

Operating Manual

Translation of the original operating manual

Vacuum pump VAP 1 / VAP 2 For vacuum drying oven VD

Model	Voltage	Equipment	Art. no.
Vacuum pump VAP 1	230 V	2 heads	5013-0217
Vacuum pump VAP 1	120 V	2 heads	5013-0223
Vacuum pump VAP 2	230 V	4 heads	5013-0218
Vacuum pump VAP 2	120 V	4 heads	5013-0219

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Dear customer,

For the correct operation of the vacuum pump, it is important that you read this operating manual completely and carefully and observe all instructions as indicated. Failure to read, understand and follow the instructions may result in personal injury. It can also lead to damage to the device and/or poor equipment performance.

1. Safety

1.1 Personnel Qualification

The device must only be installed, tested, and started up by personnel qualified for assembly, startup, and operation of the device. Qualified personnel are persons whose professional education, knowledge, experience and knowledge of relevant standards allow them to assess, carry out, and identify any potential hazards in the work assigned to them. They must have been trained and instructed, and be authorized, to work on the device.

The device should only be operated by laboratory personnel especially trained for this purpose and familiar with all precautionary measures required for working in a laboratory. Observe the national regulations on minimum age of laboratory personnel.

1.2 Operating manual

This operating manual is part of the components of delivery. Always keep it handy for reference in the vicinity of the device. If selling the unit, hand over the operating manual to the purchaser.

To avoid injuries and damage observe the safety instructions of the operating manual. Failure to follow instructions and safety precautions can lead to significant risks.

	 DANGER
<p>Dangers due to failure to observe the instructions and safety precautions. Serious injuries and device damage. Risk of death.</p> <ul style="list-style-type: none">➤ Observe the safety instructions in this Operating Manual.➤ Follow the operating procedures in this Operating Manual.➤ Carefully read the complete operating instructions of the device prior to installing and using the device.➤ Keep the operating manual for future reference	

	<p>Make sure that all persons who use the device and its associated work equipment have read and understood the Operating Manual.</p>
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This Operating Manual is supplemented and updated as needed. Always use the most recent version of the Operating Manual. When in doubt, call the BINDER Service Hotline for information on the up-to-dateness and validity of this Operating Manual.

1.3 Legal considerations

This operating manual is for informational purposes only. It contains information for correct and safe installing, start-up, operation, decommissioning, cleaning and maintenance of the product. Note: the contents and the product described are subject to change without notice.

Understanding and observing the instructions in this operating manual are prerequisites for hazard-free use and safety during operation and maintenance. Images are to provide basic understanding. They may deviate from the actual version of the device. The actual scope of delivery can, due to optional or special design, or due to recent technical changes, deviate from the information and illustrations in these instructions this operating manual. In no event shall BINDER be held liable for any damages, direct or incidental arising out of or related to the use of this manual.

This operating manual cannot cover all conceivable applications. If you would like additional information, or if special problems arise that are not sufficiently addressed in this manual, please ask your dealer or contact us directly, e.g. by phone at the number located on page one of this manual

Furthermore, we emphasize that the contents of this operating manual are not part of an earlier or existing agreement, description, or legal relationship, nor do they modify such a relationship. All obligations on the part of BINDER derive from the respective purchase contract, which also contains the entire and exclusively valid statement of warranty administration and the general terms and conditions, as well as the legal regulations valid at the time the contract is concluded. The statements in this manual neither augment nor restrict the contractual warranty provisions.

1.4 Structure of the safety instructions

In this operating manual, the following safety definitions and symbols indicate dangerous situations following the harmonization of ISO 3864-2 and ANSI Z535.6.

1.4.1 Signal word panel

Depending on the probability of serious consequences, potential dangers are identified with a signal word, the corresponding safety color, and if appropriate, the safety alert symbol.

 DANGER
Indicates an imminently hazardous situation that, if not avoided, will result in death or serious (irreversible) injury.

 WARNING
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious (irreversible) injury.

 CAUTION
Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor (reversible) injury.

NOTICE
Indicates a potentially hazardous situation which, if not avoided, may result in damage to the product and/or its functions or of a property in its proximity.

1.4.2 Safety alert symbol



Use of the safety alert symbol indicates a **risk of injury**.

Observe all measures that are marked with the safety alert symbol in order to avoid death or injury.

1.4.3 Pictograms

Warning signs			
 Electrical hazard	 Hot surface	 Explosive atmosphere	 Stability hazard
 Lifting hazard	 Risk of corrosion and / or chemical burns	 Risk of cuts	 Harmful substances
 Biohazard	 Pollution Hazard		
Mandatory action signs			
 Mandatory regulation	 Read operating instructions	 Disconnect the power plug	 Environment protection
 Wear protective gloves	 Wear safety goggles		
Prohibition signs			
 Do NOT touch	 Do NOT spray with water	 Do NOT climb	



Information to be observed in order to ensure optimum function of the product.

1.4.4 Word message panel structure

Type / cause of hazard.

Possible consequences.

- Instruction how to avoid the hazard: prohibition
- Instruction how to avoid the hazard: mandatory action

Observe all other notes and information not necessarily emphasized in the same way, in order to avoid disruptions that could result in direct or indirect injury or property damage.

1.5 Localization / position of safety labels on the device

The following labels are located on the pump motor housing:

Pictograms (warning signs)	
	Hot surface
Service label	
<div style="background-color: #ff0000; color: white; padding: 5px;"> <p>Service - Hotline</p> <p>International: + 49 (0) 7462 / 2005-555 USA Toll Free: + 1 866 885 9794 or: + 1 631 224 4340 Россия и СНГ: + 7 495 98815 17</p> <p>service@binder-world.com www.binder-world.com</p>  </div>	

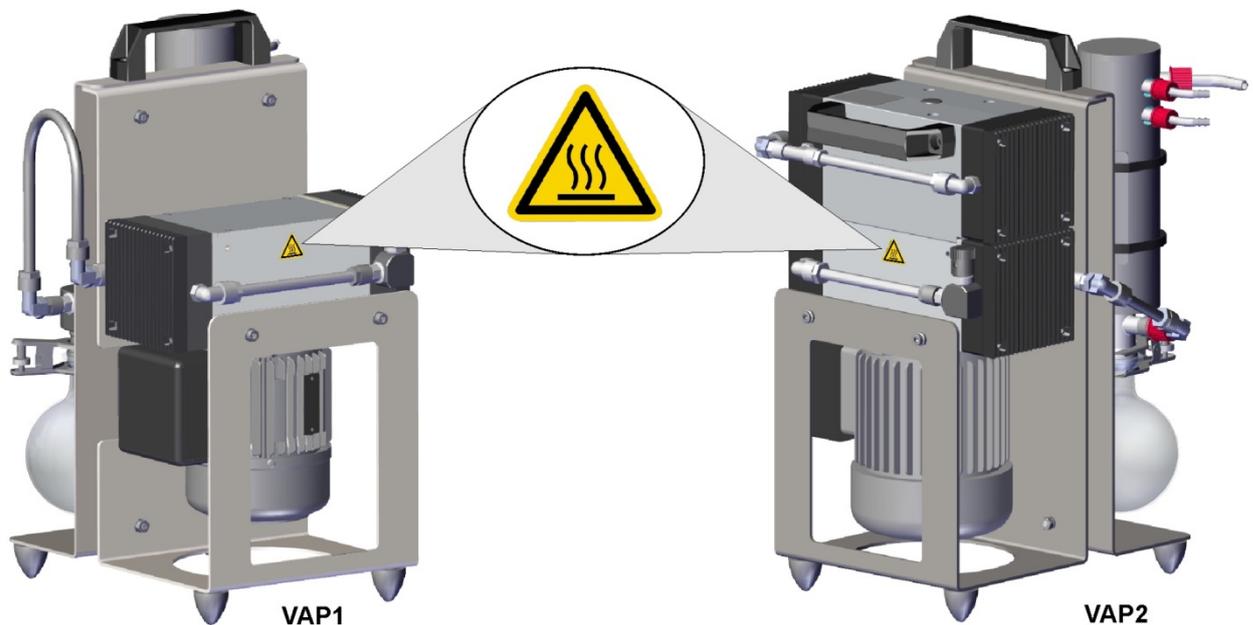


Figure 1: Position of the "Hot surface" safety label on the unit

	Keep safety labels complete and legible.
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Replace safety labels that are no longer legible. Contact BINDER service for these replacements.

1.6 Type plate

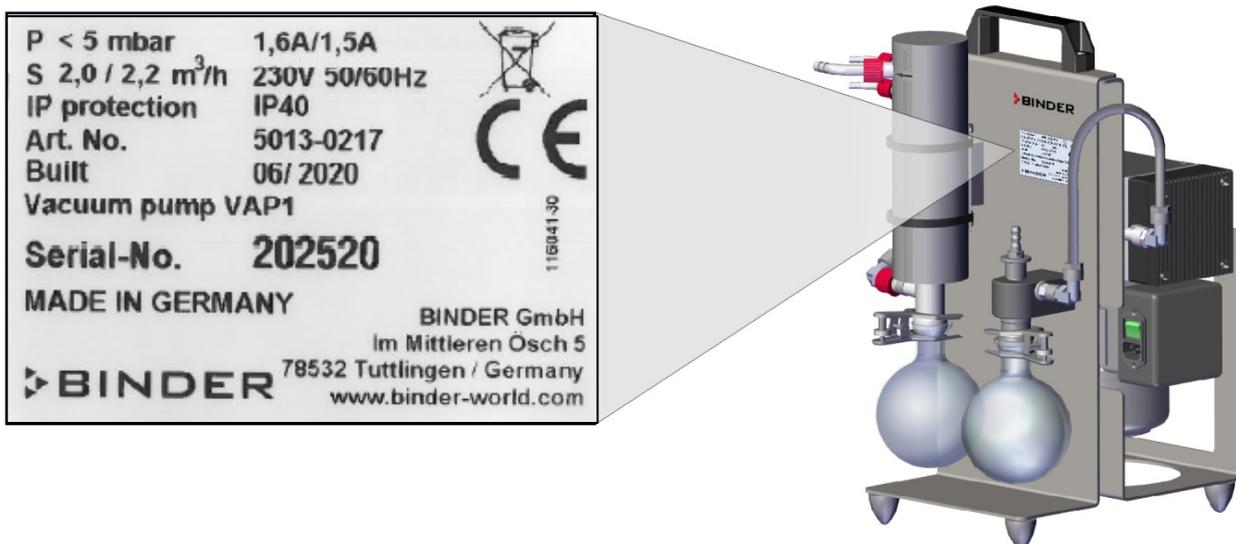


Figure 2: Type plate (example: VAP 1 230 V 5013-0217) and position of on the pump

Indications on the type plate (example)		Information
BINDER		Manufacturer: BINDER GmbH
VAP 1		Model designation
Vacuum pump		Device name
P < 5 mbar		Final pressure
S 2,0 / 2,2 m ³ /h		Suction capacity (2.0 m ³ /h at 50 Hz; 2.2 m ³ /h at 60 Hz)
1,6 A / 1,5 A		Rated current (1.6 A at 50 Hz; 1.5 A at 60 Hz)
230 V 50/60 Hz		Nominal voltage +/-10% at the indicated power frequency
1 N ~		Current type
IP protection	IP40	IP type of protection acc. to standard EN 60529
Art. No.	5013-0217	Art. No. of the device
Built	06/2020	Year of construction
Serial No.	202299	Serial no. of the device (example)

Symbol on the type plate	Information
	CE conformity marking
	Electrical and electronic equipment manufactured / placed on the market in the EC after 13 August 2005 and to be disposed of in separate collection according to Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

1.7 General safety instructions on installing and operating

With regard to operating the device and to the installation location, please observe the guideline BGI/GUV-I 850-0 on safe working in laboratories (for Germany).

BINDER GmbH is only responsible for the safety features of the device provided skilled electricians or qualified personnel authorized by BINDER perform all maintenance and repair, and if components relating to device safety are replaced in the event of failure with original spare parts.

To operate the device, use only original BINDER accessories or accessories from third-party suppliers authorized by BINDER. The user is responsible for any risk caused by using unauthorized accessories.

	NOTICE
	<p>Danger of overheating due to lack of ventilation. Damage to the device.</p> <ul style="list-style-type: none"> ⊘ Do NOT install the device in unventilated recesses. ➤ Ensure sufficient ventilation for dispersal of the heat. ➤ Observe the prescribed minimum distances when installing the pump (chap. 3.6)

Do not operate the device in hazardous locations.

	 DANGER
	<p>Danger of explosion due to combustible dusts or explosive mixtures in the vicinity of the device. Serious injury or death from burns and / or explosion pressure.</p> <ul style="list-style-type: none"> ⊘ Do NOT operate the device in potentially explosive areas. ➤ KEEP combustible dust or air-solvent mixtures AWAY from the device.

The device does not dispose of any measures of explosion protection.

	 DANGER
	<p>Danger of explosion due to aspirating flammable or explosive substances in the device. Serious injury or death from burns and / or explosion pressure.</p> <ul style="list-style-type: none"> ⊘ Make sure that NO gases and vapors which are combustible or explosive at working temperature are aspirated. ⊘ Make sure that NO combustible dust or air-solvent mixture will be in the inner chamber of the vacuum drying oven.

