USER MANUAL

Homogenizer

CE-Declaration of Conformity

We declare under our sole responsibility that our product complies with the regul ations 89/336/EWG and 73/23EWG and conforms with the standards or standardi zed documents EN 61010-1; EN 60204-1, EN 292-1, EN 292- 2 and DIN EN I EC 61326-1

Contents

Product Description

The Homogenizer is a high speed dispersing instrument. It is based on the Rotor/Stator Technology. The shaft and rotor/stator can be disassembled for easy cleaning. You will receive the dispersing tools completely assembled for immediate use with your disperser. Should you dismantle these (e.g. for cleaning) please refer to page 6. This product is for laboratory use only and is used in chemical industry, cosmetic industry, pharmaceutical industry, paint industry as well as in universities and a wide range of medical laboratories. The unit is a high performance dispersing/homogenizing unit and also can be used as a high speed mixing unit with certain dispersing shafts. The drive unit can be used, based on the dispersing shaft used for volumes from 10ml to 8,000ml. There is a wide range of dispersing shafts with diameters of 20mm, 30mm and 40mm stator diameters. It is to be mounted on a stand and not used as a hand held instrument.

Safety Instructions

- When using electrical equipment, basic safety precautions are necessary to reduce the risk of fire, electric shock and personal injury.
- Only use the instrument for its intended purpose.
- Ensure that the correct electric voltage of the instrument and the power supply correspond correctly.
- Do not use this instrument in a hazardous area or manner. When handling hazardous chemicals, use appropriate hand and eye protection.
- Do not immerse electrical equipment in water.
- The drive must not be used in highly combustible areas and operated with easily inflammable liquids. It is recommended to run the units in fume hoods during operation.
- To avoid electrical shock, do not open housing. Remove cord from the power source when it is being checked or serviced. This instrument should only be opened by qualified service personnel only.
- The homogenizer is designed for continuos operation, however normally the ultimate fineness will be reached within a few minutes. Any further dispersing will only introduce unnecessary heat into the medium.
- The homogenizer must never run without liquid – the lower slide bearing is cooled and lubricated by the liquid phase of the treated medium. Any dry running will destroy the slide bearing!

- Ensure that the dispersing shafts are cleaned properly after every use. When cleaning, remove the power cord from the power source.
- Never touch the spinning rotor, nor shaft, motor side coupling parts.
- It is recommended that the operator should be using hearing protection when operating the unit at maximum speed.
- Do not operate after the equipment malfunctions or has been damaged in any manner. Return unit to our service centre for examination and repair.
- Switch off the unit before changing the dispersing element.
- Only suitable dispersing shafts may be used.
- Glass vessels must always be secured with a clamp to prevent them from sliding.
- Use caution when adjusting the speed to avoid possible spraying of medium.
- The ventilation slots of the drive must not be obstructed.
- Never let the aggregate touch the bottom of the vessel.

Unpacking the Instrument

Please unpack the instrument carefully and inspect the unit, the tools and the stand for damage. It is important that any damage during transport is noted at the time of unpacking. In certain cases it may be necessary to follow up with the forwarder.

A typical delivery includes:

• homogenizer drive
• One support rod for the drive
• One or more dispersing element according to your order
• One H stand with double rod, bosshead and strap clamp or a plate stand with bosshead and strap clamp
• User Manual

Proper Use

The voltage on the name plate must match the main voltage. If it does not, do not operate the instrument.

Screw the support rod into the flange of the drive and tighten it. Make sure that the “nylon” washer is between the flange and the nut to avoid scratching and rubbing marks on the flange.

Make sure that the unit is switched off when connecting or disconnecting the dispersing shaft into the drive.

For correct use the homogenizer drive must be secured to a stand with a bosshead. We recommend that for this purpose you only use the plate stand or the PT-plate stands. For safety reasons the container should be fixed with a strap clamp (which is a part of the stand).

Insert the dispersing element into the drive flange by pressing upwards and turning clockwise until it locks into place. A click confirms the correct insertion. Once inserted the dipersing element should not move any longer.

To remove the dispersing element from the flange, hold the dispersing element and turn anticlockwise and gently remove the dispersing element downwards. The distance between the bottom of the vessel and the shaft should not be less than 8mm.

Dispersing Aggregates

• Disassembly of the dispersing tool

1. Hold the dispersing tool with a cloth (to avoid cutting of your hand due to sharp edges at the stator). At the same time turn the shaft tube clockwise. Screw the shaft tube of the stator and pull it over the axle and put it aside.

