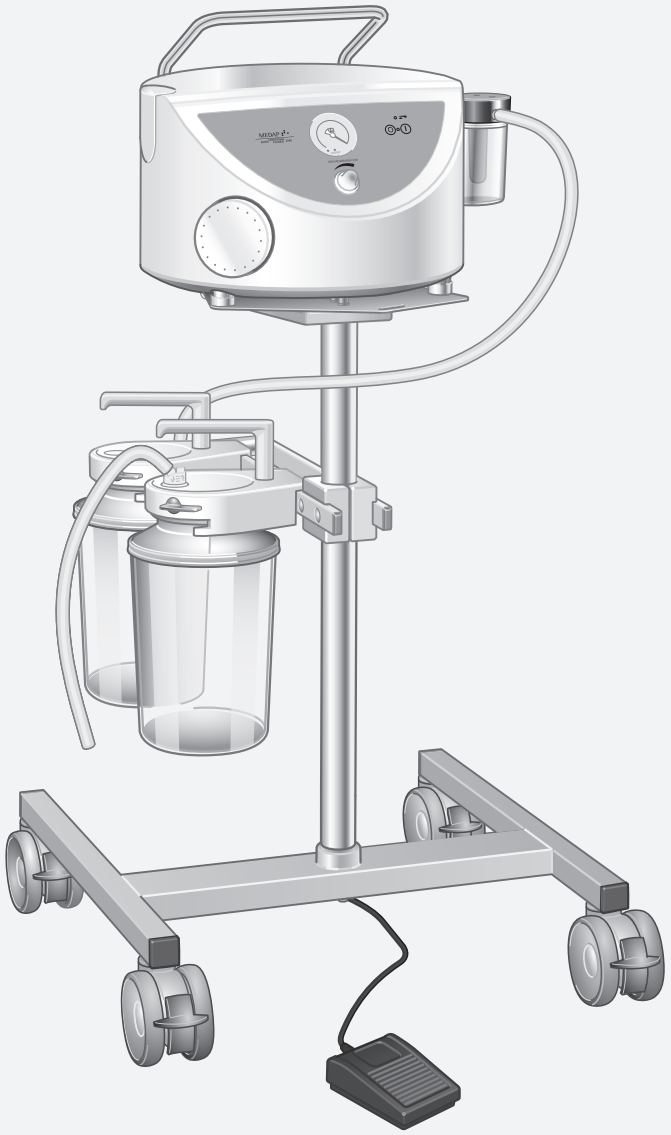
OPERATING INSTRUCTIONS

UNIVERSAL ASPIRATOR
MEDAP-BORA UP 2080
MEDAP-BORA UP 2080 OP

MEDAP



GA 5752 2300 GB 28

Subject to technical modification!

Illustrations and technical specifications may vary slightly from those in these Operating Instructions as a result of ongoing product development.

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Table of contents

1 Introduction

1.1 Foreword

Your facility has selected the leading-edge medical technology made by ATMOS. We sincerely appreciate the trust you have placed in us.

1.2 How to use these operating instructions

These operating instructions are provided to familiarise you with the features of this ATMOS product. They are subdivided into several chapters.

Please note:

- Please read these operating instructions carefully and completely before using the product for the first time.
- Always proceed in accordance with the information contained herein.
- Store these operating instructions in a location near the product.

1.2.1 Abbreviations

EN	European standard
EEC	European Economic Community
VDE	Verband der Elektrotechnik Elektronik Informationstechnik (Association for Electrical, Electronic & Information Technology)

1.2.2 Symbols

1.2.2.1 Cross-references

References to other pages in these operating instructions are identified with a double arrow symbol '⏩'.

1.2.2.2 Actions and responses

The '☒' symbol identifies an action taken by the user, while the '✓' symbol identifies the reaction that this will induce in the system.

Example:

☒ Turn on the light switch.

✓ Lamp lights up.

1.2.3 Definitions

1.2.3.1 Design of safety notes

Pictogram	Descriptor	Text
	**DANGER!** Indicates a direct and immediate risk to persons which may be fatal or result in most serious injury.	The text for the safety note describes the type of risk and how to avert it.
	**WARNING!** Indicates a potential risk to persons or property which may result in health hazard or grave property damage.	
	**CAUTION!** Indicates a potential risk to property which may result in property damage.	

Tab. 1: Design of safety notes

1.2.3.2 Structure of notes

Notes not referring to personal injury or property damage are structured as follows:

Pictogram	Descriptor	Reference to
	**NOTE**	Supplementary assistance or further useful information without potential injury to persons or property damage is described in the text of the note.
	**ENVIRONMENT**	Information regarding proper disposal.

Tab. 2: Structure of notes

1.2.4 Explanation of pictures, symbols and codes

Symbols are attached to products, type plates and packaging.

Symbols	Identification
	This device complies with the relevant requirements of EU regulations.
	Follow operating instructions (blue)
	Consult operating instructions
	Manufacturer
	Date of manufacture Country of manufacture: Germany

Symbols	Identification
REF	Reference number
UDI	Unique Device Identifier of a medical device
MD	Medical device
SN	Serial number
IP X1	Specification of the degree of protection against the ingress of solids and moisture
	Symbol for foot switch --> Stand-by operation. The device can be put into standby mode using the foot switch
	Professional disposal
	Fuse
>ABS<	Material designation for ABS plastic (acrylonitrile-butadiene-styrene copolymer)
	On, connected to the power supply
	Off, disconnected from the power supply
	This side up
	Fragile, handle with care
	Keep dry
	Temperature limit
	Humidity limitation
	Atmospheric pressure limitation

Tab. 3: Pictures, symbols and codes

UDI code

(01)	UDI-DI: Identification of the manufacturer and the device
(11)	Date of manufacture
(13)	Packing date
(21)	Serial number

Tab. 4: UDI code

1.3 Disposal

WARNING!
Infection hazard!
The product or some of its components may be contaminated after use.
Clean and disinfect the product before disposal.

1.3.1 Packing

The packing is made of materials compatible with the environment. ATMOS will dispose of the packing materials upon request.

1.3.2 ATMOS products

ATMOS will take back used products or those which are no longer in service. Please contact your ATMOS representative for more detailed information.

1.3.3 Used electrical devices

Within the European Economic Community

This product is governed by EC Directive 2002/96/EC (Directive on Waste Electrical and Electronic Equipment). This product has not been registered for use in private households. Disposal at municipal collection points for used electrical equipment is not authorised. Please contact your ATMOS representative for more detailed information on correct and legal disposal.

Outside the European Economic Community

When disposing of this product, ensure compliance with the applicable national regulations on the handling and disposal of used electrical equipment.

