

Intelligent
evaporation



Betriebsanleitung
Operating instructions
Notice d'instructions

Hei-VAP Core

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
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About this document

These operating instructions describe all functions and operation of rotary evaporators, type Hei-VAP Core. The operating instructions are an integral part of the described device!

Typographic conventions

The following symbols, signal words and highlighting elements are used in this document:

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. This information is used to ensure operational safety and to maintain the value of the product.</p>
	<p>The arrow indicates specific instructions to be followed to ensure operational safety when handling the product.</p>

Copyright protection



This document is protected by copyright and is generally intended for use by the purchaser of the product.

No transfer to third parties, reproduction in any form, including excerpts, and by any means, as well as utilization and/or disclosure of the contents is permitted without the prior written consent of Heidolph Instruments GmbH & Co. KG. Any violation is subject to compensation for damage.

Safety instructions in the official languages of the European Union

A summary of all safety instructions in the official languages of the European Union can be found in our Safety Guide for the product group rotary evaporators (Ref. 01-005-006-67). This document is available for download on our homepage in the most up-to-date version.

Directives applied, product certification

	<p>CE marking</p> <p>The device meets all requirements of the following directives:</p> <ul style="list-style-type: none"> • European Machinery Directive, 2006/42/EC • EMC Directive, 2004/108/EC
	<p>NRTL Certification</p> <p>The device has been tested in accordance with the following standards:</p> <ul style="list-style-type: none"> • UL 61010-1 :2012/R:2016-04 • CAN/CSA-C22.2 No. 61010-1:2012/U2:2016-04 • UL 61010-2-010:2015 • CAN/CSA-C22.2 NO. 61010-2-010:2015

Customs declaration

Rotary evaporators, as combustion and cleaning equipment, may be subject to notification to a competent customs authority in the country of destination.

The evaluation of a customer obligation to notify and, if applicable, the notification to a competent customs authority in the country of destination is generally the responsibility of the user!

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 device was designed by the manufacturer for the separation of substances, powder drying, concentration, crystallization of substances, and recycling of solvents under vacuum.

Due to its design, the device in its delivery condition may generally 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 generally the responsibility of the operator.

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

The device may generally 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 general 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, ensure that there is no visible damage on the device itself and, where applicable, on connected devices or the supply connections.

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 for intended use.

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).

Always use the three-pole power supply cord supplied with the device.

The device must only be supplied with power from a properly grounded mains socket-outlet.

Prior to use, check that the device and the power supply cord are free of visible damage.

Always have repairs and/or maintenance work on the device carried out 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.

Always use secure networks for the data transfer and avoid use of critical infrastructure.

Always 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!

Always 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 relevant general and safety instructions for the connected peripheral devices (observe the supplied documentation!).

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 operate the unit when adiabatic compression or shock waves may occur (pressure wave ignition).

Do not use substances that could release energy in an uncontrolled way and cause a pressure increase (exothermic reaction, spontaneous ignition of dusts).

Do not process hard, brittle materials such as stones, soil samples, etc., that could destroy the evaporation flask.

Only use heating bath media that guarantee sufficient heat transfer.

Do not operate the device with overpressure.

Do not expose the glass components to a pressure difference of more than 2 bar.

Ensure that the coolant overpressure does not exceed a level of 2 bar.

Ensure that the flow velocity does not exceed 1 m/s when aspirating liquids with flammable components (electrostatic charge, danger of ignition!).

Avoid the formation of explosion group IIC gases and potentially explosive distillation residues.

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 generally 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 general 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 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 general 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 illustration shows an example of the Hei-VAP Ultimate model with motor-driven lift and glassware G3:

- | | |
|---|---|
| 1 | Condenser (example G3) with receiving flask |
| 2 | Tilt angle adjustment (evaporation flask) |
| 3 | Drive (evaporation flask) |
| 4 | Flask clamp EASY CLIP evaporation flask |
| 5 | Control panel |
| 6 | Evaporation flask |
| 7 | On/Off switch (on the side of the device) |
| 8 | Heating bath |

Control elements



- | | |
|---|---|
| 1 | Device display with speed and temperature indicator |
| 2 | Speed controller |
| 3 | Temperature controller |
| 4 | [Show Set] button: Display of the actual set values of the device |
| 5 | [Standby] button |
| 6 | Lift button (up) (only variant with motor-driven lift) |
| 7 | Lift button (down) (only variant with motor-driven lift) |

Heating bath overheat protection

The device is equipped with an autonomous overheat protection function that prevents the heating bath from overheating. When reaching the maximum heating bath temperature, the heating function is switched off by a mechanical switch. To reset the safety function, follow these steps:

- Remove the heating bath from the base unit.
- Empty and let cool down the heating bath.
- Press the reset button [1] on the bottom of the heating bath with a suitable tool (blunt tip, insulated or non-conductive material).
- Put the heating bath back on the base unit.



