HENWI

500 Litres Hydraulic Vacuum Emulsifying Mixer

The **vacuum heating lifting homogenizing emulsifier with oil and water phases** is a specialized piece of equipment designed for emulsifying, homogenizing, heating, and mixing processes. It integrates advanced features such as vacuum suction, heating, cooling, lifting, and a dual-phase system for both oil and water phases. This makes it ideal for producing high-quality emulsions, creams, lotions, and other products that require thorough mixing of oil and water phases. It is widely used in industries such as cosmetics, pharmaceuticals, food, and chemicals. Below is a detailed description of the equipment:

1. **Main Functions**
- **Vacuum System**: The equipment is equipped with a vacuum pump to create a low-pressure environment. This system helps to remove air bubbles from the product during the mixing process, ensuring a smoother, denser final product with no air inclusions, thus improving the texture and quality.
- **Heating and Cooling**: The machine features a jacketed tank that allows for both heating and cooling processes. Electric heating, steam heating, or thermal oil heating can be used to control the temperature of the product precisely. After heating, cooling water can be circulated through the jacket to lower the temperature quickly, ensuring proper temperature management throughout the process.
- **Lifting Mechanism**: The homogenizing head and lid can be raised or lowered using an electric or hydraulic system, which facilitates easy access for material addition, cleaning, and maintenance.
- **Homogenizing and Emulsification**: The high-shear homogenizer enables thorough mixing, emulsification, and dispersion of oil and water phases, breaking down droplets and particles to a fine size, creating a stable emulsion with a smooth texture.

2. **Oil and Water Phase Tanks**
- **Dual-Tank System**: The equipment includes separate oil phase and water phase tanks. These tanks allow for the preheating and mixing of oil- and water-based ingredients separately, ensuring that the two phases are at the correct temperature before being combined in the main emulsifying tank.
- **Efficient Transfer**: After heating and mixing in the oil and water tanks, the ingredients can be automatically transferred into the main emulsifying tank using vacuum suction, which minimizes the introduction of air and maintains the integrity of the product.
- **Heating and Mixing**: Both the oil and water phase tanks are equipped with heating elements and mixers to ensure that the ingredients in each tank are properly heated and mixed before they are combined in the main emulsifying tank.

3. **Main Emulsifying Tank**
- **Jacketed Tank for Heating and Cooling**: The main tank is jacketed to allow for heating or cooling of the product as needed. This ensures precise temperature control for sensitive materials during both the emulsification and homogenization processes.
- **High-Shear Homogenizer**: Located at the bottom of the tank, the high-shear homogenizer creates a powerful vortex that ensures thorough emulsification by breaking down oil and water droplets into micron or even nano-sized particles. This results in a stable and smooth emulsion with excellent texture.
- **Scraper Stirrer**: The tank is equipped with a scraper stirrer that rotates along the tank's inner walls. The scraper ensures that all material is constantly in motion, preventing it from sticking to the walls and ensuring even heating or cooling.

4. **Vacuum System**
- **Vacuum Suction for Material Transfer**: The vacuum system not only removes air from the final product but also allows for the suction of raw materials into the main emulsifying tank from the oil and water phase tanks. This helps reduce contamination risks and prevents air from being introduced into the product during material transfer.
- **Deaeration**: The vacuum system also removes air bubbles formed during the mixing and emulsification process, ensuring that the finished product has a smooth, air-free texture, and preventing issues like oxidation or separation during storage.

5. **Lifting System**
- **Electric or Hydraulic Lifting**: The main lid of the emulsifying tank, along with the homogenizer, can be lifted or lowered using an electric or hydraulic mechanism. This feature makes it easier to access the interior of the tank for cleaning, maintenance, and material handling.
- **Convenience in Operation**: The lifting system reduces the need for manual labor, enhancing efficiency and making the operation more user-friendly, especially when dealing with large volumes of product.

6. **Control System**
The **control system** of the vacuum heating lifting homogenizing emulsifier comes with two options:

- **Standard Button Control System**: The default configuration is a user-friendly button-operated control system. This system allows for straightforward operation, enabling the operator to control essential functions such as heating, mixing speed, vacuum level, and homogenizing manually through push buttons.
- **Optional PLC + Touchscreen Control System**: For enhanced automation and precision, the equipment can be upgraded with an optional PLC (Programmable Logic Controller) and touchscreen interface. This system offers more advanced features, allowing the operator to set and monitor parameters such as temperature, mixing speed, homogenizing time, and vacuum

levels with greater accuracy. The touchscreen interface provides a more intuitive and automated experience, making it ideal for larger-scale or more complex production processes.

7. **Safety and Cleaning**
- **Safety Features**: The emulsifier is equipped with multiple safety features, such as overload protection, emergency stop buttons, and vacuum pressure monitoring to ensure safe operation.
- **Easy Cleaning and Maintenance**: The lifting system and the design of the equipment make it easy to clean. The smooth inner surfaces and detachable components allow for thorough cleaning, ensuring compliance with hygiene standards, especially in the pharmaceutical and cosmetics industries.

Parameter

Model:	HWVM-FT-500L
Working capacity:	500 Liters
Heating method:	Steam or electric
Mixing type:	Upper frame oar scraper mixer
Mixing motor power:	4KW, Siemens motor
Mixing frequency inverter:	4KW
Mixing speed:	0-65rpm
Homogenizer type:	Bottom homogenizer
Homogenizer power:	7.5KW, Siemens motor
Homogenizer frequency inverter:	7.5KW
Homogenizer speed:	0-3000rpm(50Hz)/0-3600rpm(60Hz)
Hydraulic lifting system:	1.5KW
Vacuum system: Water cycle vacuum pump, power:	3KW