

Unlimited
Combinations



Betriebsanleitung
Operating instructions
Notice d'instructions

Hei-SHAKE Reax 20

 **heidolph**
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About this document

This operating manual describes the features and operation of vortexers, type Hei-SHAKE Reax 20. The operating instructions are an integral part of the described device!

Typographic conventions

Standardized symbols, signal words and highlighting elements are used in this document to warn of hazards and to identify important information or rather special text contents.

Symbol	Signal word / explanation
	<p>Warning symbols in combination with a signal word indicate dangers:</p> <p>DANGER Indicates an immediate dangerous situation. Failure to respect the indications will result in death or serious injury.</p> <p>WARNING Indicates a potential danger. Failure to respect the indications will result in serious injuries.</p> <p>CAUTION Indicates a potential hazard which, if not avoided, damage to property and minor to moderate injuries can occur.</p>
	<p>Mandatory signs are used to indicate important and useful information on handling a product.</p> <p>This information is used to ensure operational safety and to maintain the value of the product.</p>
[GUI]	<p>Parameter designations, display texts, and device labels are typographically highlighted in the text and in tables to facilitate their assignment on the device.</p>
→	<p>The arrow indicates specific instructions to be followed to ensure operational safety when handling the product.</p>

Copyright protection

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Directives applied, product certification



CE marking

The device meets all requirements of the following directives:

- European Machinery Directive, 2006/42/EC
- EMC Directive, 2004/108/EC

California Residents

Important information for California residents regarding Prop 65. Please visit www.P65Warnings.ca.gov for more information.

Residual risk

The device has been designed and manufactured in accordance with the state-of-the-art standards at the time of development and the recognized safety regulations. During mounting and use, as well as during maintenance, repair and cleaning work, there are nevertheless certain residual risks associated with the described device.

These are identified and described at the appropriate points in this document.

Intended use

The described platform shaker in this document has been specially developed for the following tasks:

- Shaking
- Mixing
- Emulsifying
- Suspending
- Separating

The areas of application of the described device include chemical, biological and environmental-analytical laboratory and research applications, applications of basic research and comparable facilities.

Due to its design, the device in its delivery condition may only be used in analytical processes or in laboratory-like conditions in the food, cosmetics, and pharmaceutical industries as well as other comparable industries that manufacture products intended for consumption by humans or animals, or for use on humans or animals.

Any other use of this device is not considered as intended!

Compliant use

The user is generally responsible for evaluating the conformity of his application and, if necessary, for taking additional measures.

Reasonably foreseeable misuse

Additional measures may be necessary for use under conditions or for purposes deviating from the intended use, and/or specific guidelines and safety regulations must be observed. Corresponding requirements must be evaluated and implemented by the operator in each individual case.

Compliance with and implementation of all relevant directives and safety measures for the respective field of application is the sole responsibility of the operator.

All risks resulting from improper use are borne solely by the operator.

The device may only be operated by authorized and instructed personnel. Training and qualification of the operating personnel as well as ensuring that the device is handled responsibly are the sole responsibility of the operator!

Transportation

During transportation, avoid severe shocks and mechanical stresses that can cause damage to the device.

Keep the original packaging in a dry and protected place for later use.

Storage

Always store the device in its original packaging. To protect against damage and excessive material aging, store the device in an environment that is as dry, temperature-stable and dust-free as possible.

Acclimatization

After each transportation and after storage under critical climatic conditions (e.g. high temperature difference between inside and outside), allow the device to acclimatize at room temperature for at least two hours to prevent possible damage due to condensation before commissioning it in the place of use. If necessary, extend the acclimatization phase if the temperature differences are very high.

Make all supply connections (power supply, tubing) only after the device has been acclimatized!

Permissible ambient conditions

The device is designed for indoor use only. The device is **NOT** suitable for outdoor use!

The device is **NOT** suitable for use in potentially explosive areas!

When used in corrosive atmospheres, the service life of the device may be reduced depending on the concentration, duration and frequency of exposure.

General safety instructions

Before commissioning and using the device, familiarize yourself with all the safety regulations and occupational safety guidelines applicable at the place of use and observe them at all times.

Only operate the device if it is in faultless technical condition. In particular, make sure that the device is free of visible damage.

If there is missing or misleading information on the device or regarding occupational safety, contact the responsible safety specialist or our technical service.

