



High shear emulsifying homogenizer FM-HEH-A100

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1. Safety Measures

- Place the product in a dry and clean place. The ambient temperature should be no more than 40°C and avoid exposure to foreign bodies.
- When operating the product in wet conditions, you need electric leakage protection. Fierce fluctuation of voltage may cause an unstable speed, so use a regulated power supply device.
- Avoid using the machine in a severely corrosive environment. If you must, protective measures are needed.
- If the agitating medium is volatile and flammable, be cautious that the electric sparks may cause explosions or fires.

2. Introduction

High shear emulsifying homogenizer FM-HEH-A100 offers adjustable speed range of 200 to 11000 rpm and 0.341 Nm torque. It is applicable for maximum 40 L capacity of the sample liquid. It consists of three parts: running state controller, drive motor and shear emulsification working head. Used in field of medicine, biochemistry, cosmetics, food and drinks for low, medium and high viscosity mixing.

3. Features

- Running state controller with step less speed governor
- Adjustable speed range 200 to 11000 rpm
- Drive motor with large output power
- Securing clips for height adjustment
- Stainless steel column
- Aluminium metal case ensure mechanical precision for long use
- Corrosion resistance stainless steel working head
- Working head connected to drive motor by coupling

4. Specifications

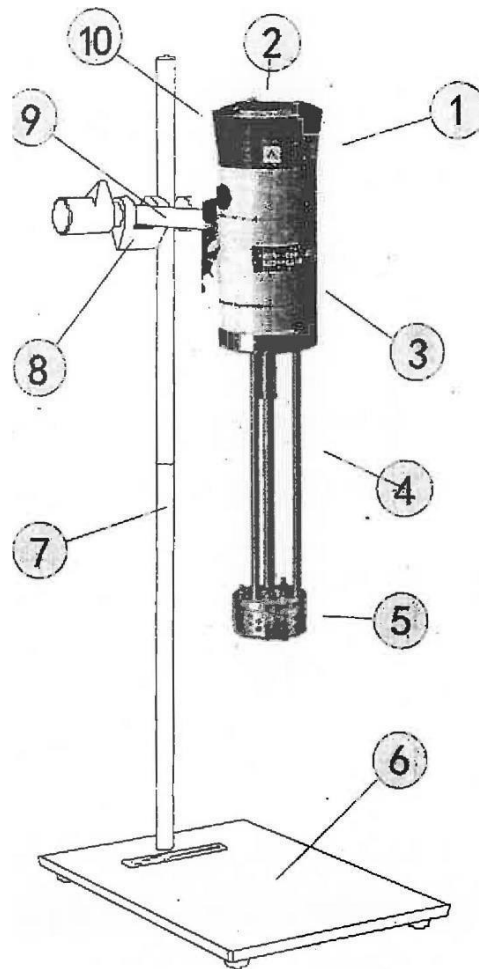
Model No.	FM-HEH-A100
Capacity	40 L
Speed range	200 to 11000 rpm
Max viscosity	0 to 100000 mPas
Working head diameter	70 mm
Torque	0.341 Nm
Stator	5 mm², 20 mm² and 50 mm²
Input power	510 W
Output power	300 W
Power supply	AC 220 V, 50 Hz
Exterior dimension	250 × 650 × 720 mm
Net weight	17 kg
Gross weight	18 kg

5. Applications

Used in field of medicine, biochemistry, cosmetics, food and drinks for low, medium and high viscosity mixing.

6. Instrument Introduction

Structure



1. Speed digital display
2. Speed control knob
3. Power switch
4. Drive shaft
5. Operating head
6. Base
7. Supporting stand
8. Supporting and fixing frame
9. Beam
10. Brush holder

7. Installation

1. Put the Base (6) on the platform and connect two supporting stands (7) by screwing them together before fixing them into the mounting hole in the base. Set in the supporting and fixing frame (8) on the upper end of the supporting stand and turn the handle to fasten them.
2. Connect the short Beam (9) to the emulsion host electric motor through the Mounting bolt hole at the back of the motor, then insert the beam into the supporting and fixing frame and turn the handle on it to fasten the motor on the supporting stand. The host motor can be adjusted on the supporting and fixing frame freely.
3. To ensure the safe operation of the product, fix the key points of connections firmly and inspect it regularly.
 - The machine should be installed on the bearing when operating.
 - Hand-held operation is banned.
 - The product can't be put into use in a flammable and explosive environment.
 - Ensure a good grounding for the Input power supply socket. It's strictly prohibited to connect the grounding with telephone lines, metal pipes or lightning arresters.
 - Never start the machine before placing the shear emulsifying head (5) in a liquid medium. Make sure the end of the working head (feed port) should be kept enough distance away from the bottom of the container.
 - To ensure security, the operator should wear a protective cap in case their hair is caught up in the drive shaft (4).

8. Working Principle

Shear emulsifying principle

- The experimental device is driven by a high-speed motor shear emulsifying head, precision line with work of the first stators, under the rotor spinning at high speed, form a circular tangent of high frequency, strong velocity, angular velocity and other integrated kinetic energy to promote experimental material from the bottom of the container into the rotor area, and with the huge centrifugal force, the experimental material is ejected out of the stator.
- In the reasonably narrow gap between the stator and rotor, strong, reciprocating hydraulic shear and friction will be formed.
- Experimental material in a container at least an iterative work process, takes up to tens of thousands of times to cut, tear, impact, and mix, to achieve the effect of shear emulsifying, about 1000 times higher than the average mix of its effectiveness.
- Laboratory shear emulsifying machine is suitable for the area of biotechnology-organizations dispersed, sample preparation for the pharmaceutical field, enzymatic treatment of food industry and the pharmaceutical industry, cosmetics industry, The paint. industry and petrochemical liquid and the liquid phase, such as experiments of liquid and solid phases.
- Different head stator configuration specifications work is designed to meet the needs of different experiments. Covering a wider application of surface -- smashing, emulsification, homogenization, such as aggregation, suspended solids, dissolved, and mixing.