1.4 Overview

1.4.1 BORA UP 2080 OP

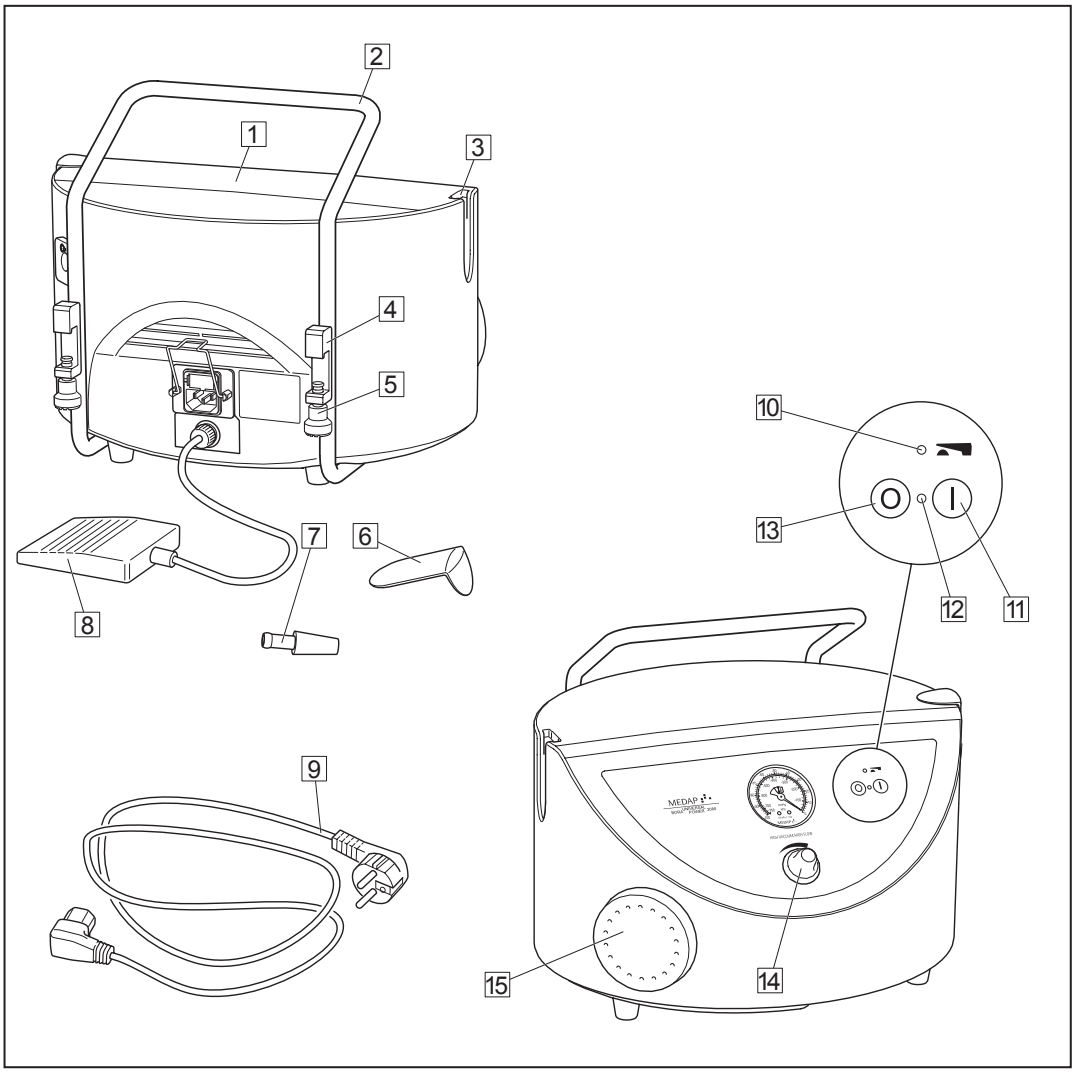


Fig. 1: Overview of BORA UP 2080 OP

1 Aspirator
2 Handle
3 Equipment mount interface
4 Rail clamp
5 Locking screw
6 Cap to cover the equipment mount interface
7 Tube adapter
8 Pneumatic foot switch
9 Mains cable
10 Control light foot switch
11 ON switch
12 Power control light
13 OFF switch
14 Regulating knob
15 Bacterial filter cap

1.4.2 BORA UP 2080

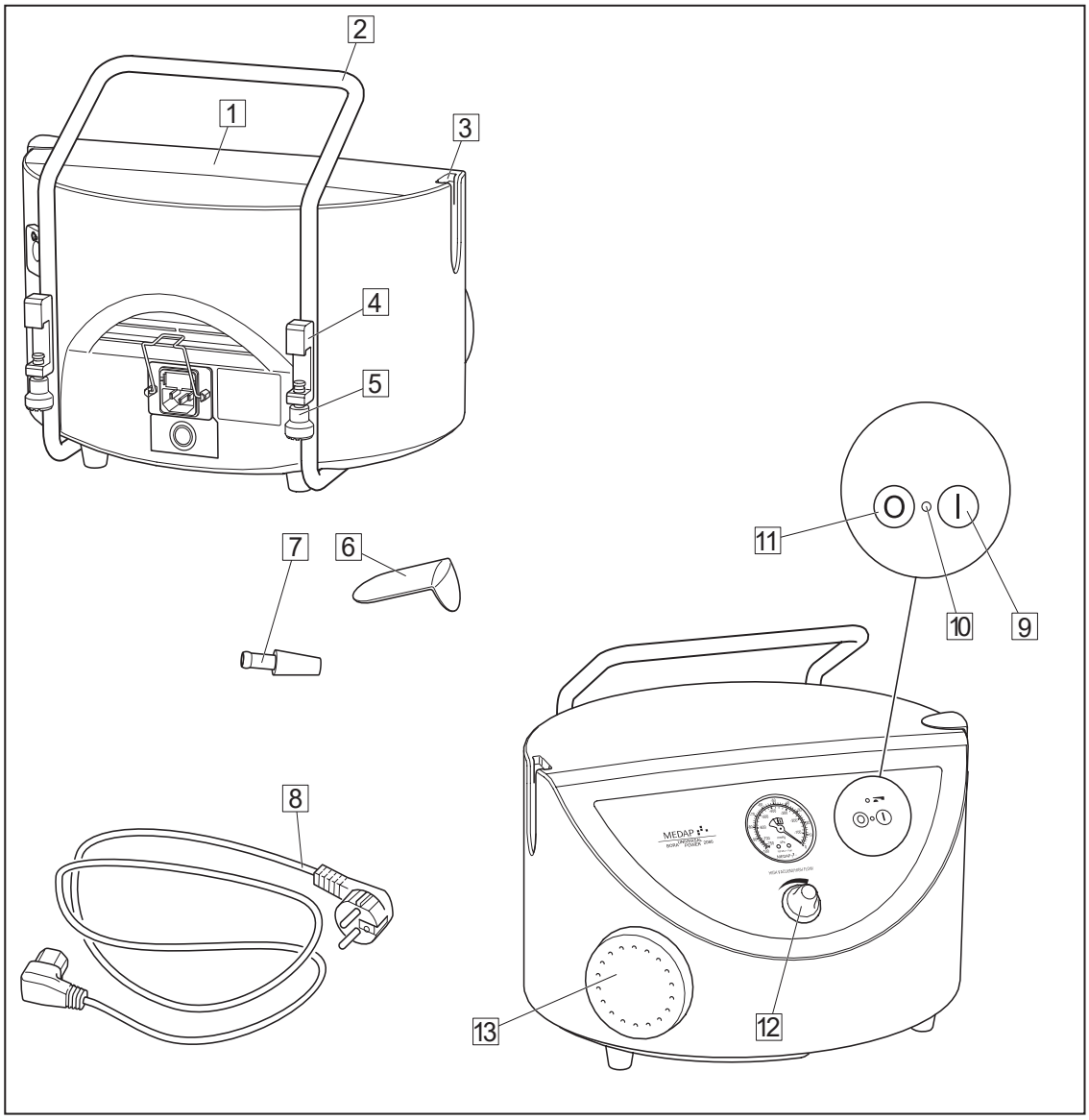


Fig. 2: Overview of the BORA UP 2080

1 Aspirator
2 Handle
3 Equipment mount interface
4 Rail clamp
5 Locking screw
6 Cap to cover the equipment mount interface
7 Tube adapter
8 Mains cable
9 ON switch
10 Power control light
11 OFF switch
12 Regulating knob
13 Bacterial filter cap