Any solvent contained in gases and vapors must not be explosive or inflammable. I.e., irrespective of the solvent concentration in the steam room, NO explosive mixture with air must form.

Familiarize yourself with any potential health risks caused by aspirated gases and vapors, the contained moisture constituent. Take adequate measures to exclude such risks prior to putting the device into operation.

	 DANGER
	<p>Electrical hazard by water entering the device. Deadly electric shock.</p> <ul style="list-style-type: none"> ∅ The device must NOT become wet during operation, cleaning, or maintenance. ∅ Do NOT install the device in damp areas or in puddles. ➤ Set up the device in a splash-proof manner.

The devices were produced in accordance with VDE regulations and were routinely tested in accordance to VDE 0411-1 (IEC 61010-1).

During and after operation the motor housing becomes hot. Avoid touching the hot motor housing when operating the pump, especially when using the on/off switch.

	 CAUTION
	<p>Danger of burning by touching hot areas during or after operation.</p> <ul style="list-style-type: none"> ∅ Do NOT touch the motor housing during and adjacent areas operation, especially when using the on/off switch.

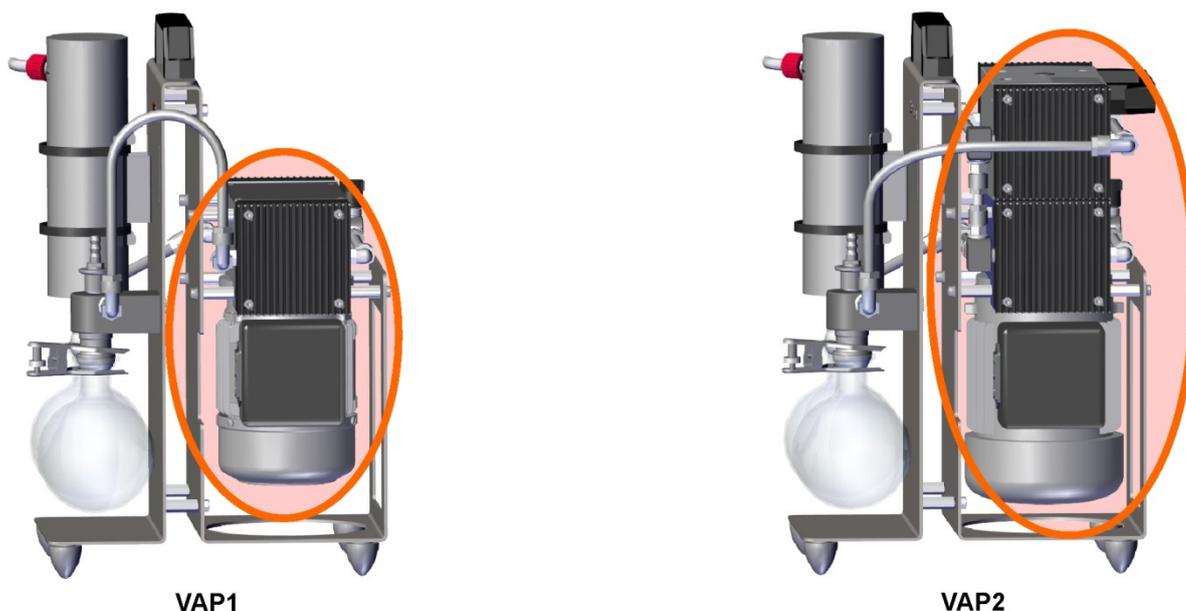


Figure 3: Hot areas on the vacuum pump

1.8 Intended use



Following the instructions in this operating manual and conducting regular maintenance work (chap. 8.2) are part of the intended use.

Any use of the devices that does not comply with the requirements specified in this Operating Manual shall be considered improper use.

All applications must be within the specification (see Technical data, chap. 10.1 and indications on the type plate, chap. 1.6).

Other applications than those described in this chapter are not approved.

Use

The diaphragm pumps VAP 1 and VAP 2 are suitable for extracting, conveying and compressing harmless gases and vapors.

The diaphragm pumps are intended for:

- Creating vacuum
- Use in physical and chemical laboratories in trade or industry
- Use for vacuum filtration, vacuum distillation and vacuum drying as well as other applications in vacuum technology

The devices are suitable for exact conditioning of harmless materials.

Requirements for the aspirated atmosphere

Aspirated gases and vapors must not be toxic, chemically aggressive or explosive. Any solvent must not be explosive and flammable. Components of the gases and vapors must NOT form an explosive mixture with air and NOT be able to release toxic gases.

Aspirated gases and vapors shall not contain any corrosive ingredients that may damage the machine components. Such ingredients include in particular acids and halides. Any corrosive damage caused by such ingredients is excluded from liability by BINDER GmbH.

The temperature of the aspirated gases and vapors must not exceed the permissible gas inlet temperature of max. 40 °C / 104°F when entering the pump.

The pump is not suitable for aspirating liquids.

The device does not dispose of any measures of explosion protection.

 	 DANGER
<p>Explosion or implosion hazard and danger of poisoning through the aspiration of unsuitable gases and vapors.</p> <p>Poisoning. Serious injury or death from burns and / or explosion pressure.</p> <ul style="list-style-type: none"> ∅ Make sure that NO substance combustible or explosive at working temperature can be aspirated. ∅ Make sure that NO explosive dust or air-solvent mixture can be aspirated. ∅ Make sure that NO substance can be aspirated, which could lead to release of toxic gases. 	

Contamination of the device by toxic, infectious or radioactive substances must be prevented

 	 WARNING
	<p>Danger of intoxication and infection through contamination of the chamber with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ➤ Make sure that NO toxic, infectious or radioactive substances can be aspirated. ➤ Take suitable protective measures when introducing and removing accidentally aspirated toxic, infectious or radioactive material.

Solid particles in the aspirated medium impair the pumping action and can damage the pump.

	NOTICE
	<p>Danger of mechanical damage and malfunctions due to the suction of solid particles.</p> <p>Damage to the device.</p> <ul style="list-style-type: none"> ➤ Prevent solid particles from entering the pump.

In case of foreseeable use of the device there is no risk for the user through the integration of the device into systems or by special environmental or operating conditions in the sense of EN 61010-1:2010. For this, the intended use of the device and all its connections must be observed.

Medical devices

The devices are not classified as medical devices as defined by the Medical Device Directive 93/42/EEC.

	<p>Due to the special demands of the Medical Device Directive (MDD), these devices are not qualified for sterilization of medical devices as defined by the directive 93/42/EEC.</p>
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Personnel Requirements

Only trained personnel with knowledge of the Operating Manual can set up and install the device, start it up, operate, clean, and take it out of operation. Service and repairs call for further technical requirements (e.g. electrical know-how), as well as knowledge of the service manual.

Installation site requirements

The devices are designed for setting up inside a building (indoor use).

The requirements described in the Operating Manual for installation site and ambient conditions (Chap. 3.6) must be met

	<p>WARNING: If customer should use a BINDER device running in non-supervised continuous operation, we strongly recommend in case of inclusion of irrecoverable specimen or samples to split such specimen or samples and store them in at least two devices, if this is feasible.</p>
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1.9 Foreseeable Misuse

Other applications than those described in chap. 1.8 are not approved.

This expressly includes the following misuses (the list is not exhaustive), which pose risks despite the inherently safe construction and existing technical safety equipment:

- Non-observance of Operating Manual
- Non-observance of safety labels on the device
- Installation, startup, operation, maintenance and repair by untrained, insufficiently qualified, or unauthorized personnel

-
- Missed or delayed maintenance and testing
 - Non-observance of traces of wear and tear
 - Aspiration of materials excluded or not permitted by this Operating Manual.
 - Installation, testing, service or repair in the presence of solvents
 - Installation of replacement parts and use of accessories and operating resources not specified and authorized by the manufacturer
 - Installation, startup, operation, maintenance or repair of the device in absence of operating instructions provided by the operator
 - Bypassing or changing protective systems, operation of the device without the designated protective systems
 - Non-observance of messages regarding cleaning and disinfection of the device.
 - Spilling water or cleaning agent on the device, water penetrating into the device during operation, cleaning or maintenance.
 - Cleaning activity while device is switched on.
 - Operation of the device with a damaged housing or damaged power cord
 - Continued operation of the device during an obvious malfunction
 - Insertion of objects, particularly metallic objects, in louvers or other openings or slots on the device
 - Human error (e.g. insufficient experience, qualification, stress, exhaustion, laziness)

To prevent these and other risks from incorrect operation, the operator shall issue operating instructions. Standard operating procedures (SOPs) are recommended.

1.10 Residual Risks

The unavoidable design features of a device, as well as its proper field of application, can also pose risks, even during correct operation. These residual risks include hazards which, despite the inherently safe design, existing technical protective equipment, safety precautions and supplementary protective measures, cannot be ruled out.

Messages on the device and in the Operating Manual warn of residual risks. The consequences of these residual risks and the measures required to prevent them are listed in the Operating Manual. Moreover, the operator must take measures to minimize hazards from unavoidable residual risks. This includes, in particular, issuing operating instructions.

The following list summarizes the hazards against which this Operating Manual and the Service Manual warn, and specifies protective measures at the appropriate spots:

Unpacking, Transport, Installation

- Sliding or tilting the device
- Setup of the device in unauthorized areas
- Installation of a damaged device
- Installation of a device with damaged power cord
- Inappropriate site of installation
- Missing protective conductor connection

Normal operation

- Assembly errors
- Contact with hot surfaces on the housing

- Contact with hot surfaces in the interior and inside of doors
- Emission of non-ionizing radiation from electrical operating resources
- Contact with live parts in normal state

Cleaning and Decontamination

- Penetration of water into the device
- Inappropriate cleaning and decontamination agents

Malfunction and Damage

- Continued operation of the device during an obvious malfunction or outage of the pump motor
- Contact with live parts during error status
- Operation of a unit with damaged power cord

Maintenance

- Maintenance work on live parts.
- Execution of maintenance work by untrained/insufficiently qualified personnel
- Electrical safety analysis during annual maintenance not performed

Trouble-shooting and Repairs

- Non-observance of warning messages in the Service Manual
- Trouble-shooting of live parts without specified safety measures
- Absence of a plausibility check to rule out erroneous inscription of electrical components
- Performance of repair work by untrained/insufficiently qualified personnel
- Inappropriate repairs which do not meet the quality standard specified by BINDER
- Use of replacement parts other than BINDER original replacement parts
- Electrical safety analysis not performed after repairs

1.11 Operating instructions

Depending on the application and location of the chamber, the operator of the chamber must provide the relevant information for safe operation of the chamber in a set of operating instructions.



Keep these operating instructions with the chamber at all times in a place where they are clearly visible. They must be comprehensible and written in the language of the employees.

1.12 Measures to prevent accidents

The manufacturer took the following measures to prevent dangers:

- **Indications on the type plate**

See operating manual chap. 1.6.

- **Operating manual**

An operating manual is available for each device.

- **Overtemperature monitoring**

The device is equipped with a self-retaining thermal switch on the motor.

- **Electrostatic charge**

The interior parts are grounded.

The device is equipped with an IEC connector plug with a grounded plug. An electrical connection with a protective conductor (operating mode S1: suitability for continuous operation) must be provided (chap. 4.2).

- **Non-ionizing radiation**

Non-ionizing radiation is not intentionally produced, but released only for technical reasons by electrical equipment (e.g. electric motors, power cables, solenoids). If persons with active implants (e.g. pacemakers, defibrillators) keep a safe distance (distance of field source to implant) of 30 cm, an influence of these implants can be excluded with high probability.

- **Protection against touchable surfaces**

Tested according to EN ISO 13732-1:2008.

- **Floors**

See operating manual chap. 3.6 for correct installation

- **Cleaning**

See operating manual chap. 6.2.

2. Device description

The vacuum pump VAP 1 / VAP 2 serves to be used to extract harmless solvents from the VD vacuum drying ovens from BINDER. The vacuum pumps are delivered with operating mode S1 (continuous operation with constant load). During operation with the VD vacuum drying oven the pump runs in continuous operation. The pressure control of the VD vacuum drying oven controls a valve to the connected vacuum pump and so the set vacuum is reached.

All operating elements of the pump are easy and comfortable to use thanks to their clear arrangement. Major features are easy cleaning of all chamber parts and easy connection.

Construction

The vacuum pump consists of the pump unit and drive motor. The pump unit includes the drive unit and the pump heads. Each pump head contains four diaphragms and the working valves. The pump heads face each other in a boxer arrangement. The pump heads are driven by an eccentric shaft with a connecting rod.

Material

The housing made of steel FR235SRJR / KF12.03 and RAL 7035 powder-coated. All corners and edges are also completely coated.

For the materials of pump parts in contact with the medium see chap. 10.4.

Temperature safety device

The device is equipped with a thermal switch located at the pump motor. This self-retaining bimetal switch disconnects the entire pump when overheating. Reset is possible after cooling. To reset the thermal switch, turn the device off and on by the main power switch (on / off switch).

