English

OPERATING MANUAL

Homogenizer

D-500

WIGGENS
THE MAGIC MOTION

1710500.1201.21-V3.1

Congratulations!

You have made an excellent choice.

WIGGENS thanks you for the trust you have placed in us.

This operating manual has been designed to help you gain an understanding of the operation and possible applications of our instruments. For optimal utilization of all functions, we recommend that you thoroughly study this manual prior to beginning operation.

Unpacking and Inspecting

Please unpack the device carefully. Check that the package is right-side-up and then open it. Check that model of the product is one that you ordered. Check that there is no damage. If there is any damage, file a damage claim with the carrier. In the case of any damage a damage report should be requested immediately. These instructions must be followed fully for us to guarantee our full support of your claim for protecting against loss from concealed damage. The form required for filing such a claim will be provided by the carrier.

Important: keep operating manual for future use

Content

1. Intended Use

The D-500 homogenizer is a high speed dispersing instrument. It employs the rotor / stator technology where the shaft, rotor, and stator can be easily disassembled convenient accessory change and easy cleaning. The dispersing tool consisting of the rotor and stator are completely assembled for immediate use with the homogenizer main unit. For dismantling (e.g. for cleaning) please refer to this operation manual. The D-500 homogenizers is for laboratory use only and can be used in the chemical, cosmetic, pharmaceutical, and paint industries as well as in universities and a wide range of medical laboratories. It is designed as a high performance dispersing/homogenizing instrument and can also be used as a high-speed mixing unit with certain dispersing shafts. The main unit is suitable for volumes from 10ml to 8,000ml, with actual volume rates depending on the dispersing shaft used. There is a wide range of dispersing shafts in different forms and sizes available. The D-500 homogenizer is designed as stationary equipment mounted in a stand and not to be used as a handheld instrument.

2. Operator Responsibility

Use

For homogenizing, emulsifying or suspending samples；

Range of use

- Laboratories
- Schools
- Pharmacies
- Research institute etc.…..

This device is suitable for use in all areas except:

- Residential areas
- Areas that are connected directly to a low-voltage supply network that also supplies residential areas.

The safety of the user cannot be guaranteed if the appliance is operated with accessories that are not supplied or recommended by the manufacturer or if the appliance is operated improperly contrary to the manufacturer's specifications.

The products of WIGGENS ensure safe operation when installed, operated, and maintained according to common safety regulations. This section explains the potential dangers that may arise when operating the instrument and also specifies the most important safety precautions to preclude these dangers as far as possible.

- The operator is responsible for the qualification of the personnel operating the instrument.
- The personnel operating the instrument should be regularly instructed about the dangers involved with their job activities as well as measures to avert these dangers.
- Make sure all persons tasked with operating, installing, and maintaining the instrument have read and understand the safety information and operating instructions.
- When using hazardous materials or materials that could become hazardous, the instrument may be operated only by persons who are absolutely familiar with these materials and the instrument. These persons must be fully aware of possible risks.
- Only qualified personnel are authorized to perform configuration, installation, maintenance and repairs of the instrument.
- Routine operation can also be carried out by untrained personnel who should however be instructed by trained personnel.

If you have any questions concerning the operation of your instrument or the information in this manual, please contact us!

2.1. Disposal

At the end of its service life the instrument is to be disposed of in accordance with the local regulations specified for the disposal of electronic industry waste in an environmentally friendly manner.

CE Conformity

The products described in the operating instructions conform to the requirements of the following European guidelines:
Low voltage regulations with respect to legal harmonization of the member countries concerning electric devices for use within certain voltage limits.
EMC guideline with respect to legal harmonization of the member countries concerning electromagnetic compatibility.

APPROVALS European	EN 61326-1:2013, 2014/30/EU EN 61326-2-6:2013, 2014/30/EU EN 61010-1:2010 / A1:2019, 2014/35/EU

2.2. Technical Specifications

Model	D-500	
Mains Requirements	230V, 50Hz	110V, 60Hz
Power Input / Output	500 / 320 W	
Rotor Speed	6.3 – 36.1 m/sec	
Weight	1,3 kg	
Sound Pressure Level	79 dB(A)	
Speed Setting	Variable	
Permissible Ambient Temperature	5°C – 40°C	
Permissible Max. Humidity	80%	
Protection Class	IP20	
Dimensions	70mm * 70mm * 255mm	
Basic Order Number	1710500	

All measurements have been carried out at the stated voltage, frequency, and an ambient temperature of 25°C.
Technical changes without prior notification reserved.

