocking the flow. The Teflon-lining allows easy operation with asphalt without requiring the use of heat jacketing.
- The Soap Pump is a centrifugal stainless steel sanitary pump designed for easy disassembly. The Soap Pump includes a high quality water-cooled mechanical seal. Soap Flow is measured using a +/-0.5% accuracy mass flow sensor and is displayed on the control panel in either LPM or GPM and includes a flow totalizer. Soap flow rate is controlled automatically from the control panel. It includes an automatic controller that senses the flow rates and adjusts the soap flow accordingly to hold the desired mix percentage. Soap flow can be varied infinitely to its maximum of approx. 100 GPM (378 LPM).
- The Latex Injection system includes a variable speed pump and flow meter displaying flow rate in LPM or GPM and flow total. Latex flow can be varied from approx. 0.6-4.7 GPM (2.3-17.8 LPM).
- Controls are mounted central to the plant in a NEMA 4 enclosure. Displays for Emulsion Exit Temperature, Soap Temperature and Asphalt Temperature along with Flow Rate and Flow Total for Asphalt, Soap, Latex and Solvent are installed in an intuitive pattern for ease of operation. Start-stop buttons for Mill, Asphalt Pump, Soap Pump, Latex Pump, Solvent Pump, Instrument Power and an Emergency Stop are included. Milling power is displayed on an analog ammeter in the panel.
- The electrical system is complete and ready for your power connection to the 400-amp main disconnect. Electrical system can be configured for 380-volt – 50-Hz or 480-volt – 60-Hz 3-phase supply. The electrical system includes a soft start for the large mill motor to decrease starting current and provide a smooth start for the mill. Electrical system uses all UL/CSA/CE listed components and is assembled per NEC standards. System may require customer to obtain local assembly certification depending on local code and/or permit requirements

# XD Emulsion Plant

Available in Five Sizes:

- Model 50 - 8 tons/hour - 1,920 GPH
- Model 75 - 16 tons/hour - 3,480 GPH
- Model 100 - 25 tons/hour - 6,000 GPH
- Model 125 - 40 tons/hour - 9,600 GPH
- Model 200 - 75 tons/hour - 18,000 GPH

Available in Multiple Configurations:

- Skid-mounted
- 20' container
- 40' container with optional laboratory or office inside
- Mobile on trailer





## **Additional 3-Way Output Valve**

This option provides a 3-Way Plug Valve on the output of the mill to select between different types of emulsions or between emulsion and waste product.  
Available on SD and XD Models

### Optional Latex Injection System:

The latex injection system includes a variable speed pump and flow meter displaying flow rate in LPM or GPM and flow total. Latex flow can be varied from approx. 0.6-4.7 GPM (2.3-17.8 LPM).

Available on SD and XD Models



### Optional Solvent Injection System:

The solvent injection system includes a variable speed pump and flow meter displaying flow rate in LPM or GPM and flow total. Solvent flow can be varied from approx. 0.8-4.7 GPM (3.1-17.8 LPM).

Available on SD and XD Models



### Emulsion System Tool Kit:

One (1) full set of inch sized hand tools for maintenance and repair. These are high quality tools made in USA. The tools include 3/8" and 1/2" drive sockets, box/open end wrenches, adjustable wrench, screwdriver & pliers set, metric & inch allen wrenches, large and small pipe wrenches, and a tool box. Available for SD and XD Models



### Emulsion Plant Spares:

Includes set of asphalt pump packing and a soap pump seal kit. Available for SD and XD Models





# VSS Macropaver

Customizable Soap Solutions for Asphalt Emulsion Plants

# VSS Soap Solutions for Asphalt Emulsions

Two skid-mounted versions are available. One is the Concentrated Soap System that allows the making of a soap concentrate, that is then diluted with water in separate dilute tanks to make the final soap solution. The Emulsifier Soap System skid-mounted version contains one or two poly tanks that allow the making of a soap concentrate or a dilute soap solution all in one tank.

The Concentrated Soap System utilizes a stainless steel tank, mounted on load cells. The load cells provide for very precise measuring of water, emulsifier and pH modifier chemicals and any other additives. High temperature mixing capabilities are allowed with the stainless steel tank. An aggressive mixer promotes rapid mixing, and hot oil heat coils in the tank can be used to quickly re-heat or increase temperature if required.

The Emulsifier Soap System can be provided with 1,100 or 2,500 gallon (4,165 or 9,465 liter) tanks, either with one or two tanks. A pair of scales are provided, one for emulsifier and one for pH modifier. The barrel or shipping tote is placed on the scales and liquid is pumped into tanks using the scales to measure the amount.