1.4.3 Trolley

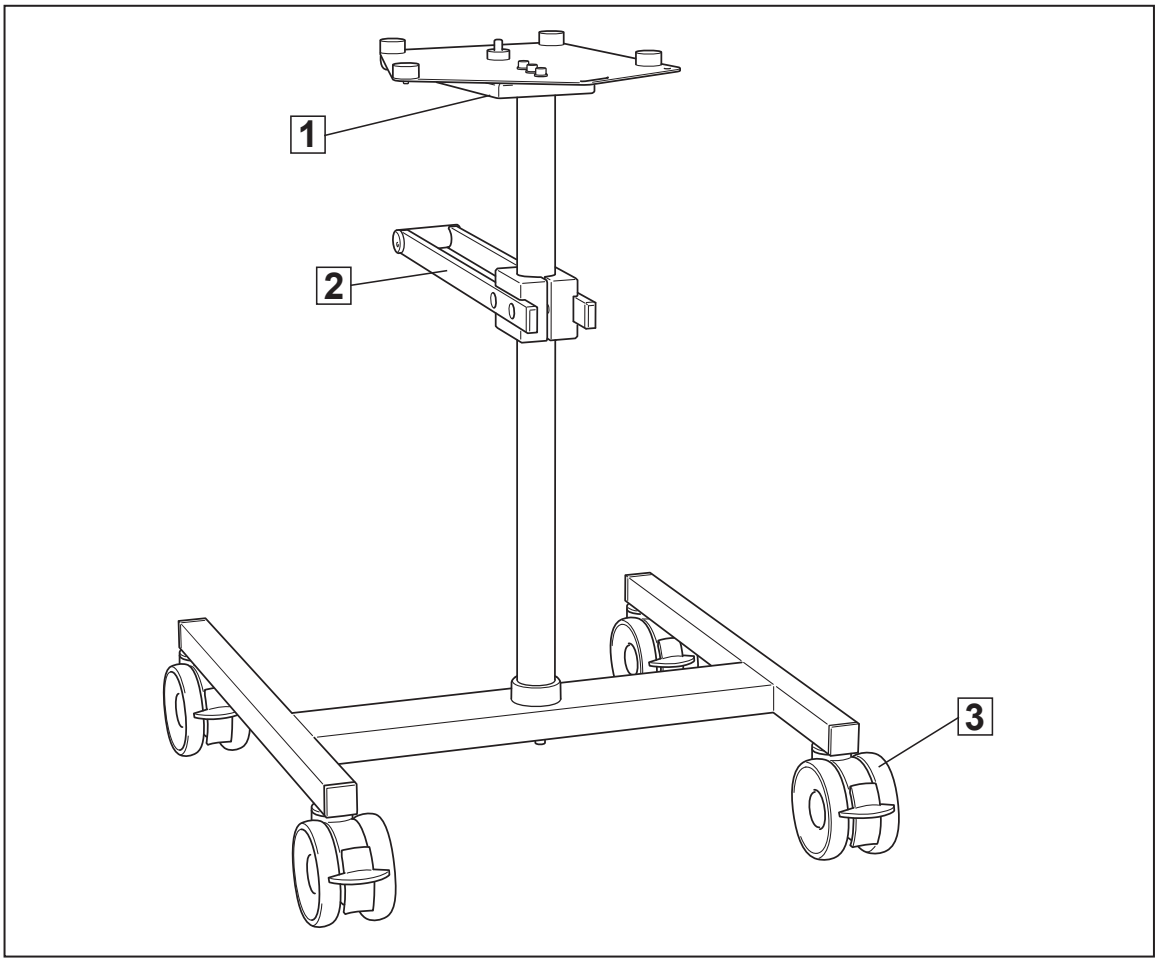


Fig. 3: Overview of trolley (REF HM57525320)

1 Handle screw
2 Equipment rail
3 Double castors with locking brake

1.5 Basic requirements

1.5.1 Use in accordance with the intended purpose

Product

As per Annex IX to the Medical Devices Directive 93/42/EEC, this product belongs to class IIa.

In accordance with this directive, the product may only be used by persons who have been instructed how to use this product by an authorised person.

This product is to be used exclusively for human medicine.

When employed in a commercial or business use, this product must be entered in the inventory.

Accessories

Accessories or combinations of accessories may be utilised only as and when indicated in these operating instructions.

Other accessories, combinations of accessories and consumable items may be used only if they have a valid certification, are intended expressly for the particular use and will not adversely affect performance, the prescribed ambient conditions or safety requirements.

1.5.2 Applicable standards

The product satisfies the basic requirements set forth in Annex I to Council Directive 93/42/EEC concerning medical devices (Medical Devices Directive) as well as the applicable national (German) codes and the Medical Devices Act in Germany. This has also been demonstrated through the application of the corresponding standards which have been harmonised with Directive 93/42/EEC.

1.5.3 Intended purpose

Product name:	BORA UP 2080 BORA UP 2080 OP
Main functions:	Aspiration of secretion, blood, serous fluids, vomit and rinsing fluids along with any contained particles as well as temporary collection of these fluids.
Intended use:	Drainage and temporary collection of body fluids. A negative pressure is generated by means of an electrical aspiration pump. A septic fluid jar, which must be installed, allows for temporary collection of the drained body fluids.
Intended users / user profile:	Doctors, trained medical staff
Intended patient target groups:	Patients of all age groups with and without restrictions
Medical conditions to be diagnosed, treated or monitored:	Patients requiring aspiration, e.g., in the operating theatre
Organ(s) applied to:	Natural and artificial body orifices
Duration of application:	Device designed for continuous application; in practice, short-term use on the patient (<30 days)
Use environment:	Environments for use are the hospital/clinic environment and doctor’s practices. The device may only be used by trained and instructed medical staff.
Patient selection criteria:	All patients requiring aspiration
Indications:	For all applications requiring aspiration, e.g., general surgical interventions (aspiration of wound cavities, abscesses), aspiration of the nasopharynx, bronchial aspiration, during endoscopy for aspiration of secretion or rinsing fluids, and in neurosurgery

Medical contra-indications:	• Vacuum extraction • Smoke evacuation • Drainages in the low-vacuum range (e.g., thoracic and wound drainage) • Use without a smoke evacuation filter if aggressive vapours are also generated during the aspiration of liquids due to easily volatile components (e.g., when using iodine as a disinfectant). • In areas subject to explosion hazards (AP-M and AP-G areas) • In the standard equipment version in heart surgery or in surgeries on the central nervous system. This requires separate equipment providing reliable protection against equipotential bonding between the patient and contacting, fluid-filled metal parts.
Other contra-indications:	• Outside the medical field • In the home care area • Use directly by the patient or his/her relatives • For aspiration of flammable or explosive liquids
Warnings:	None
The product is:	active
Sterility / specific microbial state:	Non-sterile device
Single-use device / reprocessing:	The device is intended for multiple use. The device and part of the accessories are reusable. For information on reprocessing and disinfection, please see the operating instructions.