WIGGENS Order Numbers consist of the Basic Order Number (BON) and the Order Number Addition (ONA) which explains different characteristics of the product that can vary from country to country. Order Numbers as stated on the product label and box label are stated as Full Order Numbers (FON), consisting of the BON followed by the ONA. For a full explanation of the ONA of your product, please ask your local WIGGENS support or refer to the Order Number Guide in the *WIGGENS* General Catalog.

3. Safety Instructions

3.1. Explanation of Safety Notes

In addition to the safety warnings listed, warnings are posted throughout the operating manual. These warnings are designated by an exclamation mark inside an equilateral triangle. "Warning of a dangerous situation (Attention! Please follow the documentation)."

Symbol	Additional term / Description
Warning signs 	The danger is classified using a signal word. Read and follow these important instructions for averting dangers.
	Warning! Describes a **possibly** highly dangerous situation. If these instructions are not followed, serious injury and danger to life could result.
	Caution! Describes a **possibly** dangerous situation. If this is not avoided, slight or minor injuries could result. A warning of possible property damage may also be contained in the text.
	Notice! Describes a **possibly** harmful situation. If this is not avoided, the product or anything in its surroundings can be damaged.
	**Note!** Draws attention to something special.
	**Important!** Indicates usage tips and other useful information.

3.2. For Your Protection

- Make sure you read and understand all instructions and safety precautions listed in this manual before installing or operating your instrument.
- Keep the operation instructions in a place where they can be accessed by everyone.
- Make sure the product is checked for proper condition regularly (depending on the conditions of use). Regularly check (at least every 2 months) the proper condition of the mandatory, warning, prohibition and safety labels.
- Connect the instrument to a power socket with earthing contact (PE-protective earth)!
- Do not stay in the area below the instrument.
- Never operate damaged equipment.
- Be aware of tripping! Never route the connection cable in highly frequented areas!
- Be aware of possible cable damage! Keep the connection cable away from the heating zone!
- Always turn off the instrument and disconnect the mains cable from the power source before performing any service or maintenance procedures, or before moving the instrument.
- This is not an explosion proof homogenizer. Do not use with any highly flammable or explosive materials.
- Not recommended for use with corrosive materials or in corrosive atmospheres. Corrosive spills and fumes will damage the top plate and internal components.
- Only use the homogenizer for its intended purpose.
- Ensure that the correct electric voltage of the instrument corresponds with power supply used.
- Do not use this instrument in a hazardous area or manner. When handing hazardous chemicals, use appropriate hand and eye protection.
- Do not immerse electrical equipment in water.
- The homogenizer must not be used in highly combustible areas and operated with easily inflammable liquids. It is recommended to run the unit in fume hoods during operation.
- To avoid electrical shock, do not open the housing. Remove the power cord from the power source when the unit needs to be checked or serviced. This instrument must only be opened by qualified service personnel.
- Never touch the spinning rotor, shaft, or the motor side coupling parts, while the unit is under operation or hasn't fully come to a halt.
- It is recommended that the operator should be using ear protection when operating the unit at maximum speed.
- Do not operate the unit after any malfunctions or after it has been damaged in any manner. In case of malfunction or damage contact the equipment distributor where you purchased the unit.
- Switch off the unit before changing the dispersing element.
- Only suitable dispersing shafts from WIGGENS may be used.
- Glass vessels must always be secured with the strap or a clamp to prevent them from sliding or tipping.
- Use caution when adjusting the speed to avoid possible spraying of the medium.
- The ventilation slots of the drive must not be obstructed.
- Never let the rotor / stator touch the bottom of the vessel.

-  **Warning !** This is not an explosion proof instrument. Do not use with any highly flammable or explosive materials.
-  **Warning !** When in an emergency, disconnect the main power plug.
-  **Warning !** Repairs are to be carried out only by qualified service personnel
-  **Warning !** Be aware of the danger of electric shocks!
-  **Warning !** When in an emergency, disconnect the main power plug.
-  **Warning !** Warning referring to a particular group of people. Example: People with pacemakers or ICDs (Implanted Coronar Defibrillator)

3.3. For protection of the equipment

- You have received a product designed for industrial and experimental use. Nevertheless, avoid strikes to the housing, vibrations, damage to the operating-element panel, and contamination.
- Make sure that the mains power supply has low impedance to avoid any negative effects on instruments being operated on the same mains.
- Do not expose the unit to sunlight.
- Sudden drops may cause damage in the interior of the instrument.
- Transport the instrument with care.
- The D-500 must never be operated without the stator / rotor being fully immersed in 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 use. When cleaning, remove the power cord from the power source.
- Do not cover the device, even partially e.g. with metallic plates or film. This results in overheating.
- The power supply plug serves as a safe disconnecting device from the line and must always be easily accessible.
- Never operate the homogenizer in wet areas!
- Position the device at least 45 cm (12 inches) from combustible materials under any conditions.