Set up the device

Ensuring proper system and/or device mounting, including all accessory parts, is the general responsibility of the operating company.

CAUTION



Due to improper mounting and/or installation of the system/device, as well as unauthorized changes to the mounting, there is a risk of direct and indirect damage to property!

If necessary (system mounting and installation carried out by the operator or third parties, necessary changes to the existing mounting), contact the manufacturer's technical service (see section „Warranty statement“ on page 54).

To use the device, place it on a clean, stable, level and horizontal surface.

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! At the same time, in this case, any warranty claims against Heidolph Instruments will invalidate.

Connect the control panel

Connect the removable control panel via the associated 4-pin connection cable to the device base (back side).

Power supply



DANGER

Observe the indications and instructions in sections „General safety instructions“ on page 35 and especially „Electrical safety“ on page 35

Connect the power supply cord to the appliance inlet on the back of the base unit. Make sure that the device is switched off: Main switch [off]. Connect the power supply cord to a properly secured mains socket-outlet.

Switching the device on/off



CAUTION

Before each operation of the device, check the caps and connecting elements of all glass components for correct and tight fit. At loose/leaky connections, ambient air is sucked in during the vacuum build-up and the required vacuum pressure cannot be reached in a stable manner.

In the event of excess pressure, there is a risk that liquid will escape from the system! The device and surrounding areas can be severely contaminated by leaking media!

To switch on and off, use the main switch of the device (on the side of the housing).

Transportation lock

All variants with motor driven lift are provided with a mechanical transportation lock to prevent damage during the transport of the device. This transportation lock must be removed from the device within its start-up! Keep the transportation lock with the original packaging for future use.

The transportation lock consists of a profiled plate, which is fixed to the housing with three screws M5×8. The profiled plate is marked with a red flag.



Dismantle the transportation lock

- Make sure that the control panel is correctly connected and switch on the device.
- Using the supplied hex wrench, loosen the three fixing screws and remove the profiled plate.
- Move the flask lift to the upper end position (see section „Flask lift“ on page 42).
- Switch off the device: Switching off the device with the flask lift in the upper end position, the additional electronic safety function will be disabled.
- Switch on the device again: The device is ready for use.

Evaporation flask



WARNING

The smallest damage to the evaporation flask can lead to glass breakage when pressurized.

- Glass breakage!
- Risk of injury/contamination by leaking medium!

Before each operation of the device, check the evaporation flask for visible damage.



CAUTION

In the event of improper handling, the evaporation flask that is to be used may fall to the ground.

- Glass breakage!
- Risk of injury/contamination by leaking medium!

Observe the instructions in section „Mount/remove evaporation flasks“ on page 41.

Use only the evaporation flasks approved by the manufacturer.

Mount/remove evaporation flasks



CAUTION

The heating bath is designed for a maximum operating temperature of 210°C (using silicone oil). From a liquid temperature of 50 °C, there is a risk of injury in the event of contact.

Allow heated liquid to cool below 50 °C before removing the flask.

Use appropriate personal protective equipment (heat-resistant gloves, eye protection, safety clothing) to remove the flask.

The evaporation flask is fixed to the vapor tube of the rotary evaporator using a special retort clamp (EASY CLIP):



EASY CLIP open,
Flask unsecured



EASY CLIP closed,
Flask secured

Procedure

- Stop all running processes and the rotation of the flask and move the flask lift to the upper end position (see section „Flask lift“ on page 42).
- Loosen the screw connection of the EASY CLIP at the vapor tube and push the clamping bracket outward (see figure above).
- When mounting the flask, make sure that the glass cones and sockets of the flask and the vapor tube do have full contact and form a straight line and clamp the flask by closing the bracket of the EASY CLIP until it arrests with an audible click (clean the glass cones/sockets before mounting the flask!).
- Screw the EASY CLIP back onto the vapor tube and move the flask lift to the lower end position. Take into consideration the flask size and the filling quantity of the heating bath (see section)! „Fill the heating bath“ on page 43