1.5.3.1 BORA variants

These operating instructions apply to the versions listed below:

BORA UP 2080 basic equipment 230 V AC (REF HM57522296)

- Mains cable 4 m
- Tube adapter
- Filter papers (10 pieces)
- Two caps for covering the mechanical connections

BORA UP 2080 basic equipment 115 V AC (REF HM57522302)

- Mains cable 4 m
- Tube adapter
- Filter papers (10 pieces)
- Two caps for covering the mechanical connections

BORA UP 2080 OP basic equipment 230 V AC (REF HM57522301)

- Mains cable 4 m
- Tube adapter
- Filter papers (10 pieces)
- Two caps for covering the mechanical connections
- Pneumatic foot switch

BORA UP 2080 OP basic equipment 115 V AC (REF HM57522303)

- Mains cable 4 m
- Tube adapter
- Filter papers (10 pieces)
- Two caps for covering the mechanical connections
- Pneumatic foot switch

1.5.4 Interface description

Other connected products

To fulfil its intended purpose, the product must be connected according to the following interface descriptions:

1.5.4.1 Hydrophobic bacterial and viral filter

NOTE

The use of a hydrophobic bacterial and viral filter is not necessary if a suitable hydrophobic bacterial and viral filter is integrated for a specific purpose in the septic fluid jar of a disposal aspiration system.

The hydrophobic bacterial and viral filter protects against contaminants which could be present in the form of particles or aerosols in the gas drawn in. Moreover, the hydrophobic bacterial and viral filter serves as protection against oversuction; the hydrophobic bacterial and viral filter closes off the flow of gas to the product in the event of oversuction. In its function as a bacterial and viral filter, it protects the inside of the pump from the ingress of bacteria and viruses. The products sold by ATMOS (REF HM57521783) and (REF HM57524514) are hydrophobic bacterial and viral filters.

Prerequisites:

- Pore size ≤ 1.0 µm
- Conical tube connector with an outer diameter of 8 to 11 mm
- The tube connector must match the tube being used.
- The conical connector must match the septic fluid jar cap being used.
- The hydrophobic bacterial and viral filter must close tightly against water passage at an absolute pressure of up to 10 kPa.
- Observe the direction of flow, if applicable (see note on the hydrophobic filter).

1.5.4.2 Vacuum connection tube

The vacuum connection tube is used to connect the aspirator and the septic fluid jar.

Technical specifications:

- Shore hardness of 60
- Inner diameter 6–8 mm
- Tube length between aspirator and filter is max. 60 cm ± 10 cm
- Vacuum resistant down to −95 kPa (must not collapse)

Prerequisites:

- The vacuum connection tube must comply with the hospital’s standards for hygiene.
- The vacuum connection tube must be connected using a hydrophobic bacterial filter.
- The inner diameter of the vacuum connection tube should match the outer diameter of the tube connector on the septic fluid jar cap of the pump.

1.5.4.3 Septic fluid jar including septic fluid jar cap

The septic fluid jar is used to collect the septic fluids extracted.

Technical specifications:

- Vacuum resistant down to −95 kPa (must not collapse)

Prerequisites:

- Must be equipped with an overflow protection device or must be connected to an external overflow protection system.
- Low leakage
- Capacity of 1 l to 5 l.
- Always fasten the septic fluid jar securely.
- The tube connector for connection to the vacuum source must be compatible with the connection tube.

1.5.4.4 Suction tube

The suction tube is used to connect the tube connector on the patient side and the fingertip or the utensil.

Technical specifications:

- Shore hardness of 60
- Inner diameter 6–8 mm
- Length of 1.3 m to 3.0 m
- Vacuum resistant to −95 kPa

Prerequisites:

- The suction tube must comply with the hospital's standards for hygiene.
- The suction tube must not collapse.
- The outer diameter of the tube connector on the patient side of the septic fluid jar cap must match the inner diameter of the suction tube.

1.5.4.5 Utensil

The suction catheter, lance, etc. are referred to as utensils. The utensils are used to extract septic fluids.

Prerequisites:

- The inner diameter of the utensil's connector must match the outer diameter of the fingertip.
- The utensil must be sterilisable or a sterile single-use item.
- Biocompatibility
- For endobronchial extraction, a utensil with side openings must be used.

1.5.4.6 Connection of equipment mount

The equipment mount interface is used to mount a rinsing fluid jar or septic fluid jar, or a holder for rinsing fluid jars or septic fluid jar, or an overflow protection with equipment mount.

Prerequisites:

- Maximum load on the equipment carrier interface is 1 kg
- The connection of the rinsing fluid jar or septic fluid jar or that of the holder for the rinsing fluid jar or septic fluid jar must match the equipment carrier according to DIN EN ISO 19054.

1.5.4.7 Bacterial filter paper

The bacterial filter paper prevents the ambient air from contamination. Only bacterial filter papers (REF HM57505045) must be used.

1.5.4.8 Rinsing fluid jar

Any container may be used as a rinsing fluid jar.

Prerequisites:

- The rinsing fluid jar must have a volume of at least 250 ml.
- The rinsing fluid jar must be easy to clean and disinfect.

1.5.4.9 Application sets

Application sets augment the basic unit. Application sets can be configured as required, using individual accessories.

Prerequisites:

- Suitable connection tubes must be selected.
- The interface description for the aspirator must be observed.

1.5.4.10 Trolley

In combination with the suction pump, only the trolley (REF HM57525320) may be used.

Prerequisites:

- A maximum of two ATMOS 4-litre septic fluid jars may be attached to the equipment rails of the trolley.

1.5.4.11 Vacuum shift

The vacuum shift is used to switch between two septic fluid jars.

Prerequisites:

- The tube connector must match the tube being used.

1.5.4.12 Equipment rail attachment

The product can be attached to an equipment rail 25 x 10 mm.

2 Safety notes

2.1 General safety notes

DANGER!

Danger to life!

For open heart operations and those to the central nervous system, there may be equipotential bonding between the user and the patient.

The product may not be used with components for aspiration that are metal and conductive. For use on open hearts and the central nervous system, CF protective class equipment is necessary.

DANGER!

Danger to life! Danger due to unauthorised modifications.

The product may not be modified.

DANGER!

Explosion hazard!

The product does not have explosion protection and is not approved for use in Class AP-M hazardous locations.

Do not use the product in the AP-M area.

DANGER!

Incorrect use can result in fatalities!

Instructions for using components made by other manufacturers are not part of these operating instructions.

Ensure that the manufacturer’s instructions are followed!

DANGER!

Danger to life!

Electric shock!

Check to ensure that the available mains voltage corresponds with the specifications on the type plate before connecting the mains plug. Product can only be separated from the power supply by unplugging at the socket.

DANGER!

Potentially fatal due to electrical shock!

The product may only be connected to voltage supplies with protected earth connections.

DANGER!

Danger to life!

Electric shock resulting from an object being inserted from the outside into the case and its making contact with live components.

Never insert any objects into the case.

DANGER!

Danger to life!

Hazard resulting from incorrect use.

Follow the operating instructions for all accessories.

DANGER!

Infection hazard!

The bacterial filter paper provides additional protection against contamination of the ambient air.

Do not operate the aspirator without a bacterial filter paper.

WARNING!

Risk of injury!

ATMOS products may be used only when fully functional.

Check to ensure that the ATMOS product is fully functional and in good working order prior to use.

WARNING!

Risk of injury!

Electrical devices (e.g. mobile phones, radios, magnetic resonance tomography scanners) may interfere with the functioning of the equipment when used in the vicinity of the equipment.

Please observe the specifications regarding electromagnetic compatibility (EMC) (emission and resistance to interference).