4. Operating Procedures

4.1. Environmental Operating Conditions

The Homogenizer should not be operated outside the following conditions:

- Indoors
- Altitudes up to 2000 meters
- Temperatures from+5°C to +40°C
- Maximum relative humidity 80% for temperatures up to +31°C, linear decrease down to 50% relative humidity at a temperature of +40°C
- Max. mains fluctuation of ±10 % are permissible
- Overvoltage category II

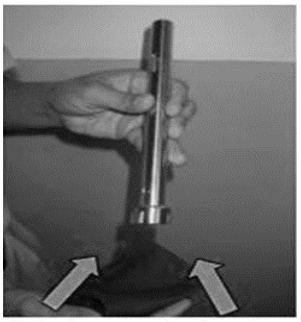
4.2. Installation

4.2.1. Installing the Homogenizer

If purchased in a package, the D-500 homogenizer comes with a WF12-D stand. It is not recommended to use the D-500 homogenizer with any other stand than the WIGGENS WF12-D. However, in case another stand is used, make sure that the unit is safely fixed before operating, as the centrifugal forces of the unit are relatively high.
How to install the homogenizer with the WF12-D stand:

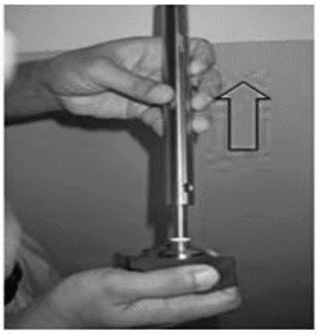
- Put the base plate of the WF12-D stand on a firm and stable underground
- Screw the two stainless steel rods into the designated holes in the base plate and fixate them with a spanner
- Attach both boss head clamps to the rods and fixate them in height of the sample vessel and homogenizer, respectively
- Screw the rod with rubber band into the lower boss head clamp
- Screw the single rod into the D-500 main unit at the designated hole
- Place the D-500 into the upper boss head clamp and fixate it securely
- Place the closed boss head piece on top of the rods for final fixation

4.2.2. Disassembly of the Dispersing Tool



1. Hold the stator with a cloth (to avoid cutting of your hand due to sharp edges at the stator)

2. While holding the stator, turn the shaft tube clockwise until the stator is loosened inside the shaft tube



3. Remove the shaft tube and put it at a place where it cannot fall down or otherwise be damaged

4. Fixate the rotor by holding a cloth inside the rotor cavity
5. Turn the stator clockwise (yellow arrow) or turn the rotor anti-clockwise

6. Remove the rotor from the stator by pulling in opposite directions

4.2.3. Re-Assembly of the Dispersing Tool

For re-assembling the dispersing tool follow the steps of "4.2.2. Dissembly of the Dispersing Tool" in the reverse order.

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 particularly the axle reacts very sensitive to impacts.

4.3. Operation

4.3.1. Immersion Depth

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 of 15 degrees), it improves the efficiency of the disperser. The dispersing shaft should not be immersed more than 30mm below the flange.

4.3.2. Working with Speed Control

The speed control can be found at the top of the main unit. Before using the homogenizer in liquid, run a test without the dispersing shaft by switching on the On / Off Switch on the top of the drive.

The speed is selected via control knob on the top of the driver. The approximate speed of that corresponds with the control knob levels is as follows:

Level 1=10,000rpm	Level 2=14,500rpm	Level 3=19,000rpm
Level 4=23,500rpm	Level 5=27,000rpm	Level max=30,000rpm

For an emergency stop, press the On / Off Switch.

For reaching the best effects, the rotor speed of the D-500 should be appropriate to the actual dispersion task.

IMPROTANT

The maximum rotor speed depends on the sample type and its viscosity. The speed is reduced by highly viscous samples 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 system prevents damage to the motor drive.

4.3.3. Overload Protection

When motor overload occur, the power supply is cut off automatically. In this case proceed as follows:

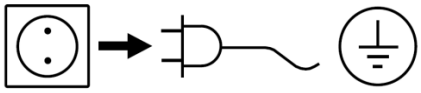
1. switch off the On / Off Switch
2. Regulate the speed control down to 0
3. Disconnect the main plug
4. Connect the main plug again
5. Restart the instrument as fast as possible without the load in order to accelerate the cooling process with the help of the built-in fan.

5. Cleaning and Maintenance

5.1. Routine Cleaning

Wipe the housing of the instrument with a damp cloth using a mild soap and water solution.