2.1 Device overview

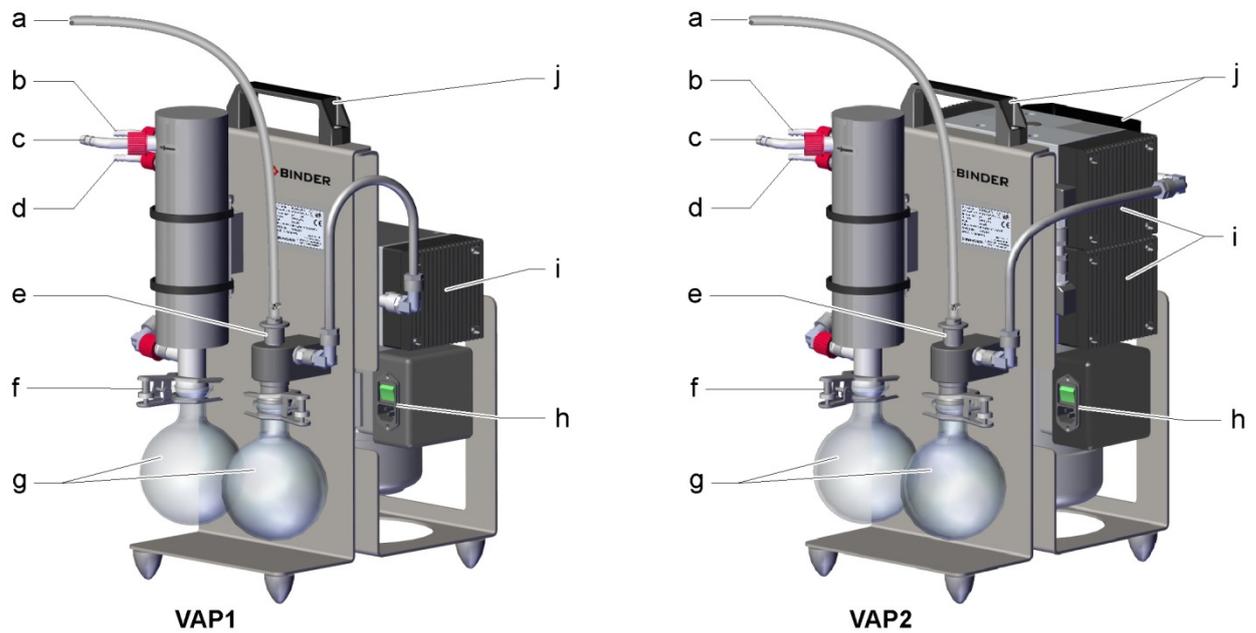


Figure 4: Vacuum pump VAP 1 / VAP 2

- (a) Tube to the VD vacuum drying oven
- (b) Water connection for cooling IN or OUT
- (c) Pressure connection
- (d) Water connection for cooling IN or OUT
- (e) Aspiration connection
- (f) Fork clamp
- (g) Condensate catchpot
- (h) On/Off switch (main power switch) with power connection
- (i) Pump unit
- (j) Handle

3. Completeness of delivery, transportation, storage, and installation

3.1 Scope of delivery

- Pump with small flange connection DN 16 KF
- 2 condensate catchpots (glass flasks), packed separately
2 fork clamps (conical ground clamps) for condensate catchpots
Pneumatic connection (PTFE tube with 2 angle adjustment screws)
- Emission condenser with insulation, packed separately
2 fastening straps for emission condenser
- Hose nozzle DN 8
- Power cable with IEC connector plug
- Operating manual

3.2 Unpacking, and checking the equipment

Carefully unpack the vacuum pump VAP 1 / VAP 2.

After unpacking, please check the device and its optional accessories, if any, based on the delivery receipt for completeness and for transportation damage. Inform the carrier immediately if transportation damage has occurred.

The final tests of the manufacturer may have caused traces of the shelves on the inner surfaces. This has no impact on the function and performance of the device.

Please remove any transportation protection devices and adhesives on the device and remove the operating manuals and accessory equipment.

Remove the protective caps on the suction and pressure connections:



Dust protective cap for small flange connection
DN 16 KF (suction side)



Protective sleeve for hose nozzle
(pressure side)

Figure 5: Protective caps on the suction and pressure connections

If you need to return the device, please use the original packing and observe the guidelines for safe lifting and transportation (chap. 3.4).

For disposal of the transport packing, see chap. 9.1.

Note on second-hand devices (Ex-Demo-Units):

Second-hand devices are devices that were used for a short time for tests or exhibitions. They are thoroughly tested before resale. BINDER ensures that the device is technically sound and will work flawlessly.

Second-hand devices are marked with a sticker. Please remove the sticker before commissioning the device.

3.3 Assembly

Emission condenser

Fix the emission condenser with 2 fastening straps on the front bracket on the pump: Push the ends of the straps together up to the maximum locking point so that the emission condenser is securely attached

Insert the pneumatic connection (PTFE tube with 2 angle adjustment screws) into the screw connection of the pump as far as possible.

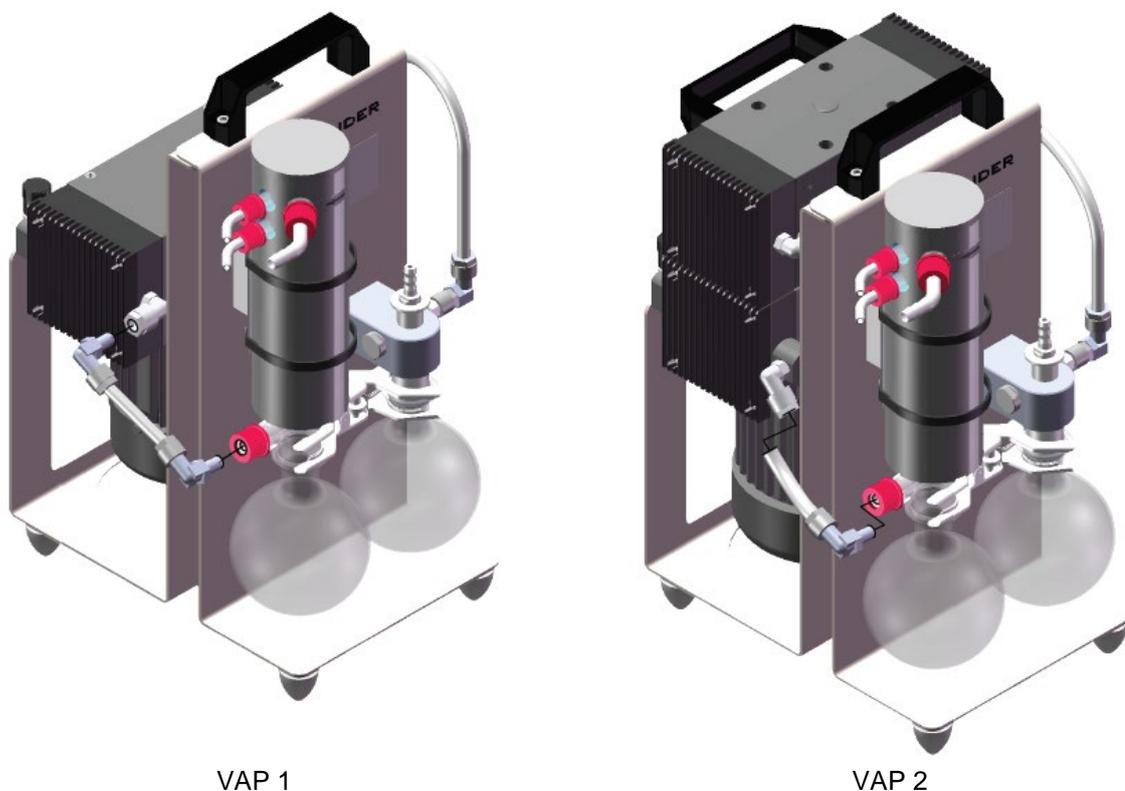


Figure 6: Assembling the pneumatic connection

Condensate catchpots

Put one of the condensate catchpots at the end of the emission condenser and fix it with a fork clamp (conical ground clamp). Use the knurled screw to tighten the fork clamp until the end stop.

Put the other condensate catchpot to the connection adapter of the suction connection and fix it with a fork clamp (conical ground clamp). Use the knurled screw to tighten the fork clamp until the end stop.

Hose nozzle (if desired)

Screw the hose nozzle DN 8 on the G 1/4" thread of the suction connection DN 16 KF.

3.4 Guidelines for safe transportation

After operation, please observe the guidelines for temporary decommissioning (chap. 9.2).

You can order transport packing for moving or shipping purposes from BINDER service.

Ambient conditions

- Permissible ambient temperature range during transport: 10 °C / 14 °F to +60 °C / 140 °F.
- Permissible ambient humidity during transport: below 90 % r.h., non-condensing

3.5 Storage

Intermediate storage of the device is possible in a closed dry and low-dust room. Observe the guidelines for temporary decommissioning (chap. 9.2).

Place the protective caps (chap. 3.1) on the suction and pressure connections. If they are no longer available, another suitable protection can be used.

Ambient conditions

- Permissible ambient temperature range during storage: +5 °C / 41 °F to +40 °C / 104 °F.
- Permissible ambient humidity: below 90 % r.h., non-condensing.

When after storage in a cold location you transfer the device to its warmer installation site, condensation may form. Before start-up, wait at least one hour until the device has attained ambient temperature and is completely dry.

3.6 Location of installation and ambient conditions

Set up the device on a flat, even surface, and in a well-ventilated, dry location and align it using a spirit level. The site of installation must be capable of supporting the chamber's weight (see technical data, chap. 10.1). The chambers are designed for setting up inside a building (indoor use).

	NOTICE
	<p>Danger of overheating due to lack of ventilation. Damage to the device.</p> <ul style="list-style-type: none"> ⊘ Do NOT install the device in unventilated recesses. ➤ Ensure sufficient ventilation for dispersal of the heat. ➤ Observe the prescribed minimum distances when installing the device.

Do not install or operate the device in potentially explosive areas.

	 DANGER
	<p>Danger of explosion due to combustible dusts or explosive mixtures in the vicinity of the device. Serious injury or death from burns and / or explosion pressure.</p> <ul style="list-style-type: none"> ⊘ Do NOT operate the device in potentially explosive areas. ➤ KEEP explosive dust or air-solvent mixtures AWAY from the vicinity of the device.

Ambient conditions

- Permissible ambient temperature range for operation: +18 °C / 64.4 °F to +30 °C / 86 °F
- Permissible ambient humidity: 70 % r.h. max., non-condensing.
- Installation height: max. 2000 m / 6561.7 ft. above sea level.

Distances

- Wall distances: rear 100 mm / 3.94 in, sides 50 mm / 1.97 in.
- For cooling the pump, keep a free distance of at least 20 mm / 0.8 in m neighboring parts or the walls of the pump module.

Other requirements

- To completely separate the device from the power supply, you must disconnect the power plug. Install the device in a way that the power plug is easily accessible and can be easily pulled in case of danger
- Avoid any conductive dust in the ambience according to the chamber layout complying with pollution degree 2 (IEC 61010-1).

4. Installation and connections

Remove the protective caps on the suction and pressure connections. Keep them for later use (e.g. storage, return).

4.1 Vacuum connection

To establish the connection to the VD vacuum drying oven, BINDER recommends the VD connection kit for VAP1-VAP2 (option, Art. no. 8012-1995).

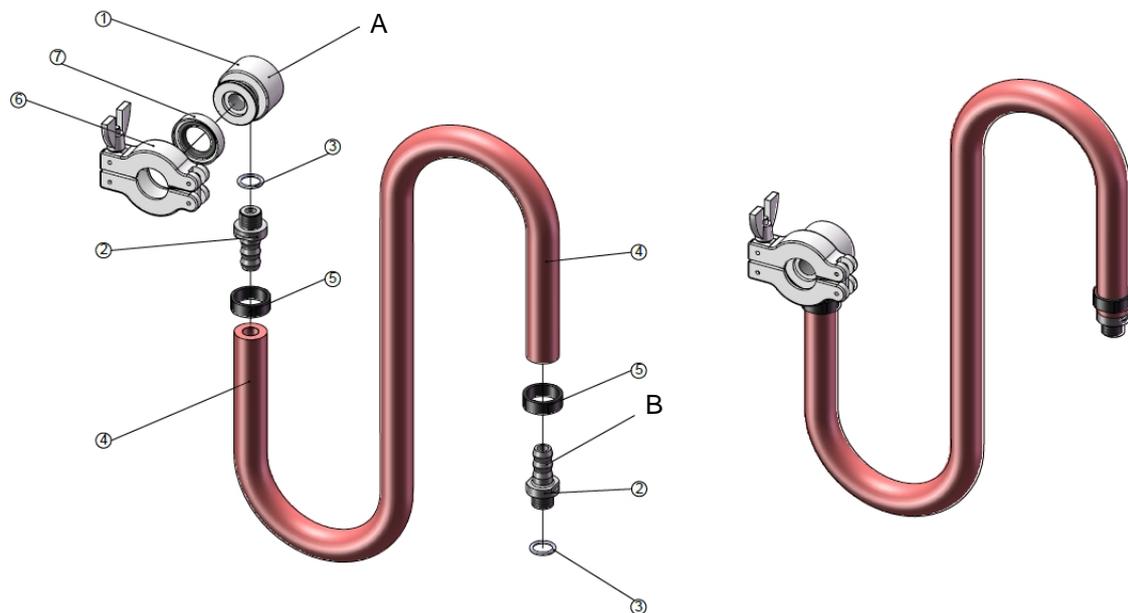


Figure 7: Connection kit

- | | |
|--|------------------------------------|
| ① Connecting small flange with angle DN 16 KF G
1/4" inner thread | ⑤ 2 x hose clamp |
| ② Hose nozzle DN 10 | ⑥ 2 x clamping ring DN 10/16 |
| ③ 2 x O ring | ⑦ External centering ring DN 10/16 |
| ④ Vacuum hose 20/10 | A Connection to VD |
| | B Connection to pump |

Connect the vacuum hose to the suction connection of the pump:

- Fix the hose (e) on the suction connection (f) of the pump with a hose clamp (d).
- Put the second hose clamp (d) over the free hose end.
- Push the small flange (c) with the hose nozzle (f) into the hose opening.
- Push the external centering ring (b) over the small flange (c).
- Use the clamping ring (a) to connect the hose (e) to the VD vacuum drying oven.