Adhere to these specifications when using electrical devices and react if you see your equipment being affected in any way.

WARNING!

Risk of infection due to improper handling!

Applicable rules for hygiene have to be observed in order to avoid infection or bacterial contamination when suctioning off and disposing of secretions. Observe the intended purpose of the bacterial filter. Use only sterile catheters during extraction and ensure that the patient is not injured during the procedure. Always wear gloves while working.

WARNING!

Risk of infection due to using no or a defective hydrophobic bacterial and virus filter.

Secretions enter the aspirator during aspiration.

Stop using the aspirator. Clean and disinfect the aspirator and have it repaired by a service technician authorised by ATMOS to do so.

WARNING!

Contact may cause allergic reactions!

The materials used have been tested for their tolerability. In very rare cases, contact with accessible materials on the device and its accessories may cause allergic reactions. This applies in particular to contact injuries in conjunction with prolonged contact. If this occurs, seek medical attention immediately.

WARNING!

Risk of suffocation and strangulation for children and animals through accessory parts! Children and animals could suffocate or be injured by small parts.

Hoses or power cables may strangle people or animals, especially if the hoses or cables are particularly long.

Keep unauthorised persons away from the device during aspiration.

Keep children away from swallowable small parts.

Keep the device and all its accessories out of reach of children until the next use.

WARNING!

Tripping hazard due to cables!

Injuries and fractures are possible.

Lay connecting cables properly

2.2 Product safety notes

DANGER!

Infection hazard!

Risk of bacteria and viruses entering the aspirator.

A bacterial and virus filter protects the inside of the aspirator against contamination by bacteria and viruses.

Use a bacterial and virus filter which also provides protection against oversuction.

WARNING!

Risk of injury!

Aggressive vapours may be generated during the aspiration of liquids.

Use appropriate smoke filter for the aspiration of liquids with highly volatile agents (e.g. when using iodine as disinfectant).

CAUTION!

Property damage due to oversuction!

The product may only be operated with the overflow protection in place as otherwise oversuction could occur. A hydrophobic filter offers an additional protection against oversuction. It closes off the flow of gas to the product. Particles in the gaseous phase may clog the hydrophobic filter.

Use a bacterial and virus filter which also protects the inside of the aspiration from bacterial and viruses.

CAUTION!

Observe ambient conditions!

If the ambient conditions are undercut or exceeded during transportation, storage or operation, functionality may be affected.

Conduct a functional check and rectify any deficiencies.

CAUTION!

Property damage due to foaming!

Foam may be created when extracting secretion. Foam is detrimental to the functioning of the mechanical overflow protection. This gives rise to the risk of secretions entering and damaging the aspirator.

Always use a hydrophobic bacterial and viral filter and a commercially available foam inhibitor.

CAUTION!

Property damage!

Proper functioning of the mechanical overflow protection is only assured with the product in upright position.

Place the product in upright position during operation. When using a trolley, the castors must be locked during operation.

CAUTION!

Property damage due to overheating!

If placed on a soft surface (such as pillows or a mattress), the ventilation slots may be covered and the product will overheat.

The product should be upright and placed on a solid surface during operation.

CAUTION!

Property damage!

Excessive exposure of plastic housing components to ultraviolet radiation leads to premature material fatigue, resulting in breakage.

Protect the product against direct sunlight.

CAUTION!

Property damage due to material failure!

Do not exceed the permissible overall load of 8 kg for each of the equipment rails of the trolley.

CAUTION!

ATMOS recommends always having an alternative suction option ready. This way you can perform aspiration even in the event of product failure.

Report all serious incidents that have occurred in connection with this product to the manufacturer and your national competent authority.

3 Initial operation

3.1 General

WARNING!

Infection hazard!

Contaminated components may endanger the health of staff and patients.

Ensure the product is prepared as per hygiene standards before using it for the first time.

NOTE

Various septic fluid jar caps may be used. Refer to the respective manufacturer's instructions for information on the mounting procedure.

NOTE

Disposable aspiration systems may be used. Refer to the respective manufacturer's instructions for information on how to mount the disposable aspiration systems.

NOTE

Different septic fluid jar holders and septic fluid jar caps can be fitted to the equipment rails of the trolley. Be absolutely sure to observe the operating instructions for all the products used in the configuration.

The scope of delivery includes these operating instructions, as well as the individual components in accordance with the ordered product versions [▸▸ Page 14].

Remove the product from its packaging and check the shipment for completeness and to ensure the scope of delivery is intact.

3.2 Variations in use

3.2.1 Portable variation

The BORA aspirator may be operated as portable version.

3.2.2 Aspirator on trolley

A trolley is available to make it easier to transport the aspirator and to mount additional accessories.

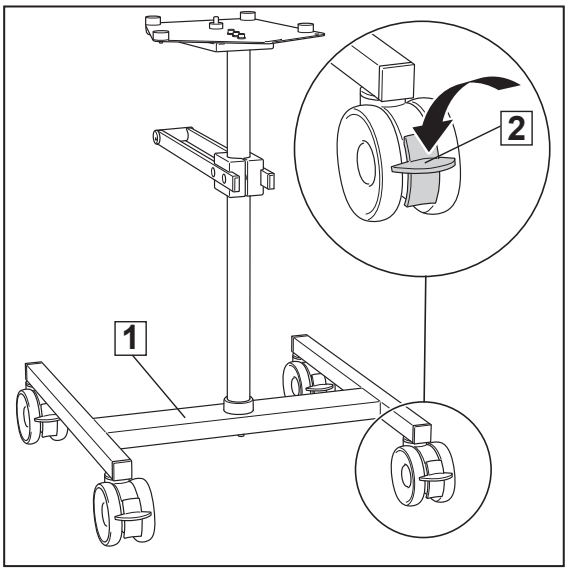


Fig. 4: Locking the castor brakes

Locking the castor brakes

☒ Lock the brakes (2) of the castors on the trolley (1).

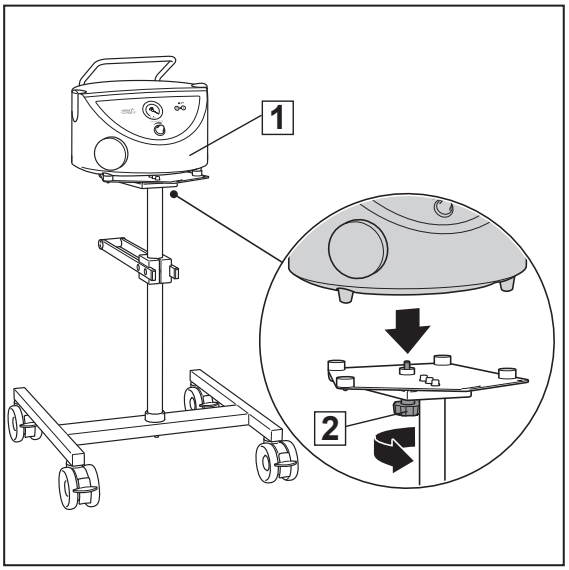


Fig. 5: Mounting the aspirator

Mounting the aspirator

☒ Position the aspirator (1) securely on the trolley.

☒ Use the handle screw (2) to fix the aspirator on the trolley.

☒ Ensure firm seat of the aspirator.

3.2.2.1 Inserting the catheter holder (REF HM57508002)

NOTE

The catheter holder can only be mounted if the aspirator is not mounted on the trolley. To secure the catheter holder, remove the aspirator from the trolley.