Adjust the evaporation flask inclination

- Stop all running processes and the rotation of the flask and move the flask lift to the upper end position (see section „Flask lift“ on page 42).
- Loosen the locking [1] on the lift base and hold it against the spring force.
- Swing the condenser until the evaporation flask inclination is at the desired angle. Make sure that the flask can turn freely!
- Release the locking [1] and if necessary, slightly move the unit condenser-evaporator flask until the drive unit clicks into place.



Adjust the immersion depth

- Stop all running processes and the rotation of the flask and move the flask lift with the evaporation flask mounted to the desired height (see section „Flask lift“ on page 42).
- Loosen the fixing screw [1] on the lift base [2] of the device and push the stop adjustment bar [3] down to the lift stop [4].
- Tighten the fixing screw [1] again.
- If necessary, position the base plate with the heating bath according to the flask size.



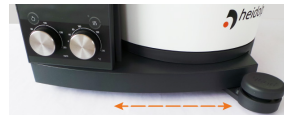
The lift can only be moved downwards up to the set immersion depth. Before the evaporation flask is immersed, check that the fixing screw is firmly seated!

Flask lift

Devices with manual lift

Devices with a manual lift are equipped with a lever for moving the lift up and down:

- Push and move the lever to the left to move the lift up.
- Push and move the lever to the right to move the lift down.



Devices with motor driven lift

For devices with motor driven lift, the lift is moved using the two lift buttons on the control panel, see also section „Control elements“ on page 38:

- Touch the [UP] arrow button to move the lift upwards.
- Touch the [DOWN] arrow button to move the lift downwards.

The movement stops as soon as you release the button!

Receiving flask

- Stop all running processes and the rotation of the flask.
- Move the flask lift to the upper end position (see section „Flask lift“ on page 42).
- When mounting the receiving flask, make sure that the glass cones and sockets of the flask and the condenser do have full contact and form a straight line (clean the glass cones/sockets before mounting the flask!).
- Mount the ground clamp over the joint and tighten the ground clamp by hand.

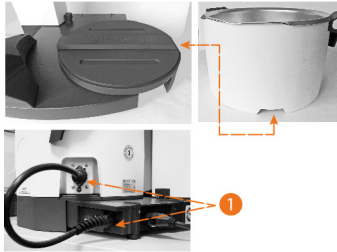


Heating bath

The heating bath is placed on the flexible base plate of the base unit and connected to the unit by means of a 7-pin connecting cable.

The recess provided on the bottom side ensures that the heating bath can only be placed in the right position on the base plate.

- Stop all running processes and the rotation of the flask.
- Move the flask lift to the upper end position (see „Flask lift“ on page 42).
- Place the heating bath on the base plate of the basic unit: The base plate is equipped with a guide suitable for the bottom-side recess of the heating bath.
- Make sure that the heating bath is securely fixed to the base plate and in position.
- Connect the supplied 7-pin connection cable [1] between the socket of the heating bath and the base unit.
- Before removing the heating bath, disconnect the 7-pin connecting cable between the heating bath socket and the base unit!



Fill the heating bath

CAUTION

If the level in the bath is too high, there is a risk that the heating bath liquid will overflow when the flask is immersed.

- Property damages
- Loss of production

The device and surrounding areas can be severely contaminated by escaping heating bath liquid!

Take the imprinted MIN/MAX markings on the inside of the heating bath as a reference.



- Ensure that the evaporation flask is correctly mounted („Mount/remove evaporation flasks“ on page 41).
- Move the flask lift to the lower end position (see „Flask lift“ on page 42).
- With the flask in the lower end position, fill the heating bath until the fluid reaches a level between the MIN/MAX marks on the inside.

- The maximum filling volume is 6 liters. Recommended filling volume: depending on the flask size and the immersion angle: 2.2 l to 4.5 l.

Emptying the heating bath

CAUTION

The heating bath is designed for a maximum operating temperature of 210°C (using silicone oil). From a liquid temperature of 50 °C, there is a risk of injury in the event of contact.



Always grip and hold the heating bath by the ergonomic safety handles on the side!