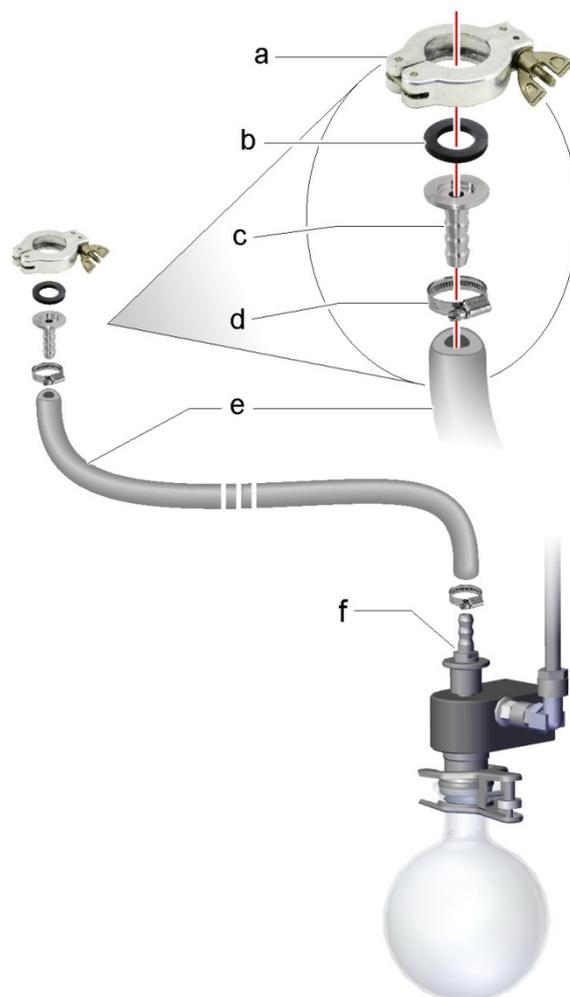


Figure 8: Connecting the vacuum hose

Please observe the following instructions:

- Only operate the pump with the specified hose dimensions!
- Make sure that the maximum permissible pressure of 1 bar at the suction connection is NOT exceeded.
- External mechanical tensions and vibrations must not be transferred to the pump.
- Use a flexible hose suitable for vacuum applications to connect the pump.
- Make sure that the overpressure generated at the pressure port does NOT exceed 1 bar.

	NOTICE
	<p>Danger of damage due to exceeding the maximum permitted pressure. Damage to the device.</p> <ul style="list-style-type: none"> ➤ Make sure that the maximum permissible pressure of 1 bar at the suction connection is NOT exceeded. ➤ Make sure that the overpressure generated at the pressure port does NOT exceed 1 bar.

4.2 Electrical connection

The devices are supplied ready for connection. They come with an IEC connector plug.

Model	Art. No.	Power plug	Voltage +/-10% at the indicated power frequency	Current type
Vacuum pump VAP 1	5013-0217	Grounded plug	200-230 V at 50 Hz 200-230 V at 60 Hz	1N~
Vacuum pump VAP 1	5013-0223	NEMA 5-15P	200-240 V at 50Hz 200-240 V at 60Hz	2~
Vacuum pump VAP 2	5013-0218	Grounded plug	200-230 V at 50 Hz 200-230 V at 60 Hz	1N~
Vacuum pump VAP 2	5013-0219	NEMA 5-15P	200-240 V at 50Hz 200-240 V at 60Hz	2~

Please note when connecting to the Power supply:

- The electrical network must provide a protective conductor in accordance with IEC 60364-4-41.
- The protective conductor must not have any interruptions.
- The domestic socket must also provide a protective conductor. Make sure that the connection of the protective conductor of the domestic installations to the device's protective conductor meets the latest technology. The protective conductors of the socket and plug must be compatible!

	 DANGER
	<p>Electrical hazard due to missing protective conductor connection. Deadly electric shock</p> <p>➤ Make sure that the device's power plug and the power socket match and securely connect the electrical protective conductors of the device and the house installation.</p>

- Prior to connection and start-up, check the power supply voltage. Compare the values to the specified data located on the device's type plate (left device side, bottom right-hand, see chap. 1.6). We recommend the use of a residual current circuit breaker.

	NOTICE
	<p>Danger of incorrect power supply voltage due to improper connection. Damage to the device.</p> <p>➤ Check the power supply voltage before connection and start-up. ➤ Compare the power supply voltage with the data indicated on the type plate.</p>

- When connecting, please observe the regulations specified by the local electricity supply company as well as the VDE directives (for Germany).
- Only use original connection cables from BINDER according to the above specification.
- Make sure that the connection cable is NOT damaged.
- Pollution degree (acc. to IEC 61010-1): 2
- Over-voltage category (acc. to IEC 61010-1): II

See also electrical data (chap. 10.1).



To completely separate the device from the power supply, you must disconnect the power plug. Install the device in a way that the power plug is easily accessible and can be easily pulled in case of danger.

Observe the national and local regulations applicable in your country.

Remark when operating the chamber with a power frequency of 60 Hz:

When connected to a power supply 1N~ with a frequency of 60 Hz, a leakage current of more than 3.5 mA is possible. If grounding through the power cable is insufficient or missing, the leakage current may flow through the user's body. Correct installation of the professional grade power socket provided by the user safely avoids this. Before connecting the chamber to the socket, please check its grounding contact type plug for appropriate construction and if it is undamaged.

	 DANGER
	<p>Electrical hazard by high leakage current. Deadly electric shock.</p> <p>➤ Earth connection is essential before connecting supply. Check socket before inserting plug.</p>

The diaphragm pump is supplied with operating mode S1 (continuous operation with constant load). Please note the obligation for repeat tests according to EN 0105, EN 0702, and DGUV regulation 3 (for Germany) on movable devices.

5. Start up

5.1 Turning on the device

After establishing the hose connections and supply lines (chap. 4), turn on the device by its main power switch (h).

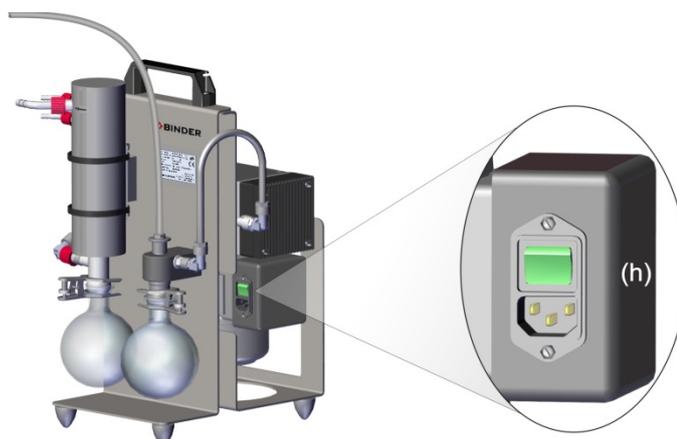


Figure 9: Position of the main power switch (h) (example: VAP 1)

5.2 Adjusting the gas ballast

When condensable vapors are aspirated, they can be compressed and condensed via the saturation pressure. The gas ballast valve can be opened by turning the adjustment cap (A), whereby ambient air is sucked in. Air flows into the suction chamber in the suction line, prevents condensation and flushes out the pump. The operation leads to an increase in the final pressure and the operating temperature.

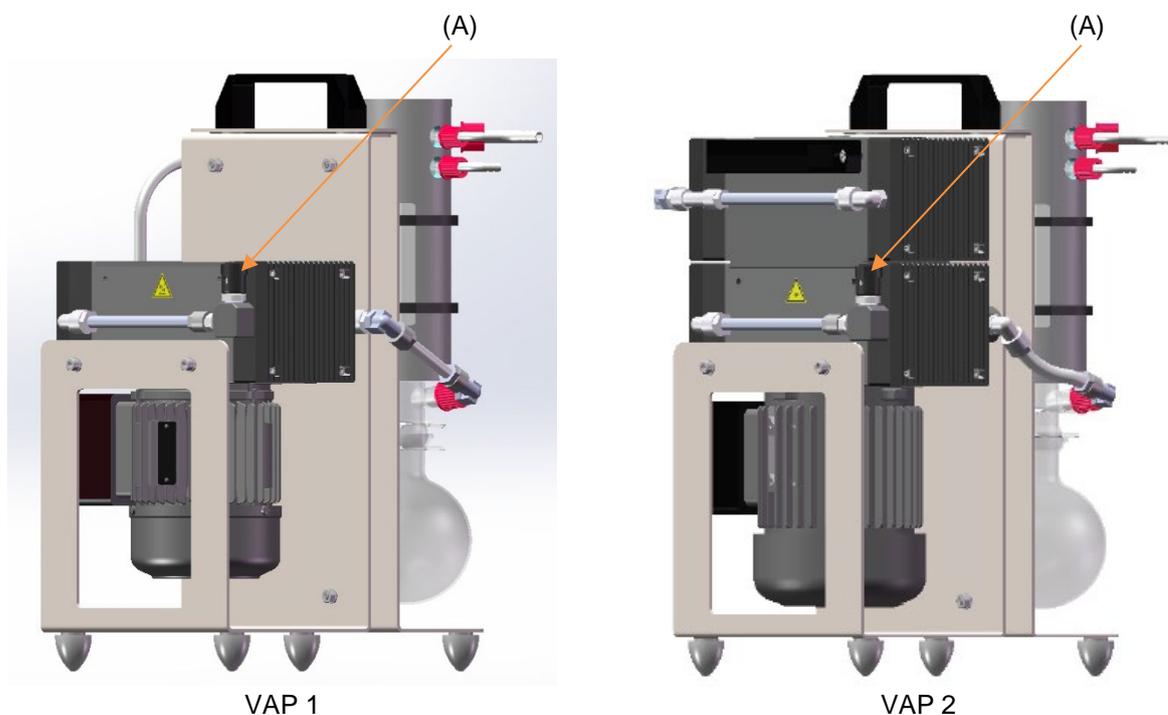
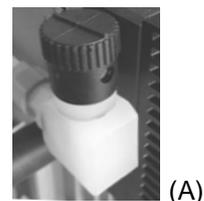


Figure 10: Rear view of VAP 1 / VAP 2 vacuum pump with position of the gas ballast valve

(A) Gas ballast valve with black adjustment cap

6. Operation

When operating with the VD vacuum drying oven the vacuum pump runs in continuous operation. The pumps are delivered with operating mode S1 (continuous operation with constant load).

The VD vacuum drying oven controls the connected pump and thus reaches the vacuum set at the VD.

6.1 Daily inspection

- Check the vacuum pump daily for unusual running noise and heat development on the pump surface.
- Check the electrical and vacuum connections every day.
- Check the filling level of the condensate catchpot every day and empty it as soon as necessary.

6.2 Removing and emptying the condensate catchpot

Check the level regularly. Empty the condensate catchpot at the latest when it is 75 % full. Safe emptying must be guaranteed.

Proceeding:

Hold on to the glass flask. Unscrew the knurled screw and loosen the clamps.

When removing it, be careful not to spill the contents of the condensate catchpot. Wear protective clothing and gloves if handling the condensed materials requires it.

After emptying, plug the condensate catchpot back in and fix it with a fork clamp (conical ground clamp). Use the knurled screw to tighten the fork clamp until the end stop.

	NOTICE
	<p>Danger of spilling the condensate catchpot if it is too full.</p> <p>Damage of the device.</p> <ul style="list-style-type: none"> ➤ Always empty the condensate catchpot in time. ➤ Wear protective clothing and gloves if required for handling the condensed substances.

7. Cleaning and decontamination

Clean the device after each use in order to prevent potential corrosion damage by ingredients of the charging material.

Prior to renewed startup, allow the device to completely dry after all cleaning and decontamination measures.

  	 DANGER
	<p>Electrical hazard by water entering the device.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> ⊘ Do NOT spill water or cleaning agents over the inner and outer device surfaces. ⊘ Do NOT put ANY cleaning aids (cloth or brush) into slots or openings on the device. ➤ Before cleaning, turn off the device at the main power switch and disconnect the power plug. Let the device cool down to ambient temperature. ➤ Completely dry the device before turning it on again.

7.1 Cleaning

Disconnect the device from the power supply before cleaning. Disconnect the power plug.