Only use the device in accordance with the regulations on intended use („Intended use“ on page 23).

Electrical safety

Before connecting the device to the power supply, ensure that the voltage indicated on the rating plate matches the specifications of the local power utility company.

Ensure that the power supply circuit provided is protected by means of a residual-current device (RCD).

Do not make any changes to the hard-wired three-pole power supply (PH, N, GND).

Always replace defective device fuses with fuses of the same type with identical performance features.

Prior to use, check that the device and the power supply cord are free of visible damage.
Have repairs and/or maintenance work on the device carried out exclusively by an authorized electrician or by the technical service department of Heidolph Instruments.
Always switch off and disconnect the device from the power supply, preventing reconnection, before carrying out maintenance work, cleaning, or repairs.

Data security

The user is responsible for ensuring data security when transferring data between the described device and other devices.
Only use secure networks for the data transfer and avoid use of critical infrastructure.
Only use high-quality shielded data cables for the data transfer.
For data transfer via a USB B connection, an industrial standard USB hub should be preferably used to ensure the most stable connection possible.

Operational safety

Operate the device under a closed ventilated fume hood when working with potentially hazardous substances (see EN 14175 and DIN 12924).
Do not make any unauthorized changes or modifications to the device!
Only use genuine spare parts and accessories, or those expressly approved by the manufacturer!
Rectify malfunctions or faults on the device immediately.
Switch off and disconnect the device from the power supply, preventing reconnection, if it is not possible to eliminate the malfunction or rectify the fault immediately.
Observe all other applicable regulations such as laboratory and workplace guidelines, recognized safety technology rules and special local regulations.

Occupational safety

Always use the prescribed personal protective equipment (PPE) such as protective clothing, safety goggles, protective gloves, safety shoes, etc.
Do not operate any other devices in the immediate vicinity of the device ...

- which can generate electromagnetic fields in the frequency range between 9×10^3 Hz to 3×10^{11} Hz,
- which generate emission or radiation sources in the frequency range 3×10^{11} Hz to 3×10^{15} Hz (in the optical spectral range wavelengths from 1,000 μm to 0,1 μm),
- which generate ultrasonic or ionizing waves.

Do not process any substances that could release energy in an uncontrolled manner (e.g. self-ignition).
Do not process substances in which the energy input through mixing poses a danger.
Wipe off any liquid that may have spilled on the device immediately.

Personal protective equipment (PPE)

The operating company must determine and provide the necessary PPE, depending on the respective application and the media and chemicals used.
The corresponding instruction of the personnel is solely within the operating company's responsibility.

Environmental protection

When processing environmentally hazardous substances, take appropriate measures to avoid hazards to the environment.

The evaluation of corresponding measures such as the marking of a hazardous area, their implementation, and the training of the relevant personnel is the sole responsibility of the operator!

Biohazard

When processing biohazardous substances, take appropriate measures to prevent hazards to persons and the environment, including:

- Instruction of the personnel regarding the necessary safety measures.
- Provision of personal protective equipment (PPE) and instruction of the personnel in its use.
- Marking of the device with a biohazard warning symbol.

The evaluation of corresponding measures such as the marking of a hazardous area, their implementation, and the training of the relevant personnel is the sole responsibility of the operator!

Other regulations

In addition to the notes and instructions in this document, observe all other applicable regulations such as laboratory and workplace guidelines, hazardous substances ordinances, recognized rules of safety engineering and occupational medicine as well as particular local regulations!

Noncompliance will invalidate any warranty claims against Heidolph Instruments.

The operator is generally liable for all damage resulting from unauthorized changes or modifications to the device, from the use of unapproved or non-genuine spare parts and accessories, or from disregarding the safety instructions and hazard warnings or the manufacturer's instructions!

Mechanical design



Front view

The figure shows an example of the device variant Hei-SHAKE Reax 20/8:

- 1 Clamping lever (upper side and underside)
- 2 Emergency stop button
- 3 On/Off switch
- 4 Speed controller

Set up the device



CAUTION

Improper installation of the device may result in direct and indirect damage to property due to falling and/or spilling of fluids! Observe the instructions for the correct positioning of the device. Observe the generally valid rules for the safe installation of work equipment.

The surface must be even, non-slip, proper and sufficiently stable.

The device must be freely accessible at all times.