With sufficient size of dilute tanks, the Concentrated Soap System can provide for continuous operation. While the emulsion plant is running with the first batch of soap, a second batch of soap is prepared and diluted in a second dilute tank. VSS can supply poly dilute tanks, complete with piping and all required valves.

The Emulsifier Soap System can also provide for continuous operation for smaller sized emulsion plants. It is provided with piping and all necessary valves and can be mounted all on a skid with the scales, controls and pumps.

PLC-controlled emulsifier systems are available for applications with very large volumes of a small number of products.



# Emulsifier Soap System

The Emulsifier Soap System is skid mounted and shipped fully assembled and tested ready for easy installation and connection to your plant plumbing and electrical system. The system consists of two (2) scales with a weight display system. The display system will display both scales simultaneously and provides a direct readout of materials pumped as well as a percentage of materials to the total batch. There are two (2) air-operated diaphragm pumps with start-stop controls. One pump is for Emulsifier supply and one pump is for Acid/Base supply. All functions are controlled from one panel. The electrical system is complete and includes disconnect for main power connection. The pumps require an air supply of 9 CFM (0.25 cu. meter/minute) @ 100 psi (6.9 bar).

Available without tank mounted to skid, 1 tank mounted to skid or even 2 tanks mounted to skids.





# Emulsifier Soap System Tanks

- This Emulsifier Soap System tank is constructed of High Density Linear Polyethylene with steel support frame to provide for full draining of tank. The system includes 2" (51mm) CPVC plumbing and valves for water inlet and soap concentrate outlet and re-circulation (bulkheads installed, plumbing shipped loose). An electric mixer is provided for agitation for mixing and circulation for heating. Level indicator markings, sampling valve and thermometer are included.
- Available in 1,100 Gal. or 2,500 Gal.
- Available mounted to skid or stand alone.
- Optional Tank Hot Water Heating Available
- Optional Electric Heating Available
- Temperature Displace Option Available (°F or °C)



# Emulsifier Soaps System Additional Accessories

## Emulsifier Soap System Batch Control System:

- The Emulsifier Soap System Batch Control allows the operator to set an emulsion batch size and the percentage targets of emulsifier and acid/base materials. The system will then turn off the pumps when the correct amounts of materials have been pumped. At that point it prompts the operator to test for pH and/or temperature before proceeding with next step in batch process.

## Emulsifier Soap System Air Compressor:

- The Emulsifier Soap System Air Compressor provides the necessary compressed air for operating the diaphragm pumps. It is a 5 HP, single stage compressor with a 227-liter (60-gallon) tank. Voltage and frequency can be configured for 380-volt – 50-Hz or 480-volt – 60-Hz 3-phase supply. Compressor comes mounted to above skid and wired to system panel.

## Emulsifier Soap System Water/Soap Pump:

- The Emulsifier Soap System Water/Soap Pump is an electric powered poly centrifugal pump capable to pump water for filling soap system tanks or soap for recirculation, tank transfer or tank pump out. Includes plumbing to soap system tank(s). Voltage and frequency can be configured for 380-volt – 50-Hz or 480-volt – 60-Hz 3-phase supply. Pump comes mounted to above skid and wired to system panel with on/off control.



# Concentrate Emulsifier Soap System

The Concentrate Emulsifier System is skid mounted and shipped fully assembled and tested ready for easy installation and connection to your plant plumbing and electrical system. The plant consists of a 2,270-liter (600-gallon) stainless steel concentrate tank mounted on load cells with a weight control system and mixer. There are three pumps with start-stop motor controls. One pump is for Soap Solution re-circulation and distribution to either Soap Dilute Tanks or straight to the Emulsion plant. One pump is for Emulsifier supply and one pump is for Acid Supply. All functions are controlled from one panel. The electrical system is complete and includes a fused disconnect for main power connection.



# Concentrate Emulsifier Soap System Dilute Tanks

For customers who want a “plug and play” system VSS Macropaver can provide dilute tanks for the Concentrate Emulsifier Soap System as well.

(Please note, we are limited to size for shipping purposes)

The Dilute Emulsifier Soap System consists of two tanks constructed of High Density Linear Polyethylene with proprietary fittings for full draining of tanks. The system includes CPVC plumbing and valves for Soap Concentrate Inlet, outlet and re-circulation. Stainless Steel heating coils for hot water heating, sight gauge level indicators and two thermometers are included for each tank

Two size available:

1,800 Gal. actual capacity (1,600 Gal. operating capacity)

2,850 Gal. actual capacity (2,600 Gal. operating capacity)



# Thank You

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