	The device must be kept clean. Thoroughly remove any residues of the charging material.
---	---

Wipe the surfaces with a moistened towel. In addition, you can use the following cleaning agents:

Exterior surfaces, motor housing	Standard commercial cleaning detergents free from acid or halides. Alcohol-based solutions.
Hoses, condensate catchpots	Standard commercial cleaning detergents free from acid or halides. We recommend using the neutral cleaning agent Art. No. 1002-0016.
Valves, pump head, Form diaphragm	Acetone with a soft rag

Do not use cleaning agents that may cause a hazard due to reaction with components of the device or the charging material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

	<p>We recommend using the neutral cleaning agent Art. No. 1002-0016 for thorough cleaning.</p> <p>Any corrosive damage that may arise following use of other cleaning agents is excluded from liability by BINDER GmbH.</p> <p>Any corrosive damage caused by a lack of cleaning, is excluded from liability by BINDER GmbH.</p>
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	<p style="text-align: center;">NOTICE</p> <p>Danger of corrosion by using unsuitable cleaners. Damage to the device.</p> <ul style="list-style-type: none"> ∅ Do NOT use acidic or chlorine cleaning detergents. ∅ Do NOT use a neutral cleaning agent on other kind of surfaces e.g., the zinc coated hinge parts or the rear device wall.
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	<p>For surface protection, perform cleaning as quickly as possible.</p> <p>After cleaning completely remove any cleaning agents from the surfaces by using a moistened towel. Let the device dry.</p>
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	Soapsuds may contain chlorides and must therefore NOT be used for cleaning.
---	---

	<p>With every decontamination method, always use adequate personal safety controls.. NEVER use compressed air to clean pump parts, which come in contact with the medium.</p>
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	<p>The neutral cleaning agent may cause health problems in contact with skin and if ingested. Follow the operating instructions and safety hints labeled on the bottle of the neutral cleaning agent.</p>
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Recommended precautions: To protect the eyes use sealed protective goggles. Wear gloves. Suitable protective gloves with full contact: butyl or nitrile rubber, penetration time >480 minutes.

	 CAUTION
	<p>Danger of chemical burns through contact with skin or ingestion of the neutral cleaning agent.</p> <p>Skin and eye damage. Environmental damage.</p> <ul style="list-style-type: none"> ∅ Do not ingest the neutral cleaning agent. Keep it away from food and beverages. ∅ Do NOT empty the neutral cleaning agent into drains. ➤ Wear protective gloves and goggles. ➤ Avoid skin contact with the neutral cleaning agent.

7.2 Decontamination / chemical disinfection of the device

The operator must ensure that proper decontamination is performed in case a contamination of the device by hazardous substances has occurred.

Disconnect the device from the power supply prior to chemical decontamination. Disconnect the power plug.

Do not use decontamination agents that may cause a hazard due to reaction with components of the device or the charging material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

You can use the following disinfectants:

Inner device	Standard commercial surface disinfectants free from acid or halides. Alcohol based solutions. We recommend using the disinfectant spray Art. No. 1002-0022.
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	For chemical disinfection, we recommend using the disinfectant spray Art. No. 1002-0022. Any corrosive damage that may arise following use of other disinfectants is excluded from liability by BINDER GmbH.
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	With every decontamination method, always use adequate personal safety controls.
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In case of contamination of the interior by biologically or chemically hazardous material, spray the device with an appropriate disinfectant. Before start-up, the device must be absolutely dry and ventilated, as explosive gases may form during the decontamination process. You can sterilize the condensate catchpot in a sterilizer or autoclave

	In case of eye contact, the disinfectant spray may cause eye damage due to chemical burns. Follow the operating instructions and safety hints labeled on the bottle of the disinfectant spray.
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Recommended precautions: To protect the eyes use sealed protective goggles.

	 CAUTION
	<p>Danger of chemical burns through eye contact with the disinfectant spray.</p> <p>Eye damage. Environmental damage.</p> <ul style="list-style-type: none"> ∅ Do NOT empty the disinfectant spray into drains. ➤ Wear protective goggles.



After using the disinfectant spray, allow the device to dry thoroughly, and aerate it sufficiently.

8. Maintenance and service, troubleshooting, repair, testing

8.1 General information, personnel qualification



The pump and connections must be checked daily during operation (chap. 6.1).

- **Maintenance**

See chap. 8.4.

- **Simple troubleshooting**

Chap. 8.3 describes troubleshooting by operating personnel. It does not require technical intervention into the device, nor disassembly of device parts.

For personnel requirements please refer to chap. 1.1.

- **Detailed troubleshooting**

If errors cannot be identified with simple troubleshooting, further troubleshooting must be performed by BINDER Service or by BINDER qualified service partners or technicians.

- **Repair**

Repair of the device can be performed by BINDER Service or by BINDER qualified service partners or technicians.

After maintenance, the device must be tested prior to resuming operation.

- **Electrical testing**

To prevent the risk of electrical shock from the electrical equipment of the device, an annual repeat inspection as well as a test prior to initial startup and prior to resuming operation after maintenance or repair, are required. This test must meet the requirements of the competent public authorities. We recommend testing under DIN VDE 0701-0702:2008.

Contamination of the device by toxic, infectious or radioactive substances must be prevented.

Components in contact with the medium can be contaminated by accidentally aspirated hazardous substances (toxic, infectious, or radioactive material). They must be decontaminated before further operation, maintenance and service, troubleshooting, repair, or tests. If appropriate, further protective measures must be taken.

 	 WARNING
<p>Danger of intoxication and infection through contamination of the chamber with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ➤ Make sure that NO toxic, infectious or radioactive material has been aspirated. ➤ Take suitable protective measures when removing accidentally aspirated toxic, infectious or radioactive material as well as for any necessary decontamination of pump components in contact with the medium 	

8.2 Maintenance intervals, service

	 DANGER
	<p>Electrical hazard during live maintenance work. Deadly electric shock.</p> <ul style="list-style-type: none"> ∅ The device must NOT become wet during operation or maintenance works. ∅ Do NOT remove the fixing sheet panel of the motor housing. ➤ Before conducting maintenance work, turn off the device at the main power switch and disconnect the power plug. ➤ Make sure that any maintenance work will be conducted by licensed electricians or experts authorized by BINDER.

Ensure regular maintenance work is performed at least once a year and that the legal requirements are met regarding the qualifications of service personnel, scope of testing and documentation.

	The warranty becomes void if maintenance work is conducted by non-authorized personnel.
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We recommend taking out a maintenance agreement. Please consult BINDER Service.

BINDER telephone hotline:	+49 (0) 7462 2005 555
BINDER fax hotline:	+49 (0) 7462 2005 93555
BINDER e-mail hotline:	service@binder-world.com
BINDER service hotline USA:	+1 866 885 9794 or +1 631 224 4340 x3 (toll-free in the USA)
BINDER service hotline Asia Pacific:	+852 390 705 04 or +852 390 705 03
BINDER service hotline Russia and CIS	+7 495 988 15 16
BINDER Internet website	http://www.binder-world.com
BINDER address	BINDER GmbH, post office box 102, 78502 Tuttlingen, Germany

International customers, please contact your local BINDER distributor.

8.3 Simple troubleshooting

Defects and shortcomings can compromise the operational safety of the device and can lead to risks and damage to equipment and persons. If there is a technical fault or shortcoming, take the device out of operation and inform BINDER Service. If you are not sure whether there is a technical fault, proceed according to the following list. If you cannot clearly identify an error or there is a technical fault, please contact BINDER Service.

	Only qualified service personnel authorized by BINDER must perform repair. Repaired devices must comply with the BINDER quality standards.
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Fault description	Possible cause	Required measures
General		
Vacuum pump does not start.	Device turned off	Turn on the device on the main power switch
	No power supply.	Check connection to power supply
	Wrong operating voltage.	Check whether the correct voltage is present at the socket (chap. 4.2).
	Thermal switch has responded.	Turn off the device at the main power switch. Let the device cool down and turn it on again. If the thermal switch responds again, contact BINDER-Service.
	Motor defective.	Contact BINDER service.
	Pump unit defective	
	Pump head leaky	
Power cable broken or brittle	Contact BINDER service, replace the cable.	
Vacuum		
Vacuum pump generates no or insufficient vacuum	Connected equipment and / or connection elements are leaking	Determine and seal the leak, if necessary replace seals and / or hoses
	Vacuum pump leaky	Check the hose connections between the pump heads and replace the hoses and / or screw connections if necessary
	Pump head leaky	Contact BINDER Service for repair or replacement
	Form diaphragm defective	Replace diaphragm (see chap. 8.4.1)
	Valves defective	Replace valves (see chap. 8.4.1)
	Vacuum pump soiled	General maintenance and cleaning
	Valves soiled	Clean valves from condensates and impurities
Running noise	Vacuum pump soiled	General maintenance and cleaning

8.4 Maintenance by the operator



Only carry out the work described here permitted for the operator. All other maintenance or service work may only be carried out by the manufacturer or by authorized specialists.

Permitted scope of work for the operator:

- Loosening and removing hose connections.
- Opening and removing the heat dissipater / pump heads.
- Inspection of the pump chambers, form diaphragm, and valves.
- Cleaning the interior of the pump in the event of deposits.
- Replacing of the form diaphragms, valves and seals.

Contamination of the device by toxic, infectious or radioactive substances must be prevented.

 	 WARNING
	<p>Danger of intoxication and infection through contamination of the chamber with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ➤ During the use, the device may be contaminated with toxic or harmful substances ➤ Prior to any service tasks a person in charge shall clean the device. ➤ Do NOT service a device with sticking toxic or harmful substances

8.4.1 Replacing the form diaphragm, valves, and O-rings

Based on a 5-day week and a daily operating time of 8 hours, we recommend an annual membrane change.

Depending on the application process, this change can also be determined earlier by the operator.

Spare parts:	<ul style="list-style-type: none"> • Service Kit for VAP1 • Service Kit for VAP2 	Art.-no. 8500-0158 Art.-no. 8500-0159
Necessary tools:	<ul style="list-style-type: none"> • Allen wrench, size 4 mm • Open end wrench, wrench size 17 • Acetone • Soft cleaning rag 	

 	 CAUTION
	<p>Risk of injuries by sharp edges on the rear panel.</p> <p>Cuts.</p> <ul style="list-style-type: none"> ➤ Wear protective gloves when removing or installing the cover on the device rear

 	 DANGER
	<p>Electrical hazard during live maintenance work.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> ➤ Before conducting maintenance work, turn off the device at the main power switch and disconnect the power plug. ➤ Take all precautionary measures that a unit which is disconnected from the power supply will not be inadvertently connected to the power supply. ➤ The chamber must be live to perform some of the service tasks. In this case, a second person must be present who is able to switch off the unit in case of emergency

Proceed as described:

- Disconnect the power supply and secure it against being switched on again.
- Open the compression fittings (1) of the hoses (2) on the pump unit with an open end wrench size 17.
- On each heat dissipater (4) and pump head (5), remove the 4 cylinder screws (3) with an Allen wrench size 4 mm.
- Lift the heat dissipater (4) and pump head (5) off. The valve inserts (6), valves (7) and O-rings (8) are below the heat dissipater.
- Loosen the form diaphragm (9) by turning it counter-clockwise.
- Clean the pump head (5) and the form diaphragm (9) with a soft cleaning rag and acetone



NEVER use compressed air to clean these parts as they may be chemically contaminated.

- Check the functionality of the drive.

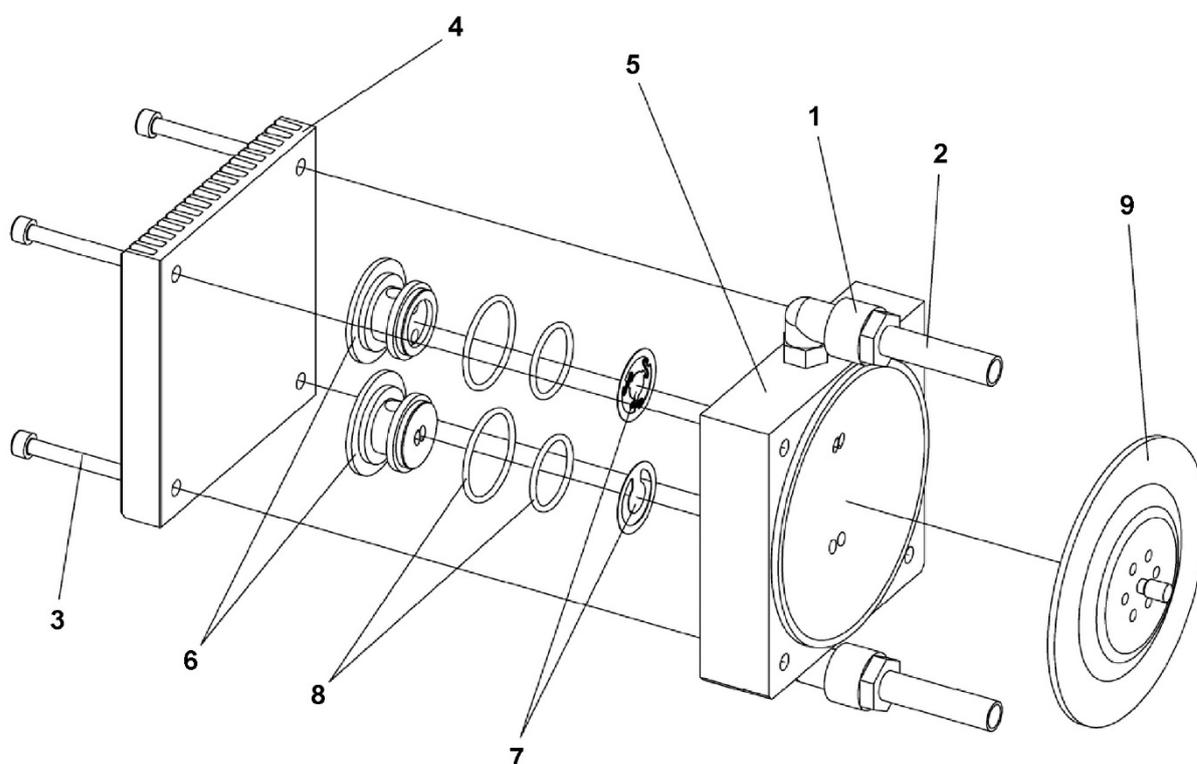


Figure 11: Disassembly and assembly of the pump unit

- (1) Compression fittings
- (2) Hoses
- (3) Cylinder screws
- (4) Heat dissipater
- (5) Pump head
- (6) Valve inserts

- (7) Valves
top: flap valve
bottom: standard valve
- (8) O-rings
- (9) Form diaphragm

9. Disposal

9.1 Disposal of the transport packing

The wrapping (single material packaging) consists of the following materials:

Packing element	Material	Disposal
Wrapping film	PE	Plastic recycling
Cardboard sheets	Cardboard	Paper recycling
Staples	Stahl	Metal recycling
Package tape	PVC	Plastic recycling
Foamed plastic stuffing	PE foam	Plastic recycling
Straps to fix packing	PP	Plastic recycling
Bag for operating manual	PE foil	Plastic recycling
Insulating air cushion foil (packing of optional accessories)	PE foil	Plastic recycling

If recycling is not possible, all packing parts can also be disposed of with normal waste.