Use a piece of cloth to hold the stator as the teeth are sharp and can cut you!
While holding the stator turn the shaft tube clockwise!

Remove shaft tube and put it at a place where it cannot fall down as impact might damage it!

2. Now hold the rotor with a cloth and turn the axle anticlockwise. Slowly screw the axle from the rotor and put it aside.

Next hold The rotor with the cloth and turn the axle clockwise(yellow arrow) or hold the axle and turn the rotor anticlock wise(red arrow)

Remove totor stator and teflon bearing

To assemble back the shaft follow the procedure in reverse order!
Hand tight assembly is sufficient!

3. Remove the PTFE bearing from the axle. After this disassembly you should have the following five parts: shaft tube, axle, rotor, stator and PTFE bearing.

To assemble the dispersing tool please follow above 3 steps in reverse order (3./2./1.)
When assembling the dispersing tool, always make sure that the PTFE bearing is fixed correctly and cooled by the working medium. Otherwise, it may cause serious defects to the whole dispersing tool. Examine the PTFE bearings regularly. Treat the dispersing tools carefully as they are the hearts of your dispersing unit. In particular the axle reacts very sensitive to impacts.

Cleaning

• Immediately after finishing work with the apparatus, the dispersing element must be cleaned so that substance residues do not stick to the threads.
• Small bacterial cultures can form in the small grooves, and this will create difficulties. For this reason, and to clean the dispersing tool effectively, it should be run in a solvent that dissolves the residue, but does not harm the Teflon bearing and the steel.
• For proper cleaning, the dispersing element must be disassembled.
• Proper care and cleaning of the equipment will ensure a longer and better use of the equipment.

Sterilization

• Chemical processes: Germicidal solutions (formalin, phenol, alcohol etc) can disinfect in most cases. However, residues of the gemoce must subsequently be removed with sterilized water.

• Sterilizing by humid heat: This means sterilizing with steam at a pressure bar of 2 above atmospheric and a temperature of 120℃

• Sterilizing by hot air: Hot air sterilization is normally carried out at 160℃ or 190℃

Corrosion

• Stainless steel is not corrosion proof. Certain chemicals can seriously attack this material.

• All corrosive agents should only be in contact with the fine steel for a short period of time. Make sure they do not dry out the material.

• Ensure that the dispersing element is always cleaned properly after every use. Neutralise lye with solutions and acids.

• Protect all parts from aggressive agents.

Specification

Technical Specifications	
Voltage	230V 50/60Hz, 110V 50/60Hz
Power input/output	500/380 Watt
Rotor speed	between 22,7 to 36 m/sec
Weight	1,3 kg
Sound Pressure Level	79 dB(A)
Double Insulated	
Speed Setting	Infinitely Variable
Permissible Ambient Temperature	5°C - 40°C
Relative Humidity	85%
Permissible Period of Operation	100%
Protection	IP20
Dimensions	70mm x 70mm x 255mm

Operation

The optimal immersion depth of the dispersing shaft is approximately 2/3 below the liquid surface and 1/3 above the bottom of the beaker. When inserting the dispersing shaft slightly slanted (approximately at an angle 15 degrees), it improves the efficiency of the disperser. The dispersing shaft should not be immersed more than 30mm below the flange.

Working with Speed Control

The drive and control are in the same housing. Before using the unit, run a test without the dispersing shaft by switching the ON button on the front of the drive. The speed is selected by the control knob on the top of the drive. Approximate rpm of the drive is:
A= 10,000 rpm B= 14,000 rpm C= 18,000 rpm D= 22,000 rpm E= 26,000 rpm F= 30,000 rpm

The speed is selected by the control knob on the top of the drive. Approximate rpm of the drive is:
A= 10,000 rpm B= 14,000 rpm C= 18,000 rpm D= 22,000 rpm E= 26,000 rpm F= 30,000 rpm

For an emergency stop, press the large button on the drive.

For reaching the best effects, the rotor speed of homogenizer should be adapted to the dispersion problem.

IMPORTANT

The maximum rotor speed depends on the kind of sample and its viscosity. The speed is reduced by its viscosity in order to protect the drive from overload. If the viscosity is too high, the motor will stop automatically to prevent damage to the equipment. The electronic control system prevents damage to the motor drive.