Before emptying the heating bath, allow heated liquid to cool down to below 50 °C.

Use suitable personal protective equipment (heat-resistant gloves, eye protection, safety clothing) to empty the heating bath.

- Move the flask lift to the upper end position (see „Flask lift“ on page 42).
- Disconnect the 7-pin connecting cable between the heating bath and the base unit.
- Remove the heating bath from the base plate of the base unit.



When changing the bath liquid, the heating bath must be thoroughly cleaned and dried.

In particular, when changing from water to oil, make sure that the heating bath temperature is only slowly and gradually augmented during restart (recommendation: 10 °C), so that remaining water in the system can evaporate until the process temperature is reached.

Cooling water and vacuum connection

The cooling water and vacuum supply is made via the condenser used in each case. Please note the specific assembly instructions for the individual glassware.

Vapor tube

The vapor tube between the condenser and the evaporation flask is delivered in a pre-assembled way and can be dismantled for modification, maintenance or cleaning purposes.

In the as-delivered condition, a flask clamp of type EASY CLIP NS29 is pre-assembled on the vapor tube. For smaller flasks, you need a flask clamp of type EASY CLIP NS24 included in the scope of delivery.



Assembly parts for the vapor tube

- | | |
|---|-----------------------|
| 1 | Clamping sleeve |
| 2 | Fitting |
| 3 | Flask clamp EASY CLIP |
| 4 | Vapor tube |

Condenser

- If necessary, mount the vapor tube [3] on the drive [2], see previous section “vapor tube”.
- Place the supplied PTFE seal [1] on the vapor tube until it stops.
 - Note the position of the [Motor side] embossing.
- Place the supplied tension spring [4] in the union nut [5] of the condenser [6].
- Place the flange of the condenser in a central and flat way on the PTFE seal and screw the union nut on the thread of the drive [2].
 - Therefore, push down the [lock] pin to lock the drive.



PTFE seal



The PTFE seal of the device must be cleaned after a 100-hour break-in period. To do this, follow the steps in this section.



CAUTION

Improper cleaning can damage the surfaces of the PTFE seal.

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

Never use any aggressive or abrasive cleaning agents or aids.



- Dismantle the condenser as described above.
- Remove the PTFE seal from the vapor tube.
- Clean the PTFE seal with a soft cloth, paying particular attention to any residue under the sealing lips.
- Mount the PTFE seal and the condenser as described above.



Operation

WARNING

The device may generally only be operated by qualified or sufficiently instructed personnel.

Pay particular attention to the specific safety instructions for the processing of toxic substances!



When operating the device, there is a risk of contact with rotating parts. Loose clothing, jewelry and open hair can be pulled in!



If possible, operate the device with a guard hood (accessory) or under a closed laboratory fume hood.



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.

At high rotation speeds, the heating bath liquid can spray away from the evaporation flask by forming film and/or slop out of the heating bath. There is a risk of scalding and/or contamination.

If necessary, adjust the rotation speed of the evaporation flask to the ambient conditions.

Use appropriate personal protective equipment (PPE).

After switching on the device, the home screen with the last set actual values [set] appears:

- Rotation speed [rotation set] in [rpm]
- Heating bath temperature [bath temp] in [°C]
- Set the desired rotation speed in a range of 10 – 280 rpm using the speed controller below the [rotation set] display.
- The device adjusts the speed to the set value as soon as you press the speed controller and the LED ring of the controller lights up (function active).
- Set the heating bath temperature in a range of 20 – 210 °C using the temperature controller below the [bath temp] display.
- The device adjusts the heating bath temperature to the set value as soon as you press the temperature controller and the LED ring of the controller lights up (function active). During heating, the icon [Heating] appears below the unit display.



The respectively selected value is applied as new set value when pressing the controller (starting the function).

During the control process and during operation, the values are continuously updated (actual value indicator).

Press the [show set] button to switch between the actual value and the set value indicator.



Water can only be used as bath liquid up to a temperature of 100 °C. At higher temperature values, the symbol [OIL] appears below the temperature indicator due to safety reasons.

In this case, check the operating parameters bath liquid/temperature setting!

Press the standby button to put the device in standby mode. Press the standby button again to make the device ready for use again.