9.2 Decommissioning

- Turn off the device at the main power switch (h) and disconnect it from the power supply (pull the power plug).
- Empty the condensate catchpots.
- Remove the hose connections.
- Temporal decommissioning: See indications for appropriate storage, chap. 3.5.
- Final decommissioning: Dispose of the device as described in chap. 9.3 to 9.5.
- When restarting the device, please pay attention to the corresponding safety information.

9.3 Disposal of the device in the Federal Republic of Germany

According to Annex I of Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as “monitoring and control instruments” (category 9) only intended for professional use“. They must not be disposed of at public collecting points.

The devices bear the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EU after 13 August 2005 and be disposed of in separate collection according to Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) and German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG). WEEE marking: crossed-out wheeled bin with solid bar under. A significant part of the materials must be recycled in order to protect the environment.



At the end of the device's service life, have the device disposed of according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739) or contact BINDER service who will organize taking back and disposal of the device according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739).

	NOTICE
	<p>Danger of violation against existing law if not disposed of properly.</p> <ul style="list-style-type: none"> ∅ Do NOT dispose of BINDER devices at public collecting points. ➤ Have the device disposed of professionally at a recycling company which is certified according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739). <li style="text-align: center;"><i>or</i> ➤ Instruct BINDER Service to dispose of the device. The general terms of payment and delivery of BINDER GmbH apply, which were valid at the time of purchasing the device.

Certified companies disassemble waste (used) BINDER equipment in primary substances for recycling according to Directive 2012/19/EU. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

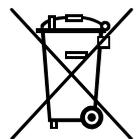
	<ul style="list-style-type: none"> • Prior to handing the device over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances. • Prior to disposal, clean all introduced or residual toxic substances from the device. • Prior to disposal, disinfect the device from all sources of infection. Be aware that sources of infection may also be located outside the inner device. • If you cannot safely remove all toxic substances and sources of infection from the device, dispose of it as special waste according to national law. • Fill out the contamination clearance certificate (chap. 13) and enclose it with the device.
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	 WARNING
	<p>Danger of intoxication and infection through contamination of the device with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ∅ NEVER take a device contaminated with toxic substances or sources of infection for recycling according to Directive 2012/19/EU. ➤ Prior to disposal, remove all toxic substances and sources of infection from the device. ➤ A device from which all toxic substances or sources of infection cannot be safely removed must be considered as "special" waste according to national law. Dispose of it accordingly.

9.4 Disposal of the device in the member states of the EU except for the Federal Republic of Germany

According to Annex I of Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as "monitoring and control instruments" (category 9) only intended for professional use". They must not be disposed of at public collecting points.

The devices bear the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EC after 13 August 2005 and be disposed of in separate collection according to the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). WEEE marking: crossed-out wheeled bin with solid bar under.



At the end of the device's service life, notify the distributor who sold you the device, who will take back and dispose of the device according to the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

	NOTICE
	<p>Danger of violation against existing law if not disposed of properly.</p> <ul style="list-style-type: none"> ∅ Do NOT dispose of BINDER devices at public collecting points. ➤ Have the device disposed of professionally at a recycling company that is certified according to conversion of the Directive 2012/19/EU into national law. <li style="padding-left: 20px;"><i>or</i> ➤ Instruct the distributor who sold you the device to dispose of it. The agreements apply that were agreed with the distributor when purchasing the device (e.g. his general terms of payment and delivery). ➤ If your distributor is not able to take back and dispose of the device, please contact BINDER service.

Certified companies disassemble waste (used) BINDER equipment in primary substances for recycling according to Directive 2012/19/EU. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

	<ul style="list-style-type: none"> • Prior to handing the device over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances. • Prior to disposal, clean all introduced or residual toxic substances from the device. • Prior to disposal, disinfect the device from all sources of infection. Be aware that sources of infection may also be located outside the inner device. • If you cannot safely remove all sources of infection and toxic substances from the device, dispose of it as special waste according to national law. • Fill out the contamination clearance certificate (chap. 13) and enclose it with the device.
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	 WARNING
	<p>Danger of intoxication and infection through contamination of the device with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ∅ NEVER take a device contaminated with toxic substances or sources of infection for recycling according to Directive 2012/19/EU. ➤ Prior to disposal, remove all toxic substances and sources of infection from the device. ➤ A device from which all toxic substances or sources of infection cannot be safely removed must be considered as "special" waste according to national law. Dispose of it accordingly.

9.5 Disposal of the device in non-member states of the EU

	NOTICE
	<p>Danger of violation against existing law if not disposed of properly.</p> <p>Alteration of the environment.</p> <ul style="list-style-type: none"> ➤ For final decommissioning and disposal of the device, please contact BINDER service. ➤ Follow the statutory regulations for appropriate, environmentally friendly disposal.

10. Technical description

10.1 Technical data

	The technical data given here are based on test results of measured values and are average values that are intended to facilitate the selection of the products. It is the responsibility of the user to determine the suitability of the product for a specific purpose and they assume the risk and any liability for it.
---	---

Device type		VAP 1	VAP 2
Dimensions			
Height	mm / inch	500 / 19.7	500 / 19.7
Width	mm / inch	310 / 12.2	310 / 12.2
Depth	mm / inch	350 / 13.8	350 / 13.8
Weight	kg / lbs.	18.9 / 41.7	25.6 / 56.4
Performance data			
Pumping speed acc. to ISO 21360-1 at 50 Hz	m ³ / h	2.0	4.0
Pumping speed acc. to ISO 21360-1 at 60 Hz	m ³ / h	2.2	4.4
Ultimate pressure (base pressure) acc. to ISO 21360-1	mbar	≤ 5	≤ 2
Max. inlet/outlet pressure	mbar	1050	1050
IP protection degree acc. to EN 60529	IP	40	40
Motor insulation class	°C	F - 160	F - 160
Motor protective winding contact	self-retaining		
Noise level	dB (A)	≤ 44	≤ 44
Operating temperature range	°C	+ 15 to + 40	+ 15 to + 40
Max. medium temperature	°C	+ 40	+ 40
Ambient temperature range for storage	°C	+ 10 to + 40	+ 10 to + 40
Max. ambient humidity for storage	% r.F.	90	90
Electrical data of 230 V device			
Rated voltage at 50 Hz	V AC	230	230
Rated voltage at 60 Hz	V AC	230	230
Nominal current at 50 Hz	A	1.60	3.12
Nominal current at 60 Hz	A	1.50	3.10
Electrical data of 120 V device			
Rated voltage at 50 Hz	V AC	115	115
Rated voltage at 60 Hz	V AC	115	115
Nominal current at 50 Hz	A	3.35	5.60
Nominal current at 60 Hz	A	3.20	6.20

All technical data is specified for devices with standard equipment at an ambient temperature of 22 +/- 3 °C / 71.6 +/- 5.4 °F and a power supply voltage fluctuation of +/-10%. Technical data is determined in accordance to the relevant standards.

All indications are average values, typical for devices produced in series. We reserve the right to change technical specifications at any time.

10.2 Circuit of the pump heads

Vacuum pump VAP 1:

- Two-stage circuit (Z)
- Both pump heads are connected in series.

Vacuum pump VAP 2:

- Three-stage circuit (T)
- Two pump heads are connected in parallel, the other two are connected in series.

10.3 Connections

Connection type		Realization
Pneumatic	Vacuum equipment	DN 16 small flange incl. hose nozzle DN 8
Pneumatic	Exhaust air	Hose nozzle GL 18
Operating Equipment	Refrigerant access	Hose nozzle GL 14
Electric	Power connection	IEC 60320 C14

10.4 Materials of pump parts in contact with the medium

Component	Material
Vacuum pump <ul style="list-style-type: none"> - Pump heads - Form diaphragm - Valves - Gaskets 	<ul style="list-style-type: none"> - PTFE - PTFE coating on elastomer - PFA - EPDM
Pneumatic connections <ul style="list-style-type: none"> - Vacuum hoses - Screwing - Connection piece - Gaskets, O-ring 	<ul style="list-style-type: none"> - PTFE - PVDF - PP - EPDM
Separator / Emission condenser <ul style="list-style-type: none"> - Condensate catchpot - Hose nozzle - Connector block incl. hose nozzle 	<ul style="list-style-type: none"> - Glass (vacuum insulated) - PFTE - PP

10.5 Accessories and spare parts (extract)

	<p>BINDER GmbH is responsible for the safety features of the device only, provided skilled electricians or qualified personnel authorized by BINDER perform all maintenance and repair, and if components relating to device safety are replaced in the event of failure with original spare parts. The user is responsible for any risks arising from using unauthorized accessories/components.</p>
---	---

Description	Art. no.
VD Connection kit for VAP 1 / VAP 2	8012-1995
Power connection cable IEC with plug for Switzerland, for VAP 1 / VAP 2 in 230 V	5023-0241
Power connection cable IEC with plug for UK, for VAP 1 / VAP 2 in 230 V	5023-0242
Power connection cable IEC with NEMA 5-15 P plug for VAP 1 / VAP 2 in 120 V	5023-0244
VAP 1 Service Kit for maintenance, consisting of: 2 x form diaphragm 2 x valve (standard valve) 2 x valve (flap valve) 2 x O-ring \varnothing 12 x 2 4 x O-ring \varnothing 22 x 2 4 x O-ring \varnothing 28 x 2	8500-0158
VAP 2 Service Kit for maintenance, consisting of: 4 x form diaphragm 4 x valve (standard valve) 4 x valve (flap valve) 6 x O-ring \varnothing 12 x 2 8 x O-ring \varnothing 22 x 2 8 x O-ring \varnothing 28 x 2	8500-0159

For information on components not listed here, please contact BINDER Service.