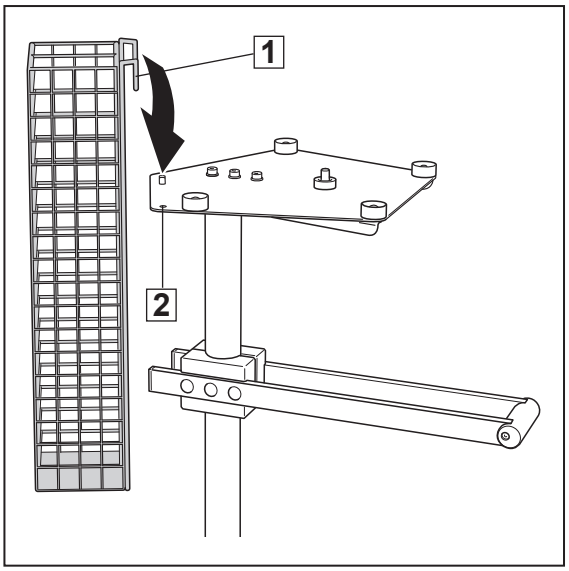


Fig. 6: Inserting the catheter holder

☒ Insert the catheter holder (1) into the borings of the trolley (2).

3.2.3 Aspirator on equipment rail

The suction pump can be mounted to an equipment rail 25 x 10 mm.

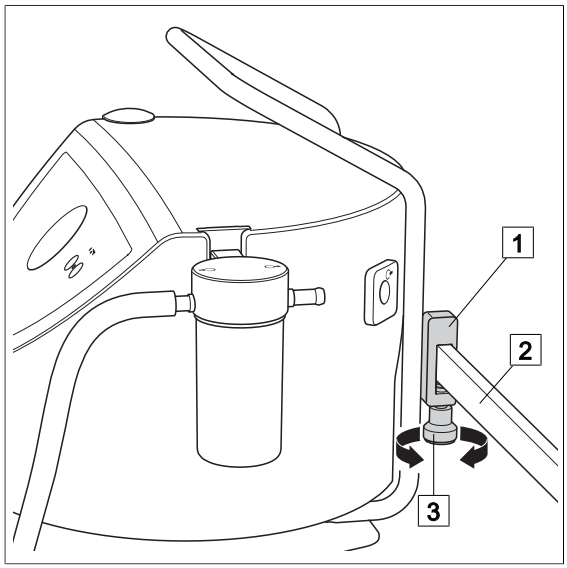


Fig. 7: Mounting to equipment rail

☒ Attach rail clamps (1) from above into equipment rail (2).

☒ Attach the aspirator using the locking screws (3).

☒ Check the firm seat of aspirator.

3.3 Overflow protection device

NOTE

If the float is not correctly seated in the overflow protection device, or no float is used, liquid may exit in the event of oversuction.

NOTE

It is not necessary to use a hydrophobic bacterial and viral filter if a hydrophobic bacterial and viral filter is integrated in the septic fluid jar of a disposable extraction system.

NOTE

When using a septic fluid jar with integrated overflow protection, an additional hydrophobic bacterial and viral filter must be used.

There are three types of overflow protection devices:

- Universal overflow protection [⏩ Page 25]
- Surgical overflow protection [⏩ Page 26]
- Septic fluid jar cap with integrated overflow protection [⏩ Page 27]

3.3.1 Mounting the universal overflow protection

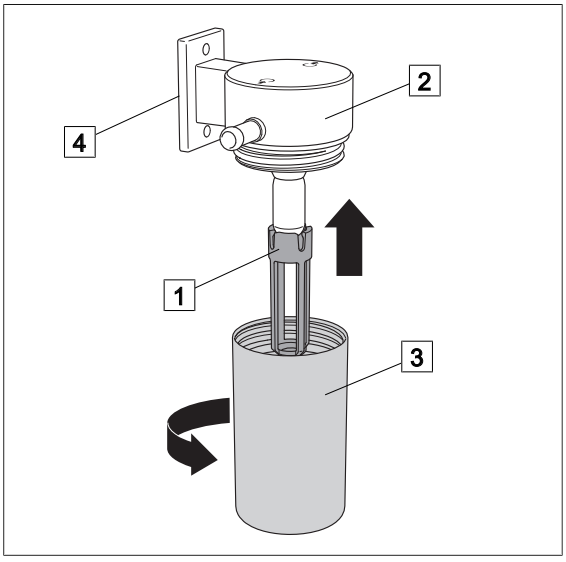


Fig. 8: Mounting the universal overflow protection

☒ Engage float cage (1) with float into the lid (2) of the overflow protection device.

☒ Screw overflow container (3) onto the lid.

☒ Remove cap from the connection of the equipment mount [⏩ Page 29] and push in the equipment mount (4) of the overflow protection device.

3.3.1.1 Mounting the hydrophobic bacterial and viral filter

NOTE

When mounting the aspirator to an equipment rail, attach a tube with an 8 mm inner diameter (e.g. REF HM57505483) using the tube adapter (REF HM57522295) between the hydrophobic bacterial and viral filter (1) and the opening (2) on the back of the aspirator in order to prevent the hydrophobic filter from colliding with the wall/equipment rail.

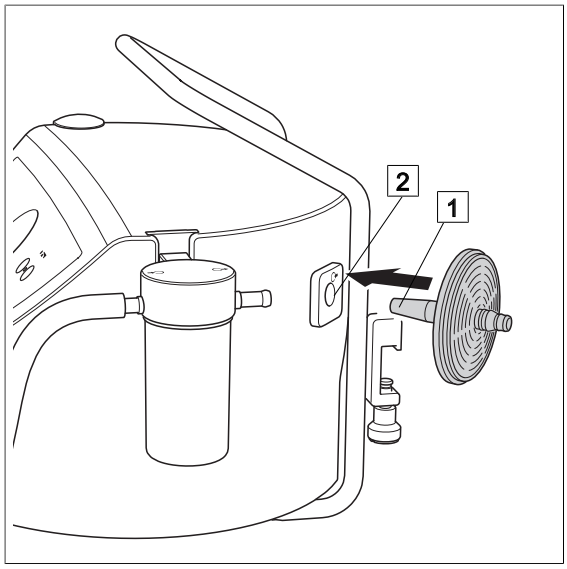


Fig. 9: Inserting the hydrophobic filter

☒ Insert the conical connection (1) of the hydrophobic filter into the opening (2) on the back of the device.

☒ Mount the tubes [⏩ Page 30].

3.3.2 Mounting the surgical overflow protection

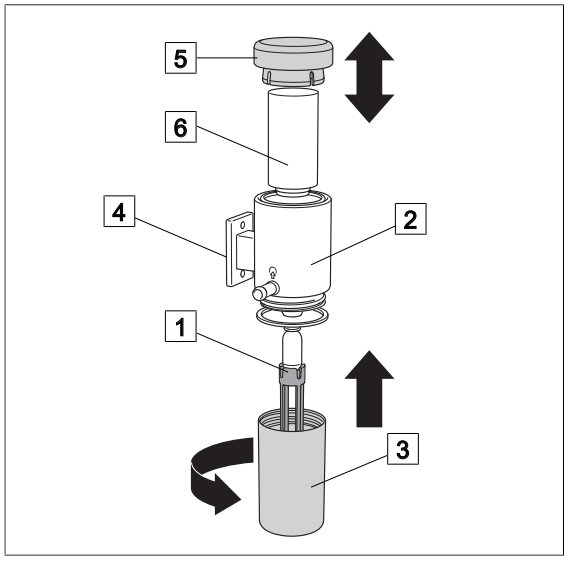


Fig. 10: Mounting the surgical overflow protection

☒ Engage float cage (1) with float into the lid (2) of the overflow protection device.