Lock set values

The locking function prevents accidental and not authorized modifications of the set values:

- Keep the speed and/or temperature controller pressed for two seconds to activate the locking function.
 - The lock icon appears on the display and the set values cannot be modified anymore.
- Keep the speed and/or temperature controller pressed for two seconds again to deactivate the locking function.
 - The lock icon disappears and the set values can be modified again.



The controllers can be locked and unlocked individually or simultaneously.

The rotation and the heating function can also be activated and deactivated when the controllers are locked!

Residual heat indicator

As long as the heating bath temperature is above 50° C, the LED ring of the temperature controller flashes after the end of the process. If the temperature/vacuum control knob is assigned the vacuum control function, a temperature warning message will appear on the display instead.

The residual heat indicator disappears when the device is switched off!

Troubleshooting

Failure	Possible cause – remedy
Device does not turn on Display remains dark after switching on	No power supply, check power supply cord.
	Fuse defective, replace.
	On/off switch to OFF, switch on.
	On/off switch defective, contact technical service.
Device does not heat up	Connection cable heating bath is not connected, connect.
	Heating bath defective, contact technical service.
	Overheat protection has tripped: Let the heating bath cool down and empty, reset the overheating protection.
Drive does not turn	No rotation movement, press speed controller.
	Drive defective, contact technical service.
Engine lift not running	Lift in end position, move in opposite direction.
	Lift at height stop, adjust height stop.
	Mechanical defect/motor defective, contact technical service.
No vacuum	Vacuum pump on/off switch OFF, switch on
	Vacuum valve defective, replace
Vacuum insufficient	System leaking, check seals and connections, check joints, grease if necessary.
	Vacuum pump defective, observe manufacturer's instructions for vacuum pump.

Error message	Possible cause – remedy
1	<p>Only devices with motor lift!</p> <p>Transportation lock has not been removed: Remove the transportation lock, switch off the device and switch it on again.</p>
2	<p>Cable connection between control panel and base unit unplugged: Check/restore plug connection, switch off the device and switch it on again.</p>
3	<p>Switch-off by overtemperature protection:</p> <ul style="list-style-type: none"> ▪ Temperature exceedance overtemperature protection +5 °C ▪ Bath liquid below minimum level <p>Switch off device, let heating bath cool down, correct cause of error, restore temperature limiter.</p> <hr/> <p>Device is defective</p> <ul style="list-style-type: none"> ▪ Heating is defective ▪ Sensor is defective <p>Shut down device and contact technical service.</p>
5	<p>Motor overload: Shut down device and contact technical service.</p>



In case of recurring errors, please contact the responsible sales department or our technical service.

Technical specifications

General device data

Model	Rotary evaporator Hei-VAP Core	
Dimensions (W × H × D)	Variant with motor driven lift & glassware G3: 739 × 845 × 432 mm	
	Variant with manual lift & glassware G3: 739 × 845 × 487 mm	
Weight	approx. 15 kg, without glassware	
Acoustic pressure	< 85 (dB(A)) (in accordance with IEC 61010)	
Flask drive	EC motor	
Speed range	10 – 280 rpm	
Speed control	electronic	
Stroke flask lift	155 mm	
Lifting speed flask lift	25 mm/s	
Evaporation rates (L/h), ΔT* 40 °C (in continuous operation)	Toluene	8.5
	Acetone	5.8
	Ethanol	3.5
	Water	1.2
Maximum cooling surface	0.22 m ²	
Protection class	Device	IP20
	Connection cable heating bath	IP67
Electrical data		
Rated voltage	230 V (50/60 Hz) or 115 V (50/60 Hz)	
Connection	L+N+PE	
Protection class	I ⊕ (IEC 61140)	
Overvoltage category	II	
Degree of pollution	2	
Power input	1,400 W max.	
Heating bath, cooling		
Heating bath	Inner Ø: 253 mm, outer Ø: 291 mm Material: V4A steel (1.4404), X2CrNiMo 17-12-2 Volume: 4.5 l	
Heating power	1,300 W	
Temperature range heating bath	20 – 100 °C H ₂ O / 20 – 210 °C oil	
Overtemperature protection	Cut-off at 5 °C deviation from the set temperature	
Overheat protection	Threshold value 250 °C	
Control	electronic	
Control accuracy	±1 °C	