Cleaning



For cleaning disconnect the main plug.

Only use cleansing agents which have been recommended by WIGGENS
Use to remove:
Dyes isopropyl alcohol
Construction materials isopropyl alcohol/water containing surfactant
Cosmetics isopropyl alcohol/water containing surfactant
Foodstuffs water containing surfactant
Fuels water containing surfactant

- Do not allow moisture to get into the appliance when cleaning.
- Wear protective gloves when cleaning the devices.
- Before using another than the recommended method for cleaningor decontamination, the user must ascertain with WIGGENSthatthis method does not destroy the instrument

Note:

Do not use chlorine bleach, chlorine-based cleanser, abrasives, ammonia, steel wool or scouring pads with metal content or similar harsh solvents or abrasives. These may damage the surface of the instrument.

5.2. Maintenance

Do not attempt to service or repair a WIGGENS homogenizer. If the homogenizer's housing is opened the warranty becomes void. Contact WIGGENS for return authorization and return instructions.

Ordering spare parts

When ordering spare parts, please give:

- Machine type
- Manufacturing number, see type plate
- Item number and designation of the spare part.

Repair

Please only send devices in for repair that have been cleaned and are free of materials which might present health hazards. For this, use the "certificate of compliance" form which you can obtain from *WIGGENS*. If your appliance requires repair, return it in its original packaging. Storage packaging is not sufficient when sending the device - also use appropriate transport packaging.

6. Transport and Storage

- Clean the homogenizer so that it is free from any materials which may be harmful to the health. Provide a material safety data sheet where appropriate.
- Place the homogenizer and its parts into the original packing or a container with necessary protection to prevent damage during transport. Seal the original packing or container with packing tape.
- Store the packed unit in a dry place.

CAUTION!

Failure to clean, maintenance, and handle the homogenizer as outlined can lead to damages or be harmful to the health.

7. Service

7.1. Trouble-Shooting

Cause	Remedy
The unit does not turn on	1. Ensure that the mains electricity plug is plugged into a working socket outlet and check if the main switch is either in the Continuous mode. 2. If the malfunction cannot be determined, please contact the WIGGENS support.

WIGGENS reserves the right to carry out technical modifications with repairs for providing improved performance of the instrument.

7.2. Warranty

In accordance with *WIGGENS* warranty conditions, the warranty period is 24 months. For claims under the warranty please contact your local dealer. You may also send the machine direct to our works, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs. The warranty does not cover wearing parts, nor does it apply to faults resulting from improper use or insufficient care and maintenance contrary to the instructions in this operating manual.

WIGGENS reserves the right to decide the validity of any warranty claim. In case of faults arising either due to faulty materials or workmanship, parts will be repaired or replaced free of charge.

Any other compensation claims, such as consumables, damages caused by corrosion or accidental breakage, are excluded from this guarantee.

This warranty may only be altered by a specifically published amendment. No individual has authorization to alter the provisions of this warranty policy or its amendments.

7.3. Contact /Technical Service

If your device is not working properly:

⇨ Please inform *WIGGENS* Instruments by using our contact information.

You have contacted *WIGGENS* Instruments?

⇨ Copy and complete the Conformation of condition of unit from these operating instructions.

⇨ Please repack the device appropriately for transport and send to *WIGGENS* Instruments together with the Confirmation of condition of unit.

Our contact details

WIGGENS GmbH
Add：Wiescher Str. 11a, 42277 Wuppertal Germany
Tel.: +49 202 373 29 58-0
info@wiggens.com

WIGGENS China
Room 426, Hall A, Office Building M8, No.1 Jiuxianqiao
East Road, Chaoyang District, Beijing 100015, China
Tel: +86 400-809-2068
service@wiggens.com
www.wiggens.com

Confirmation of condition of unit

In the case of repair, copy and complete the Conformation of condition of unit and send it to *WIGGENS* Instruments.

1. Details about the unit

Product number

Serial number

Reason for repair

2. Has the device been cleaned, decontaminated/sterilized?

Yes ☐ No ☐

3. Is the unit in a condition which does not represent any health threats for the staff of our service department?

Yes ☐ No ☐

If not, which substances has the unit come into contact with?

4. Legally binding declaration

The customer is aware of being legally liable to *WIGGENS* Instruments for any damages arising from incomplete and incorrect information.

Date Signature

Company stamp

Please Note

The shipper is responsible for the return of the goods in well-packed condition, suitable for the mode of transport.

Sender information

Name
Company
Department, research group Street
Zip code, city
Country
Phone
E-mail

WIGGENS

THE MAGIC MOTION

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