☒ Screw overflow container (3) onto the lid.

☒ Remove cap from the connection of the equipment mount [⏩ Page 29] and push in the equipment mount (4) of the overflow protection device.

Inserting hydrophobic bacterial and viral filter (with pore size of 0.2 µm) into overflow protection device

☒ Remove cap (5) from filter housing upwards.

☒ Fit the hydrophobic bacterial and viral filter (6).

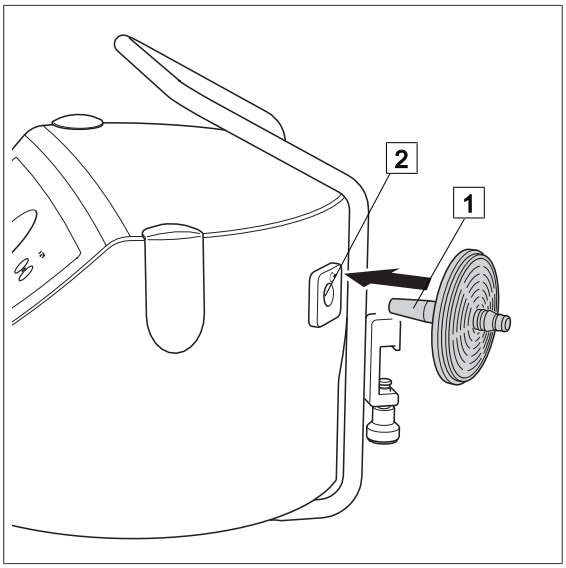
☒ Close filter housing with cover.

☒ Mount the tubes [⏩ Page 31].

3.3.3 Mounting septic fluid jar caps with integrated overflow protection

NOTE

When mounting the aspirator to an equipment rail, attach a tube with an 8 mm inner diameter (e.g. REF HM57505483) using the tube adapter (REF HM57522295) between the hydrophobic bacterial and viral filter (1) and the opening (2) on the back of the aspirator in order to prevent the hydrophobic filter from colliding with the wall/equipment rail.



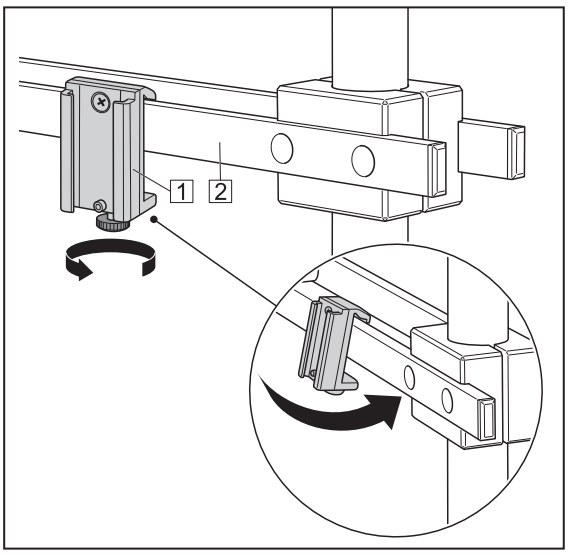
☒ Insert the conical connection (1) of the hydrophobic filter into the opening (2) on the back of the device.

Fig. 11: Inserting the hydrophobic filter

3.4 Rail clamp mounting point

Containers with an equipment mount may be attached to the rail clamp mount.

Connection to equipment rail with rail clamp (REF HM57522048)



Attaching the rail clamp

☒ Attach rail clamp (1) to equipment rail (2).

☒ Lock rail clamp with the locking screw (3).

Fig. 12: Attaching the rail clamp

3.4.1 Mounting the vacuum shift to the rail clamp

The vacuum shift is used to switch between two septic fluid jars.

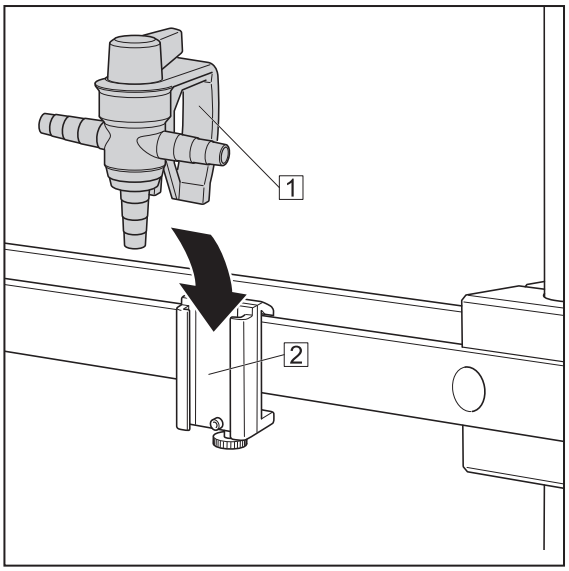


Fig. 13: Attaching the vacuum shift

Mounting the vacuum shift

☒ Attach the rail clamp [⏩ Page 27].

☒ Attach equipment mount (1) of vacuum shift to rail clamp (2).

3.5 Equipment mount interface

CAUTION!

Property damage due to material failure!

Do not exceed the permissible overall load of 2 kg at the equipment mount interface.

NOTE

Cover unused interfaces of equipment mounts with caps so that they will not be contaminated.

NOTE

A range of different septic fluid jars and a catheter tubular may be attached to the equipment mount interface. Be absolutely sure to observe the operating instructions for all the products used in the configuration.

3.5.1 Mounting the septic fluid jar

Mounting of the tubes is described using the septic fluid jar (REF HM57525431) as an example.

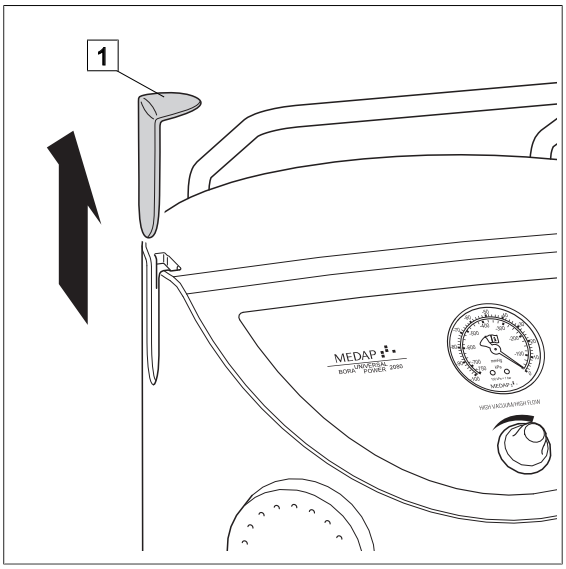


Fig. 14: Removing the cap

Removing the cap

☒ Pull off cap (1) upwards.

✓ Connection of equipment mount is ready for use.