Overload Protection

When the motor overloads and the power supply cuts off, switch off the main switch to

O, disconnect the aggregate and restart the instrument as fast as possible, without the load in order to accelerate cooling by the built-in fan.

Maintenance of Motor

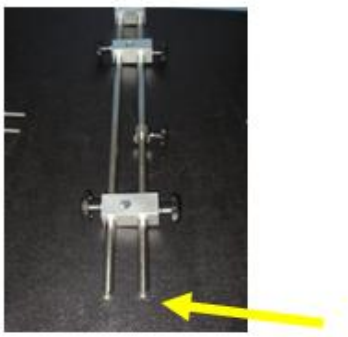
The motor does not need any maintenance and there are no parts inside which can be repaired by the user. The only parts which are excluded from this are the carbon brushes. Please contact or your authorized supplier for replacement and use original spare parts only. The carbon brushes can be replaced after disconnecting the power supply!

Stand

The homogenizer is normally delivered with either the H stand or the plate stand. It is always important to safely fix the unit even when not using the original stand for it, as the centre of gravity is relatively high.
Make sure that the motor drive is fixed safely and cannot move downwards at any time as this may cause damage to the instrument, the user or the sample.

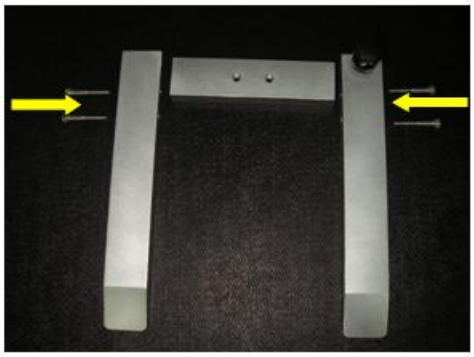
Assembly of H stand

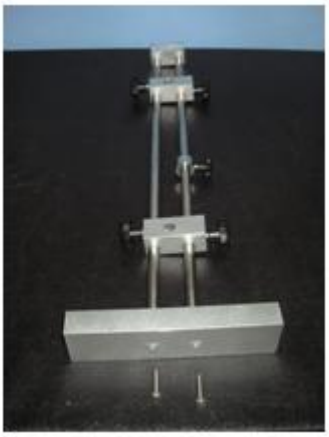
This H stand consisting of a double rod, two bossheads, a safety ring and a strap clamp to secure the vessel.
The unit comes semi-assembled as the two double rods are connected and the two bossheads and the safety ring is fixed in place already.



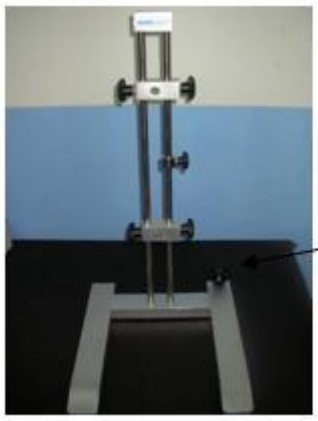
Note:Screw to fix the double rod onto the base H are attached where the arrow is located!

Put together the foot of the stand as fo llowing: put each of the two bolts into its place in the middle foot piece and s





Once this bottom “H” has been fixed, take the double rod and insert into the middle piece of the foot stand. Turn it around and fix it with the other allen key using the smaller screws for it. Turn it around and fix the drive with the support rod at the upper bosshead and the strap clamp at the lower bosshead.



Ready assembled stand

If used on an uneven surface you may want to level it with the level screw!

Assembly of the plate stand

This stand is delivered with a base plate and a rod which is either 600mm, 800mm or 1000mm long. Assembly is very easy as you only have to screw in the rod into the plate stand and secure it with the counter nut. Attach necessary bossheads such to the rod.

Warranty

This instrument has a warranty of 24 months from date of purchase which covers material and workmanship.

Manufacturer will repair or replace free of charge the defect parts which were found defective after an inspection finds that the defect is due to materials or workmanship.
The warranty for this equipment does not cover normal wear from using it and does not apply to any instrument or part which has been altered by anyone else than an employee of Manufacturer or its authorized agents.

It also does not cover instruments which have been damaged due to accident, negligence of the user, failure to follow the operating instructions, the use of electric currents and circuits other than in this manual, misuse of the unit or abuse of it.

We reserve the right to change or modify or improve any of our instruments without any obligation to make corresponding changes to any instrument previously sold.