Permissible ambient conditions

Storage conditions (recommendation)	5 °C – 31 °C at up to 80 % rel. humidity 32 °C – 40 °C at up to 50 % rel. humidity (linearly reducing)
Operating temperature	5 °C – 31 °C at up to 80 % rel. humidity 32 °C – 40 °C at up to 50 % rel. humidity (linearly reducing)
Installation altitude	up to 2,000 m asl

Scope of delivery

Item	Quantity	Product no.
Rotary evaporator Hei-VAP Core with hand lift	1	571-01000-00
Rotary evaporator Hei-VAP Core with motor-driven lift	1	572-01000-00
PTFE/FKM vacuum seal	1	23-30-01-01-30
Vapor tube	1	514 -00000-01
Clamping sleeve	1	23-30-01-05-31
Transportation lock	1	11-300-006-28
Fitting	1	23-09-03-01-03
Tension spring	1	22-03-02-01-05
Flask clamp, type EASY CLIP NS 29	1	23-30-01-05-29
Flask clamp, type EASY CLIP NS 24	1	23-30-01-05-57
Ground clamp	1	515-42000-00
Glassware	1	depending on variant, see delivery documentation
Power supply cord	1	depending on country, see delivery documentation
Operating instructions	1	01-005-005-85
Warranty registration	1	01-006-002-78

Accessories

Detailed information on the available accessories for your device variant can be found on our website at www.heidolph-instruments.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 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.

Repairs - device return

Repairs to the device may always 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 generally liable for damage caused by unauthorized repairs, regardless of any warranty claims.

- If repairs are required and before returning your device, please contact our technical service using the following e-mail address:
 - service@heidolph.de.
- In your message, please let us know an error description and the following information:
 - Item number
 - Serial number

The required data can be found on the type plate of the device.

A service technician will contact you as soon as possible to arrange the further procedure.

In case of a return, please add a completed certificate of decontamination per device, see „Certificate of decontamination“ on page 55.

Maintenance

There are no user-serviceable components in the unit housing. If necessary (in the event of abnormal operating behavior such as excessive noise or heat generation, for example), contact our technical service, see „Warranty statement“ on page 54.

- Check for tight fit the caps and fasteners of all glass components at regular intervals and especially before each start-up of the device.
- Check the level sensor in the heating bath regularly for proper operation, contamination, and limescale build-up to prevent malfunctions.



CAUTION

At loose/leaky connections, ambient air is sucked in during the vacuum build-up and the required vacuum pressure cannot be reached in a stable manner!

In the event of excess pressure, there is a risk that liquid will escape from the system! The device and surrounding areas can be severely contaminated by leaking media!

Tighten loose caps/fasteners by hand or correct the seating of the retaining clips.

PTFE seal

The PTFE seal of the device must be cleaned after a 100-hour break-in period. To do this, follow the steps described in section „PTFE seal“ on page 45.

Dismantling

Observe the instructions given in the associated assembly instructions when dismantling the device.

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 provides a three-year warranty against 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

Technischer Service

Walpersdorfer Straße 12

D-91126 Schwabach/Germany

Email: service@heidolph.de

Representations

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

Certificate of decontamination

Enclose the certificate of decontamination, duly completed, with your device return.
Submissions without a certificate of decontamination cannot be processed!

CERTIFICATE OF DECONTAMINATION

IN CASE OF RETURNS



Please fill in the required fields.

Note: The sender must package the goods properly and appropriately for transport.

Heidolph Instruments GmbH & Co. KG
Walpersdorfer Straße 12
91126 Schwabach, Germany
Phone: +49 (0) 9122 9920-380
Fax: +49 (0) 9122 9920-19
Email: service@heidolph.de

SENDER

Name _____ First name _____
Company/institution _____ Department _____
_____ Workgroup _____
Address _____
ZC/City _____
Country _____ Phone _____
Email _____

DEVICE DETAILS

Article number _____ Serial no. _____

Ticket number _____

Reason for sending in _____

Has the device been cleaned, decontaminated/disinfected? Yes No (Please mark as applicable)

If yes, which measures were carried out?

Does this device pose a risk to people and/or the environment due to the processing of substances that are hazardous to health, the environment and/or are biohazardous? Yes No (Please mark as applicable)

If yes, with which substances did the device come into contact?

LEGALLY BINDING DECLARATION

The principal/consignor is aware that they are liable to the agent/consignee for losses or damage incurred due to incomplete and incorrect information.

Date Signature Company stamp