Labnics

Laboratory Homogenizer Mixer NLHM-100

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1. Safety Measures

- Firmly fix each key connection point and check frequently to prevent loosening.
- Before inputting power to debug the equipment.
- Install the host on the support, it cannot be operated by hand.
- This machine uses a series motor with the characteristic that the speed is proportional to the torque: Higher speeds result in greater torque, and lower speeds result in smaller torque.
- If the machine needs to run at a low speed, adjust the speed as needed during operation after starting the equipment.
- Do not use this machine in flammable and explosive environments.
- Ensure the power socket input to the machine is well grounded. Do not use the telephone line, metal water pipe, gas pipe, or lightning rod wire as a grounding source.
- Do not start the operation of the dispersing and homogenizing working head without it being placed in a liquid medium. Maintain a sufficient distance between the bottom of the working head (feeding port) and the experimental medium container.
- Place the machine in a clean, dry area. Keep the surrounding area tidy and protected from moisture. Ensure the operating environment temperature does not exceed 40°C, and strictly prevent any objects from splashing into the motor.
- When using the machine in a humid environment, use a leakage protection device to ensure the personal safety of the operator.
- Do not use a machine with a power grid that has drastic voltage fluctuations, as this can cause the speed to become uncontrollable. Use a power supply regulator to stabilize the voltage.
- In strong corrosive environments, implement adequate protection measures to prevent damage to the mechanical and electrical properties of the equipment.
- For experiments involving volatile and flammable media, take effective measures to strictly prevent the emission of flammable gases.
- Avoid situations where flammable and explosive gases may encounter electric sparks, as this can cause deflagration and lead to fire accidents.

2. Introduction

Laboratory Homogenizer Mixer NLHM-100 is a powerful, heavy-duty equipment used to rapidly homogenize, disperse and disintegrate low to medium and high viscosity liquids to distribute particles evenly. Equipped with different rotors, it helps process samples up to 13 litres. With high speed, it rapidly processes the sample preparation of biological samples using mechanical shearing.

3. Features

- High-density die cast aluminum alloy drive motor housing micro motor, big power, high speed and reliable operation
- Features overload protection, dynamical Speed recording and speed display
- Working head made of high-quality, corrosion-resistant stainless steel 316
- Working head adopts connector which is easy to connect with driving motor and easy disassembly
- Aluminum metal case for lasting use of mechanical precision and low noise

4. Specifications

Model no.	NLHM-100
Speed range	2000~28000 rpm
Mixing capacity (H2O, ml)	80-5000 ml
Maximum viscosity	5000 mPa.s
Maximum temperature	120°C
Length of working head	225 mm
Size of stator	Ø24 mm
Timer	1-1000min
Maximum rotation speed(m/s)	18
Minimum / Maximum immersiondepth(mm)	50/165
Input power	850 W
Output power	500 W
Rated torque	17.1 Nc·m
Size of the mixer (T×B×H)	215 × 310 × 720 mm
Rated voltage	AC 110/220±10%; 50/ 60 Hz
Permissible ambient temperature	Lower than 40Cº
Permissible relative humidity	Less than 80%
Net weight	8.7 kg

5. Applications

Widely used in fields of biotechnology, human and veterinary medicine, pharmaceutical and cosmetics industry, food industry, petrochemistry as well as paint and lacquer industry.

6. Installation

1) Put the machine base (6) of the machine on the platform, take two long uprights (7) and screw them into a whole, then fix them in the mounting screw holes of the machine base, and then fix the support The frame is sleeved on the upright column,and rotate the handle of the supporting fixing frame to fix. 2)
2) Take another short pillar and connect it to the mounting screw hole on the back of the homogenizer, then string the pillar into the support fixture on the column and turn the handle of the support to fix the homogenizer on the column. This machine can adjust the homogenizing host back and forth and up and down on the supportingfixed frame according to the needs of the experiment.
3) For the installation of the dispersive and homogeneous working head (5) of this machine, kindly refer to Operations (6-Working head disassembly and assembly steps).

Note:
Kindly refer to operations for labeling**.**

7. Working Principle

The instrument is driven by a high-speed motor to drive a dispersive and homogeneous working head with a precision claw structure rotor and stator. The high-speed rotation of the rotor forms high-frequency, strong circumferential tangential velocity, angular velocity, and other comprehensive kinetic energy, which promotes the inhalation of the experimental solution from the bottom of the experimental container. The rotor area is thrown out from the stator hole under the action of a huge centrifugal force. The stator and rotor form strong, reciprocating hydraulic shear, friction, centrifugal extrusion, and fluid collision in a reasonably narrow gap. The experimental solution circulates the above working process in the container. It withstands tens of thousands of times per minute of shearing, tearing, impact, and mixing, to achieve the effect of dispersion and homogenization. Its efficiency is about a thousand times higher than that of ordinary stirring.

The laboratory dispersing homogenizer is suitable for tissue dispersion in the field of biotechnology, sample preparation in the field of medicine, enzyme treatment in the food industry, the pharmaceutical industry, cosmetics industry, paint industry, and petrochemical industry, liquid and liquid, liquid and solid phases, The viscosity is lower than 0. 2Pa.s, and the temperature is lower than 80°C for liquid materials experiment. The experimental medium can be refined under the triple action of squeezing, strong impact, and loss-of-pressure expansion in the material liquid, mixing more uniformly, and preventing or reducing stratification with the material liquid. Such as: (The homogenization of dairy products, beverages, cosmetics, medicines, and other products, the tissue cells are soft and broken.) Working heads of different specifications are designed to meet different experimental needs. It covers a broader application area: crushing, emulsification, homogenization, polymerization, suspension, dissolution, stirring, etc.