The professional mounting and positioning of the device including the supplied accessories is within the sole responsibility of the operator! Heidolph instruments accepts no responsibility for direct and/or indirect personal injury or damage to property resulting from failure to observe the instructions for the correct mounting and positioning of the device.

Power supply



DANGER

Please note the safety instructions in section „Electrical safety“ on page 24

The hard-wired power supply leaves from the rear of the device. Make sure that the device is switched off (main switch in position off).

Switching the device on/off

Use the main switch [Power] at the front to turn the device on or off.

Equipment

In delivery status, the device is equipped with pockets for bottles of 2,000 ml. You will need special pockets for bottles of 500 ml and 1,000 ml. These are available as optional accessories (for options and mounting, see „Attachments for bottles of 500 ml and 1,000 ml“ on page 32).

To insert the bottles, you first need to move the rotor in a suitable position:

- Adjust the speed controller to the lowest rotation speed [1].
- Switch on the device.
- Switch off the device again as soon as the rotor is in a suitable position.

- Loosen one clamping lever [1] (turn counterclockwise around 90°).



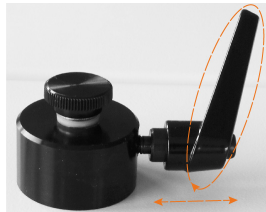
- Pull up the knurled handle of the retaining bolt on the loosened clamping lever [2] and insert the bottle.
 - Make sure to place the pressure plate centrally in relation to the bottleneck.



- Press down the retaining bolt to fix the bottle with the pressure plate:
- Lock the loosened clamping lever again (turn clockwise around 90°).



- If necessary, the clamping lever position can be adjusted: to do so, pull the clamping lever outwards, turn the clamping lever in a suitable position and loosen the clamping lever again.
 - Repeat the process, if necessary, until being able to clamp the bottle correctly.



Rotational mode



WARNING

Always place individual vessels in the center. Always ensure that the weight load is evenly distributed.

Use suitable pockets for the used vessels. Further information on available accessories can be found on our website at www.heidolph.com!

Before starting the rotational movement, make sure that all bottles are correctly closed and securely clamped.

Reduce the rotational speed if the device starts to vibrate during operation.

Always use the necessary and appropriate personal protective equipment!

Never touch rotating parts with your hands. Do not bend over rotating parts.

Wear tight-fitting work clothes, remove jewelry before starting work, tie long hair under a hair net or under a suitable head covering

- Adjust the speed controller to the desired rotation speed (adjustment range: 1 – 16 rpm).
- Switch on the device.
 - The rotational movement starts with the lowest rotation speed and will gradually be increased to the set speed.
 - Observe the stability of the device during its start-up and until reaching the set rotation speed.
 - The rotation speed can be readjusted continuously at any time.



In case of a power interruption, the device has to be switched on again with the on/off switch when the mains return.

Troubleshooting

Failure	Cause	Possible remedy
Rotational movement does not start	No mains voltage	Check if the on/off switch is in position (on)
	Power supply cord defective	Check the power supply cord for damages/correct connection
	On/off switch in position [off]	Check building fuses Check device fuses
Rotational movement stops unexpectedly	Motor overheat protection has tripped	Wait about 20 minutes and reduce the load
	Electrical fault (no engine noise)	Contact Heidolph Sales or Service
	Mechanical defect (engine noise audible)	



In case of recurring errors please contact the responsible sales department or our technical service (see section „Contact details“ on page 34).

Technical specifications

Hei-SHAKE Reax 20	Reax 20/4	Reax 20/8	Reax 20/12
Dimensions (W × H × D) in mm	490 × 520 × 465	770 × 520 × 465	1050 × 520 × 465
Weight (kg)	23	28	33
Permissible load	max. 30 kg		
Bottle dimensions	Maximum bottle diameter: 136 mm Maximum bottle height: 270 mm		
Motion	Overhead, rotating		
Speed range/speed display	1 – 16 rpm/scale		
Speed control	electronic		
Drive	Asynchronous motor		
Motor protection	Overheat protection, self-resetting		
Protection class	IP21 (acc. to EN 60529)		
Protection class	I Ⓢ (acc. to EN 61140)		
Acoustic pressure	< 45 dB (A), in accordance with IEC 61010		
Rated voltage	230 V, 50/60 Hz 115 V, 60 Hz		
Fuse	T3, 15 A (230 V) T6, 25 A (115 V)		
Power input	280 W		
Operating and storage temperature	5 °C – 31 °C at up to 80 % rel. humidity 32 °C – 40 °C at up to 50 % rel. humidity (decreasing linearly)		
Installation altitude	up to 2,000 m asl		