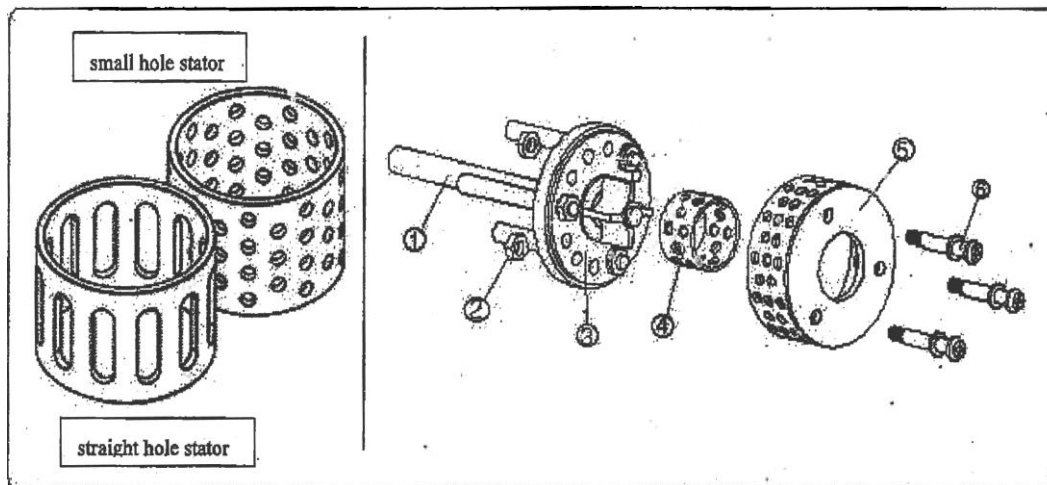
9. Operations

- The machine uses a single phase three wire system, so the power socket should be a triple one(220V, 10A).
 - Never run the Shear emulsification working head without a liquid medium to avoid mechanical damage to the components.
The input power to the unit: Turn on the power switch. The built-in switch indicator is on, and the Speed Digital display displays [0000], "P-type" D-dynamic Indicators show that the machine is ready for work.
 - 1. **Speed setting:** Rotate the speed control knob to enter the pre-state speed setting. You can pre-set the desired experimental operation of the stirring speed, or dynamically adjust the speed during the operation.
 - 2. **Start control:** Press the speed control knob to start the machine. For the "H-type", the machine will work at the initial default speed if NO pre-set speed is conducted.
 - 3. **Pause / Restart:** Press the speed control knob to pause the machine during the run. Press the Speed control knob again to restart the machine at the previous running speed (speed memory function).
 - 4. **The timing control:** For "H-type", press the speed control knob for 3 seconds and the digital display shows "SET". You can rotate the speed control knob to set the desired experimental time. Press the speed control knob again to exit the timer setting and it is ready to set the speed value. Rotate the speed control knob to set the required speed; press the speed control knob to start the machine. Then the machine is working at the required speed. The display alternately displays running speed and timing control of the countdown time. When the machine is suspended, its regular operation control must be reset.
 - 5. **Operating state control:** When the input power is interrupted or the power switch is turned off accidentally, to ensure safety, the machine enters the preset initial state when you restart it.
 - 6. **Operational failure of the machine:** When your instruction cannot be executed, "H-type" digital displays "Err1", indicating that the unit is in alarm status.
- After the operation is completed, turn off the power switch and unplug the machine. And timely clean the shear emulsification working head for next use.
 - Select the right type of stators for your experiment.
 - For mixing and emulsifying low-viscosity liquid and smashing and dissolving of small particles material, the stator of a small hole should be selected.
 - For Medium viscosity fluid and secondary particle materials, the stator of a big hole should be selected.
 - High viscosity fluid experiment of mixing emulsifying, large particles materials smashing dissolved, use the stator of the straight hole.

How to change stators:

- Unscrew the three nuts (2) using the enclosed wrench. Remove the three screws (6); remove the stator coil (5) from the stator base (3) on the head. Remove the stator (4) that does not apply, and then replace it with the right stator. Fasten the stator coil and screw. Synchronously and slightly fasten the 3 nuts. Try the drive shaft (1) with your hand to ensure it operates smoothly.
- After using the product for some time or after a long stop, a maintenance inspection is needed before using it. To ensure electrical safety, use a megger to measure insulation resistance.

Stator changed the step illustrations:



10. Maintenance

- The mixer brush is a wearing part, so a regular inspection is needed. When inspecting, switch off the electricity, pull the plug out, and unscrew the brush cap (10) to pull the brush out. If the brush is less than 6 mm, replace it with a new brush of the original specification. Make sure the new brush can move freely in the tube because a stuck brush may cause electric sparks or a motor failure.
- If a motor failure happens, check whether the power is on, the plug is loosened, or whether the brush is in good contact. No mounting or dismounting of the product for any person without an operation certificate of such machine to avoid any accident.



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