10.6 Diagrams of suction pressure / pumping speed

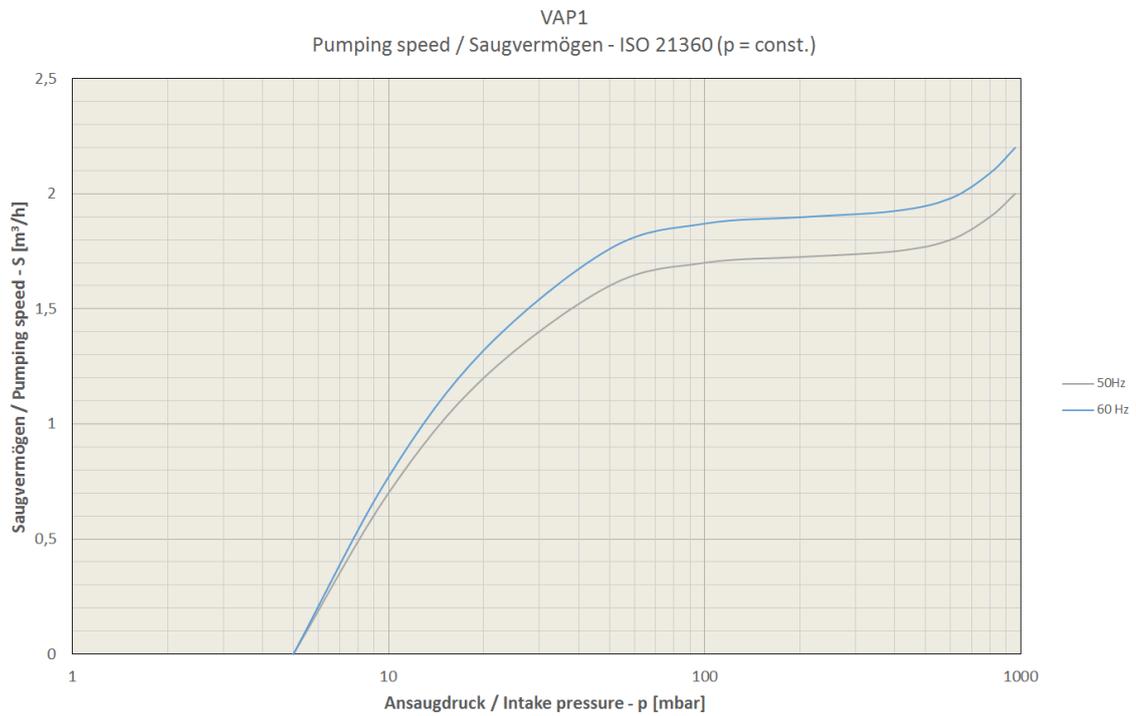


Figure 12: Suction pressure / pumping speed of VAP 1

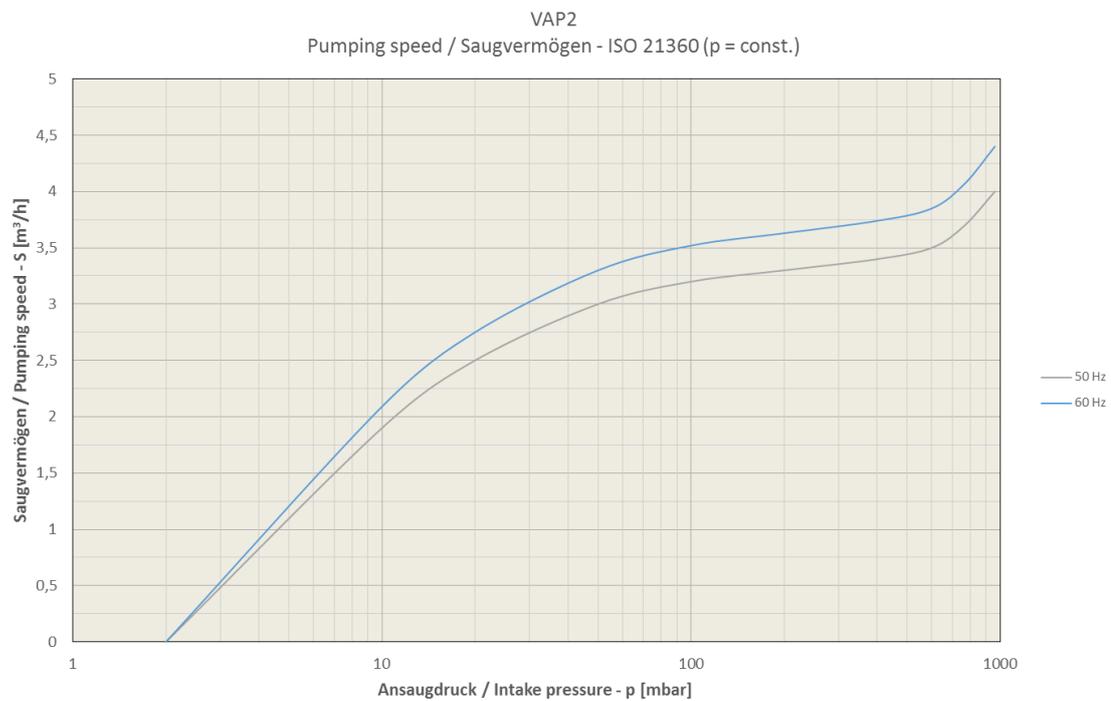


Figure 13: Suction pressure / pumping speed of VAP 2

10.7 Dimensions

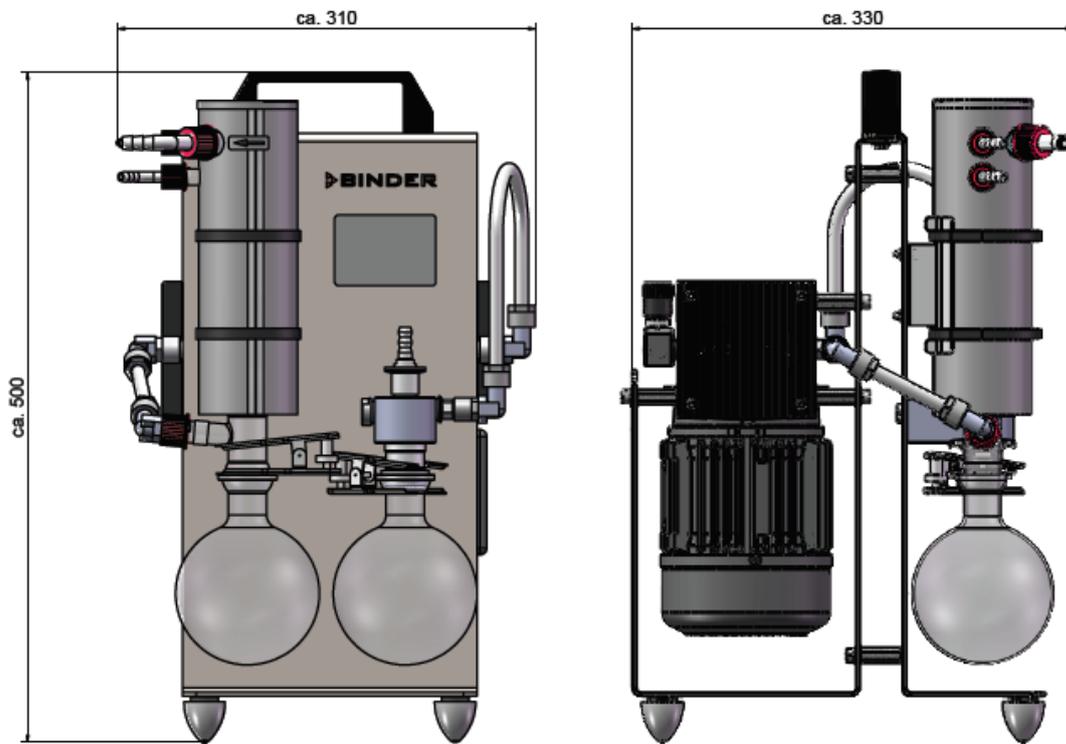


Figure 14: VAP 1 Dimensions

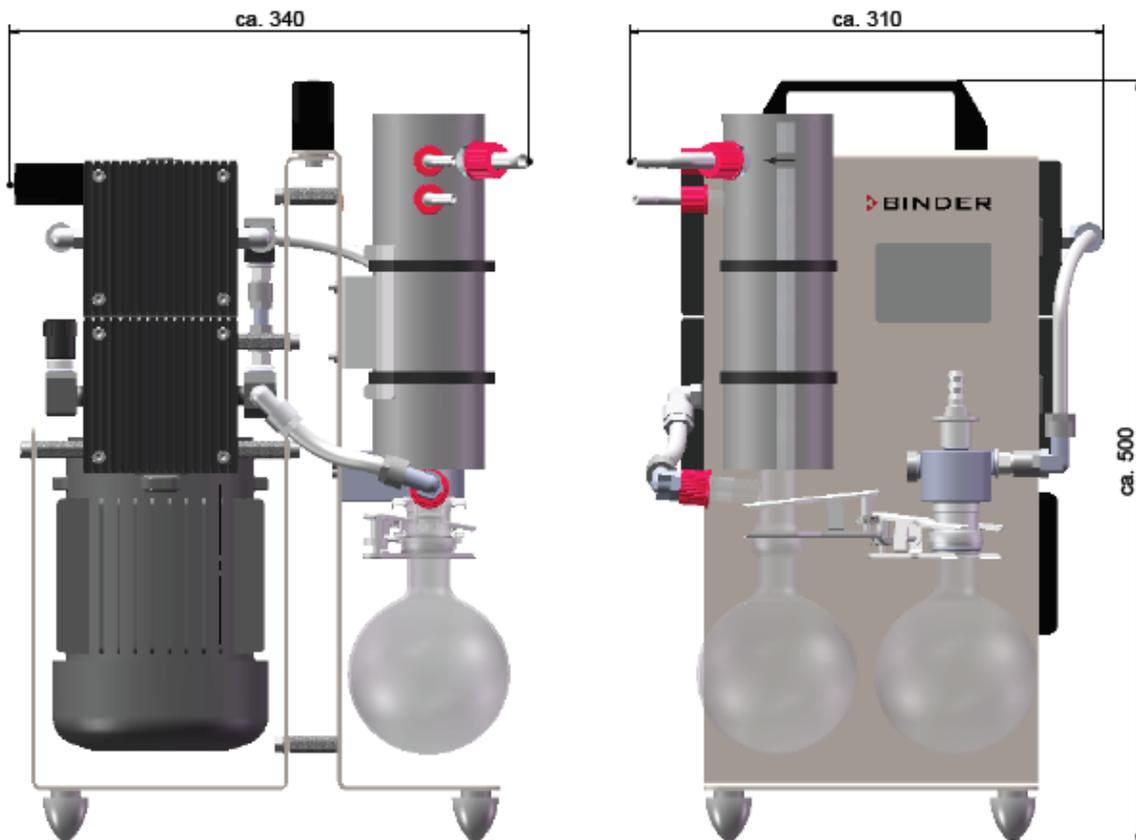


Figure 15: VAP 2 Dimensions

(Dimensions in mm)

11. Certificates and declarations of conformity

11.1 EU Declaration of conformity



BINDER
Best conditions for your success



EU-Konformitätserklärung / EU Declaration of Conformity / Déclaration de conformité UE / Declaración de conformidad UE / Dichiarazione di conformità UE / Декларация соответствия EU

Hersteller / Manufacturer / Fabricant / Fabricante / Fabbricante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Indirizzo / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	Vakuumpumpen Vacuum pumps Pompes à vide Bombas de vacío Pompe per vuoto Вакуумные насосы
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	VAP 1, VAP 2
Art. No. / Art. no. / Réf. / Art. N° / Art. n. / № арт.	5013-0217, 5013-0223, 5013-0218, 5013-0219

Die oben beschriebenen Maschinen sind konform mit folgenden EG/EU-Richtlinien (gemäß Veröffentlichung im Amtsblatt der europäischen Kommission):

The machines described above are in conformity with the following EC/EU Directives (as published in the Official Journal of the European Union):

Les machines décrites ci-dessus sont conformes aux directives CE/UE suivantes (selon leur publication dans le Journal officiel de l'Union européenne):

La máquina descrita arriba cumple con las siguientes directivas de la CE/UE (publicados en el Diario oficial de la Unión Europea):

Le macchine sopra descritte sono conforme alle seguenti direttive CE/UE (secondo la pubblicazione nella Gazzetta ufficiale della Commissione europea):

Машина, указанная выше, полностью соответствует следующим регламентам EC/EU (опубликованным в Официальном журнале Европейского Содружества):

- **2006/42/EC**
Maschinenrichtlinie 2006/42/EG / Machinery directive 2006/42/EC / Directive Machines 2006/42/EC / Directiva 2006/42/CE (Máquinas) / Direttiva macchine 2006/42/CE / Директива о машинах 2006/42/EC
- **2014/30/EU**
EMV-Richtlinie 2014/30/EU / EMC Directive 2014/30/EU / Directive CEM 2014/30/UE / Directiva CEM 2014/30/UE / Direttiva EMC 2014/30/UE / Директива ЭМС 2014/30/EU
- **2011/65/EU**
RoHS-Richtlinie 2011/65/EU / RoHS Directive 2011/65/EU / Directive RoHS 2011/65/UE / Directiva RoHS 2011/65/UE / Direttiva RoHS 2011/65/UE / Директива RoHS 2011/65/EU

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BINDER GmbH Postfach 102 D-78502 Tuttlingen **Anschrift:** BINDER GmbH Im Mittleren Ösch 5 D-78532 Tuttlingen
Kontakt: Telefon: +49 (0) 74 62 / 20 05 - 0 | Telefax: +49 (0) 74 62 / 20 05 - 100 | info@binder-world.com | www.binder-world.com
Geschäftsführung: Dipl.-Ing. Peter M. Binder | Amtsgericht Stuttgart, HRB 727150 | Sitz der Gesellschaft: Tuttlingen
Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
 \$-Account 2202 611 55 | IBAN-Code: DE7464350070 0220 261155 | SWIFT-Code: SOLA DE S1TUT
 Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603
 Altgeräte-Entsorgung gemäß WEEE-Reg.-Nr. DE 37004983

Die oben beschriebenen Maschinen entsprechen aufgrund ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der genannten EG/EU-Richtlinien.

The machines described above are conform to the mentioned EC/EU directives in regard to the relevant safety and health demands due to their conception and style of construction as well as to the version put onto market by us.

Les machines décrites ci-dessus correspondent aux demandes de sécurité et de santé des directives citées de la CE/UE due à leur conception et construction et dans la réalisation mise sur le marché par nous.

Las máquinas descritas arriba se corresponden con los requisitos básicos pertinentes de seguridad y salud de las citadas directivas de la CE/UE debido a su concepción y fabricación, así como a la realización llevada a cabo por nosotros.

Le macchine sopra descritte sono conforme ai requisiti essenziali di sanità e sicurezza pertinenti delle summenzionate direttive CE/UE in termini di progettazione, tipo di costruzione ed esecuzione messa da noi in circolazione.