Scope of delivery

Component	Quantity	Product no.
Hei-SHAKE Reax 20/4	1	541-20004-00
Hei-SHAKE Reax 20/8	1	541-20008-00
Hei-SHAKE Reax 20/12	1	541-20012-00
Power supply cord	1	country specific
Operating instructions	1	01-005-002-18
Warranty registration	1	01-006-002-78

Accessories

Component	Quantity	Product no.
Device fuse 230 V	1	14-002-015-46
Device fuse 115 V	1	14-002-015-49
Attachment for bottles of 500 ml Bottle height 162 – 202 mm	1	549-27000-00
Attachment for bottles of 1,000 ml Bottle height 208 – 248 mm	1	549-26000-00
Tension plate for sealing caps \varnothing 94 mm	1	11-001-001-81

Attachments for bottles of 500 ml and 1,000 ml

Example: attachment for bottles of 1,000 ml, consisting of 4 x spacer bolt and 1 x hex wrench.



- Tighten the clamping lever.
- Loosen the pressure plate using the hex wrench.



- Screw the spacer bolt with the retaining bolt (note correct position of the tension spring).



- Screw the pressure plate with the extended retaining bolt.



Further information on available accessories can be found on our website at www.heidolph.com!

Device service



DANGER

Switch the device's main switch off and disconnect it from the power supply before carrying out maintenance work, cleaning, or repairs.

When cleaning, avoid the penetration of liquids.

Before replacing the fuses, switch off the device and disconnect it from the power supply.

Always replace the two device fuses in pairs with original manufacturer fuses. Further information on available accessories can be found on our website at www.heidolph.com!

After fuse replacement, check the device for a safe condition according to IEC 61010-1.

General cleaning instructions



CAUTION

Clean the device's surfaces with a soft, lint-free and only slightly moistened cloth.

Never use any aggressive or abrasive cleaning agents or aids.

Replace the device fuse

The fuse holder for the two device fuses is located on the rear of the device below the IEC appliance inlet.



DANGER

Before replacing the fuses, switch off the device and disconnect it from the power supply.

Always replace the two device fuses in pairs with original manufacturer fuses. Further information on available accessories can be found on our website at www.heidolph.com!

After fuse replacement, check the device for a safe condition according to IEC 61010-1.

Repairs

Repairs to the device may only be carried out by authorized experts!

Unauthorized repairs during the warranty period will result in the loss of the warranty claim.

The owner is solely liable for damage caused by unauthorized repairs.

If repairs are required, contact an authorized dealer or our technical service, see section „Contact details“ on page 34.

Include the completed certificate of decontamination with every device return, see „Certificate of decontamination“ on page 35.

Maintenance

The device contains no user-serviceable components. If necessary (in the event of abnormal operating behavior such as excessive noise or heat generation, for example), contact our technical service, see section „Contact details“ on page 34.

Disposal



- When disposing of the device, observe the provisions of the WEEE Directive 2012/19/EU and its transposition into national law in the country of use.
- When disposing of portable batteries, observe the provisions of the European Battery Directive 2013/56/EU and their implementation in national law in the country of use.
- Check the device and all components for residues of substances that are hazardous to health, the environment and biohazardous before disposal.
- Properly remove and dispose of residues of substances that are hazardous to health, the environment and biohazardous!

Warranty statement

Heidolph Instruments GmbH & Co. KG provides a three-year warranty for material and manufacturing defects.

Glass and wear parts, transportation damage, and damage resulting from improper handling or non-intended use of the product are excluded from the warranty.

The warranty period for registered products begins on the date of purchase. Register the product with the enclosed warranty card or on our homepage www.heidolph.com.

For non-registered products, the warranty period begins with the date of the serial production (to be determined by the serial number).

In the event of material or manufacturing defects, the product will either be repaired or replaced free of charge within the warranty period.

Contact details



Heidolph Instruments GmbH & Co. KG

Technical Service
Walpersdorfer Str. 12
D-91126 Schwabach/Germany
Email: service@heidolph.de

Representations

To find your local Heidolph distributor please visit www.heidolph.com