8. Operations

1) This machine uses the single-phase three-wire system, and the required power socket is 220V, 10A three-hole socket.

2) Before the machine is used, the operation test of the drive host should be carried out. Kindly do not install the dispersive homogenizing head during the test.

3) This machine's dispersing and homogenizing working head is strictly prohibited from running away from the liquid medium. Avoid damage to mechanical parts without liquid medium protection when running at high speed, causing mechanical failure.

4) The disassembly and assembly steps of the working head of this machine
   a. When installing, put the working head (5) downward, grasp the middle part with your hand, align it with the mounting hole of the working head connector (4) on the drive host, insert it upwards in place, and rotate the handle is fixed.
   b. When disassembling, please hold the middle of the working head with your hand, turn the fixed handle of the working head connecting the seat to loosen it, and it can be removed from the installation hole on the connecting seat. But do not use too much force to make the head of the working head hit the plate of the machine base, causing deformation and damage to the feed inlet.

5) **The input power of the machine:** Turn on the power switch, the speed indicator [0000] displays numbers, and the "P-type" dynamic indicator shows that it has entered the working state.

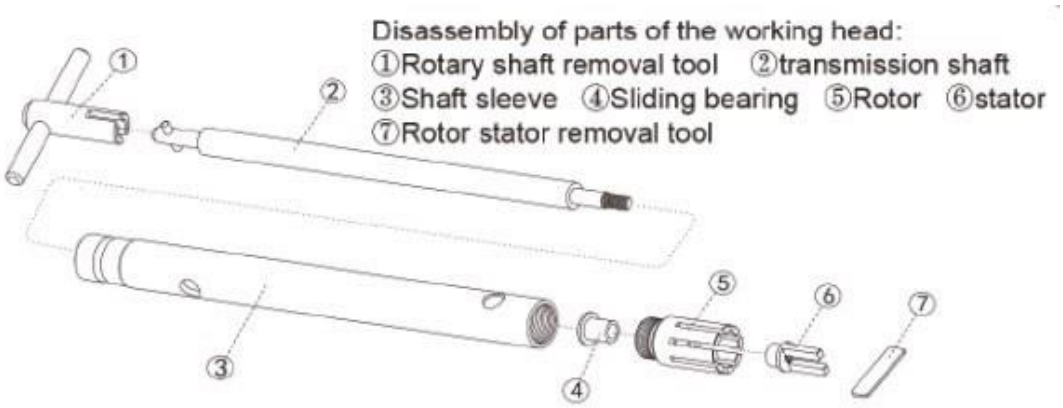
6) **Setting the running speed of the machine:** Turn the speed control knob to enter the preset state of speed. which can set the stirring speed required for experimental operation and can also dynamically adjust the speed during operation.

7) **Start control of the machine running:** Press the speed control knob to start running. For "H type", when the speed is not pre-set, its running speed is the initial default speed.

8) **Running pause/restart of the machine:** Press the speed control knob once during the running process to stop the running. Press the speed control knob again, and the equipment will start to run according to the running speed before the pause (speed memory function).

9) **Timing operation control of this machine:** "H type" press the speed control knob for 3 seconds, and the digital display shows "SEt" to enter the operation timing control setting state, turn the speed control knob to set the time, and then press the speed control knob again to confirm, exit the timing setting and enter the speed value setting. Similarly, turn the speed control knob to set the speed required for the experiment, press the speed control knob once, and the machine will start running in the timing control state. Currently, the speed indicator alternately displays the running speed and the countdown of the timing control.

10) **Operating state control of the machine:** When the input power is interrupted or the power switch is accidentally turned off and then restarted, the machine enters the preset initial state to ensure the safety of the experimental operation.



Optional dispersing of working heads

9. Maintenance

1) Operation failure of the machine: When the operation cannot be executed according to the instructions, the "H-type" digital display shows "Errl", which means that the machine is in a failure alarm state.
2) After the machine is finished working, turn off the power switch and pull out the plug. And clean the various parts of the shearing and emulsifying head in time, which is convenient for next use.
3) The machine should be stopped after using it for some time or for a long time. If it is used again, it should be maintained and inspected. Especially in terms of electrical safety performance, a megohmmeter can be used to detect the insulation resistance.
4) The brush on the motor of this machine is a vulnerable part, and the user should check it frequently. When checking, please cut off the power, pull out the plug, unscrew the brush cover, and pull out the brush. If the brush is found to be shorter than & mm, it should be replaced in time. The new replacement brush shoulduse the original specification brush and should move freely in the brush tube to prevent it from getting stuck in the tube, causing large electric sparks or the motor not running.
5) If the motor does not work when the machine is in use, first check whether the power socket has power, whether the connectors are loose, whether the brushes are in good contact, and whether the above faults still cannot operate normally.

10. Accessories

No.	Name	Unit	Quantity
1.	Base	Pcs	1
2.	Column	Pcs	1
3.	Support	Pcs	1
4.	Support fixed frame	Set	1
5.	Working heads	Pcs	1
6.	Brushes (spare parts)	Pcs	1