Машины описано выше, соответствует указанным директивам ЕС/ЕУ в отношении требований соответствующей безопасности и здоровья по концепции и конструкции так же как и версия, применяемая нами на рынке.

Die oben beschriebenen Maschinen tragen entsprechend die Kennzeichnung CE.

The machines described above, corresponding to this, bear the CE-mark.

Les machines décrits ci-dessus, en correspondance, portent l'indication CE.

Las máquinas descritas arriba, en conformidad, llevan la indicación CE.

Le macchine sopra descritte sono contrassegnate dal marchio CE.

Машины описано выше, в соответствии с изложенным выше маркированы знаком CE.

Die oben beschriebenen Maschinen sind konform mit folgenden harmonisierten Normen:

The machines described above are in conformity with the following harmonized standards:

Les machines décrits ci-dessus sont conformes aux normes harmonisées suivantes:

Las máquinas descritas arriba cumplen con las siguientes normas:

Le macchine sopra descritte sono conforme alle seguenti normative armonizzate:

Машины описано выше, полностью соответствуют следующим стандартам:

Sicherheit / Safety / Sécurité / Seguridad / Sicurezza / Нормативы по безопасности
<ul style="list-style-type: none"> EN ISO 12100:2010 EN 2012-2:1996
EMV / EMC / CEM / CEM / EMC / ЭМС
<ul style="list-style-type: none"> EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 EN 61000-6-4:2007
RoHS
<ul style="list-style-type: none"> EN IEC 63000:2018

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Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE 31TUT
S-Account 2202 611 55 | IBAN-Code: DE7464350070 0220 261155 | SWIFT-Code: SOLA DE 31TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE 33603
 Altgeräte-Entsorgung gemäß WEEE-Reg.-Nr. DE 37004983

78532 Tuttlingen, 05.06.2020
BINDER GmbH



P. Wimmer
Vice President
Vice President
Vice président
Vicepresidente
vicepresidente
Вице-президент



J. Bollaender
Leiter F & E
Director R & D
Chef de service R&D
Responsable I & D
Direttore R & D
Глава департамента R&D

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S-Account 2202 611 55 | IBAN-Code: DE7464350070 0220 261155 | SWIFT-Code: SOLA DE 51TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE 55603
Altgeräte-Entsorgung gemäß WEEE-Reg.-Nr. DE 37004983

12. Product registration

Online Product Registration

Register your BINDER now!

www.binder-world.com/register

The registration is free and takes just a few seconds

Advantages:

- ▶ Short response times if service is needed
- ▶ Fair prices when relocating or installing equipment
- ▶ Calibration as required at no charge in case of recalls
- ▶ Free information on news, product upgrades and accessories

13. Contamination clearance certificate

13.1 For devices located outside the USA and Canada

Declaration regarding safety and health

Erklärung zur Sicherheit and gesundheitlichen Unbedenklichkeit

The German Ordinance on Hazardous Substances (GefStofV), and the regulations regarding safety at the workplace, require that this form be filled out for all products that are returned to us, so that the safety and the health of our employees can be guaranteed.

Die Sicherheit und Gesundheit unserer Mitarbeiter, die Gefahrstoffverordnung GefStofV und die Vorschriften zur Sicherheit am Arbeitsplatz machen es erforderlich, dass dieses Formblatt für alle Produkte, die an uns zurückgeschickt wird.



Note: A repair is not possible without a completely filled out form.
Ohne Vorliegen des vollständig ausgefüllten Formblattes ist eine Reparatur nicht möglich.

- A completely filled out form must be transmitted via Fax (+49 (0) 7462 2005 93555) or by letter in advance, so that this information is available before the equipment/component part arrives. A second copy of this form must accompany the equipment/component part. In addition, the carrier should be informed.

Eine vollständig ausgefüllte Kopie dieses Formblattes soll per Telefax (Nr. +49 (0) 7462 2005 93555) oder Brief vorab an uns gesandt werden, so dass die Information vorliegt, bevor das Gerät/Bauteil eintrifft. Eine weitere Kopie soll dem Gerät/Bauteil beigelegt sein. Ggf. ist auch die Spedition zu informieren.

- Incomplete information or non-conformity with this procedure will inevitably lead to substantial delays in processing. Please understand the reason for this measure, which lies outside our area of influence and will help us to speed up this procedure.

Unvollständige Angaben oder Nichteinhalten dieses Ablaufs führen zwangsläufig zu beträchtlichen Verzögerungen in der Abwicklung. Bitte haben Sie Verständnis für Maßnahmen, die außerhalb unserer Einflussmöglichkeiten liegen und helfen Sie mit, den Ablauf beschleunigen.

- **Please print and fill out this form completely.**

Bitte unbedingt vollständig ausfüllen!

1.	Device/ component part / type: / Gerät / Bauteil / Typ:
2.	Serial No./ Serien-Nr.:
3.	Details about utilized substances / biological substances / Einzelheiten über die eingesetzten Substanzen/biologische Materialien:
3.1	Designations / Bezeichnungen:
a)	_____
b)	_____
c)	_____
3.2	Safety measures required for handling these substances / Vorsichtsmaßnahmen beim Umgang mit diesen Stoffen:
a)	_____
b)	_____
c)	_____

3.3 Measures to be taken in case of skin contact or release into the atmosphere / Maßnahmen bei Personenkontakt oder Freisetzung:
a) _____
b) _____
c) _____
d) _____
3.4 Other important information that must be taken into account / Weitere zu beachtende und wichtige Informationen:
a) _____
b) _____
c) _____
4. Declaration on the risk of these substances (please checkmark the applicable items) / Erklärung zur Gefährlichkeit der Stoffe (bitte Zutreffendes ankreuzen) :
<input type="checkbox"/> 4.1 For non-toxic, non-radioactive, biologically harmless materials / für nicht giftige, nicht radioaktive, biologisch ungefährliche Stoffe:
We hereby guarantee that the above-mentioned device / component part... / Wir versichern, dass o.g. Gerät/Bauteil...
<input type="checkbox"/> Has not been exposed to or contains any toxic or otherwise hazardous substances / weder giftige noch sonstige gefährliche Stoffe enthält oder solche anhaften.
<input type="checkbox"/> That eventually generated reaction products are non-toxic and also do not represent a hazard / auch evtl. entstandene Reaktionsprodukte weder giftig sind noch sonst eine Gefährdung darstellen.
<input type="checkbox"/> Eventual residues of hazardous substances have been removed / evtl. Rückstände von Gefahrstoffen entfernt wurden.
<input type="checkbox"/> 4.2 For toxic, radioactive, biologically harmful or hazardous substances, or any other hazardous materials / für giftige, radioaktive, biologisch bedenkliche bzw. gefährliche Stoffe oder anderweitig gefährliche Stoffe.
We hereby guarantee that ... / Wir versichern, dass ...
<input type="checkbox"/> The hazardous substances, which have come into contact with the above-mentioned equipment/component part, have been completely listed under item 3.1 and that all information in this regard is complete / die gefährlichen Stoffe, die mit dem o.g. Gerät/Bauteil in Kontakt kamen, in 3.1 aufgelistet sind und alle Angaben vollständig sind.
<input type="checkbox"/> That the device /component part has not been in contact with radioactivity / das Gerät/Bauteil nicht mit Radioaktivität in Berührung kam
5. Kind of transport / transporter / Transportweg/Spediteur:
Transport by (means and name of transport company, etc.) / Versendung durch (Name Spediteur o.ä.)

Date of dispatch to BINDER GmbH / Tag der Absendung an BINDER GmbH:

We hereby declare that the following measures have been taken / Wir erklären, dass folgende Maßnahmen getroffen wurden:

- Hazardous substances were removed from the device including component parts, so that no hazard exists for any person in the handling or repair of these items / das Gerät/Bauteil wurde von Gefahrstoffen befreit, so dass bei Handhabung/Reparaturen für die betreffenden Person keinerlei Gefährdung besteht
- The device was securely packaged and properly identified / das Gerät wurde sicher verpackt und vollständig gekennzeichnet.
- Information about the hazardousness of the shipment (if required) has been provided to the transporter / der Spediteur wurde (falls vorgeschrieben) über die Gefährlichkeit der Sendung informiert.

We hereby commit ourselves and guarantee that we will indemnify BINDER GmbH for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will exempt BINDER GmbH from eventual damage claims by third parties./ Wir versichern, dass wir gegenüber BINDER für jeden Schaden, der durch unvollständige und unrichtige Angaben entsteht, haften und BINDER gegen eventuell entstehende Schadenansprüche Dritter freistellen.

We are aware that, in accordance with Article 823 of the German Civil Code (BGB), we are directly liable with regard to third parties, in this instance especially the employees of BINDER GmbH, who have been entrusted with the handling / repair of the device / component. / Es ist uns bekannt, dass wir gegenüber Dritten – hier insbesondere mit der Handhabung/Reparatur des Geräts/des Bauteils betraute Mitarbeiter der Firma BINDER - gemäß §823 BGB direkt haften

Name: _____

Position/Title: _____

Date / Datum: _____

Signature / Unterschrift: _____

Company stamp / Firmenstempel:



Equipment that is returned to the factory for repair must be accompanied by a completely filled out contamination clearance certificate. For service and maintenance on site, such a contamination clearance certificate must be submitted to the service technician before the start of any work. No repair or maintenance of the equipment is possible, without a properly filled out contamination clearance certificate.

13.2 For devices in the USA and Canada

Product Return Authorization Request

Please complete this form and the Customer Decontamination Declaration (next 2 pages) and attach the required pictures. E-mail to: IDL_SalesOrderProcessing_USA@binder-world.com

After we have received and reviewed the complete information we will decide on the issue of a RMA number. Please be aware that size specifications, voltage specifications as well as performance specifications are available on the internet at www.binder-world.us at any time.

Take notice of shipping laws and regulations.

	Please fill:	
Reason for return request	<input type="radio"/> Duplicate order	
	<input type="radio"/> Duplicate shipment	
	<input type="radio"/> Demo	<i>Page one completed by sales</i>
	<input type="radio"/> Power Plug / Voltage	115V / 230 V / 208 V / 240V
	<input type="radio"/> Size does not fit space	
	<input type="radio"/> Transport Damage	Shock watch tripped? (<i>pictures</i>)
	<input type="radio"/> Other (specify below)	

Is there a replacement PO?	<input type="radio"/> Yes <input type="radio"/> No	
<i>If yes -> PO #</i>		
<i>If yes -> Date PO placed</i>		
Purchase order number		
BINDER model number		
BINDER serial number		
Date device was received		
Was the device unboxed?	<input type="radio"/> Yes <input type="radio"/> No	
Was the device plugged in?	<input type="radio"/> Yes <input type="radio"/> No	
Was the device in operation?	<input type="radio"/> Yes <input type="radio"/> No	
<i>Pictures of device attached?</i>	<input type="radio"/> Yes <input type="radio"/> No	Pictures have to be attached!
<i>Pictures of Packaging attached?</i>	<input type="radio"/> Yes <input type="radio"/> No	

	Customer Contact Information	Distributor Contact Information
Name		
Company		
Address		
Phone		
E-mail		

Customer (End User) Decontamination Declaration

Health and Hazard Safety declaration

To protect the health of our employees and the safety at the workplace, we require that this form is completed by the user for all products and parts that are returned to us. (Distributors or Service Organizations cannot sign this form)

	NO RMA number will be issued without a completed form. Products or parts returned to our NY warehouse without a RMA number will be refused at the dock.
---	---

A second copy of the completed form must be attached to the outside of the shipping box.

1.	Device/ component part / type:
2.	Serial No.
3.	List any exposure to hazardous liquids, gasses or substances and radioactive material
3.1	List with MSDS sheets attached where available or needed
(if there is not enough space available below, please attach a page):	
a)	_____
b)	_____
c)	_____
3.2	Safety measures required for handling the list under 3.1
a)	_____
b)	_____
c)	_____
3.3	Measures to be taken in case of skin contact or release into the atmosphere:
a)	_____
b)	_____
c)	_____
d)	_____
3.4	Other important information that must be considered:
a)	_____
b)	_____
c)	_____

4. Declaration of Decontamination

For toxic, radioactive, biologically and chemically harmful or hazardous substances, or any other hazardous materials.

We hereby guarantee that

- 4.1 Any hazardous substances, which have come into contact with the above-mentioned equipment / component part, have been completely listed under item 3.1 and that all information in this regard is complete.
- 4.2 That the device /component part has not been in contact with radioactivity
- 4.3 Any Hazardous substances were removed from the device / component part, so that no hazard exists for a persons in the shipping, handling or repair of these returned device
- 4.4 The device was securely packaged in the original undamaged packaging and properly identified on the outside of the packaging material with the device designation, the RMA number and a copy of this declaration.
- 4.5 Shipping laws and regulations have not been violated.

I hereby commit and guarantee that we will indemnify BINDER Inc. for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will indemnify and hold harmless BINDER Inc. from eventual damage claims by third parties.

Name: _____

Position: _____

Company: _____

Address: _____

Phone #: _____

Email: _____

Date: _____

Signature: _____



Equipment returned to the NY warehouse for repair must be accompanied by a completed customer decontamination declaration. For service and maintenance works on site, such a customer decontamination declaration must be submitted to the service technician before the start of work. No repair or maintenance of the equipment is possible without a completed form.