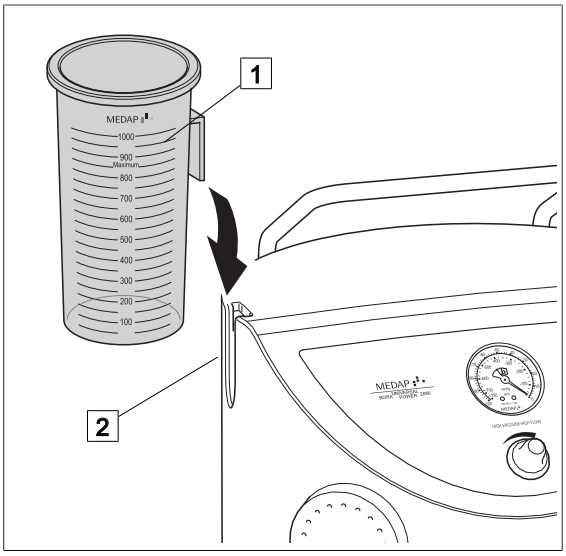


Fig. 15: Hanging the septic fluid jar into place

☒ Insert the septic fluid jar (1) from above and into the equipment mount connection (2).

☒ Ensure that the septic fluid jar is firmly seated.

☒ Mounting the tubes [⏩ page 31].

3.6 Mounting the tubes

Mounting the tubes will be described in the following examples:

- Tube connection hydrophobic bacterial and viral filter (REF HM57524514) with ATMOS Disposable Suction System [⏩ 3.6.1 on page 30]
- Universal overflow protection [⏩ 3.6.2 on page 30]
- Surgical overflow protection [⏩ 3.6.3 on page 31]
- Tube connection of overflow protection device with septic fluid jar cap (REF HM57500390) [⏩ 3.6.4 on page 31]
- Tube connection of overflow protection device with septic fluid jar cap (REF HM57525432) [⏩ 3.6.5 on page 32]
- Tube connection for vacuum shift [⏩ 3.6.6 on page 32]

3.6.1 Tube connection hydrophobic bacterial and viral filter (REF HM57524514) with ATMOS Disposable Suction System

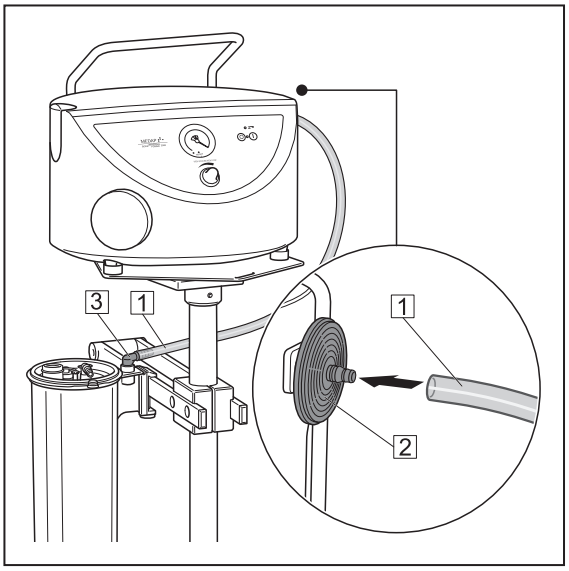


Fig. 16: Mounting the tubes

☒ Attach the connection tube (1) to the hydrophobic bacterial and viral filter (REF HM57524514) (2).

☒ Attach the other end of the connection tube (1) onto the L-connector of the ATMOS external canister (3).

3.6.2 Tube connection universal overflow protection

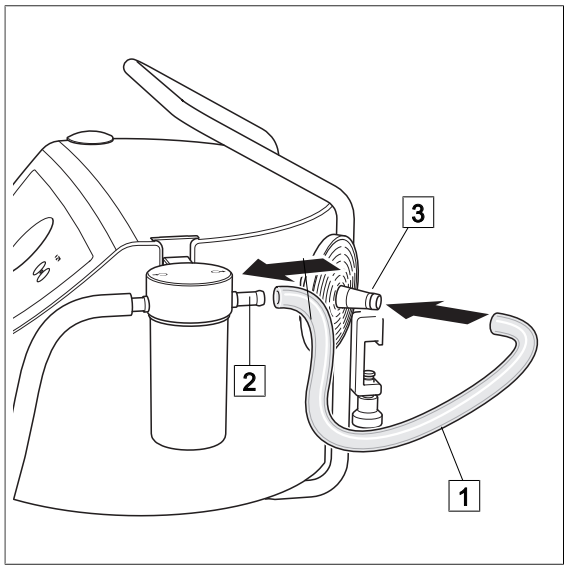


Fig. 17: Mounting the tubes

☒ Attach the connection tube (1) to the hydrophobic filter (3).

☒ Attach the other end of the connection tube (1) to the universal overflow protection device (2).

3.6.3 Tube connections of surgical overflow protection

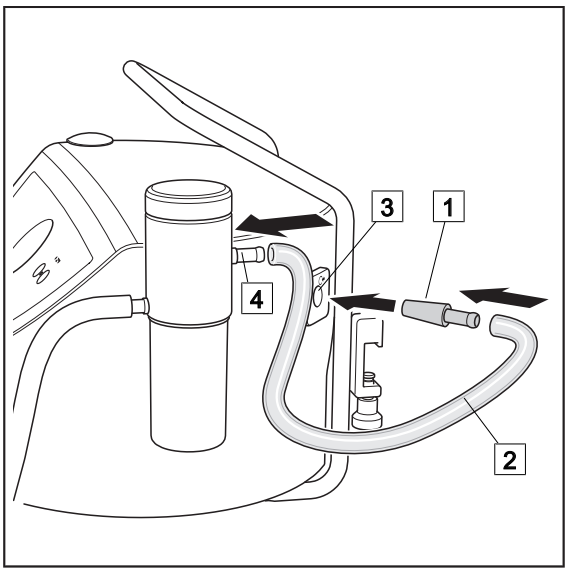


Fig. 18: Mounting the tubes

☒ Attach the tube adapter (1) to the connection tube (2).

☒ Insert the tube adapter into the opening (3) on the back of the aspirator.

☒ Attach the other end of the connection tube to the surgical overflow protection (4).

3.6.4 Tube connection of overflow protection device with septic fluid jar cap (REF HM57500390)

Mounting is described using the surgical overflow protection as an example.

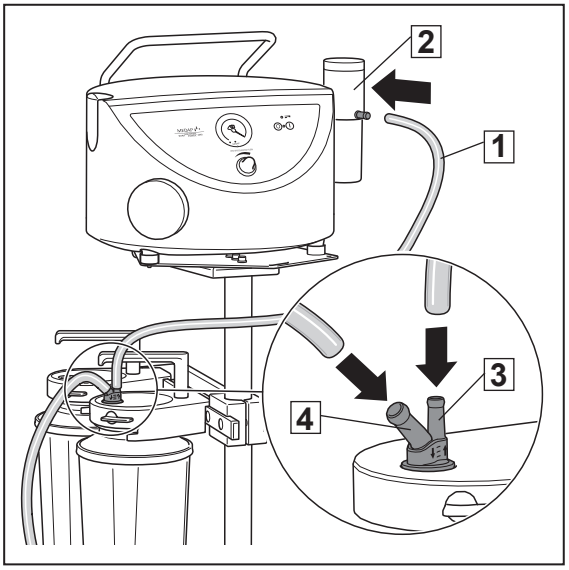


Fig. 19: Mounting the tubes

☒ Attach connection tube (1) to overflow protection device (2).

☒ Attach the other end of the connection tube to straight tube connector (3) of cap plug.

☒ Attach vacuum tube to the second tube connector (4) of the cap plug.

3.6.5 Tube connection of overflow protection device with septic fluid jar cap (REF HM57525432)

Mounting is described using the universal overflow protection as an example.

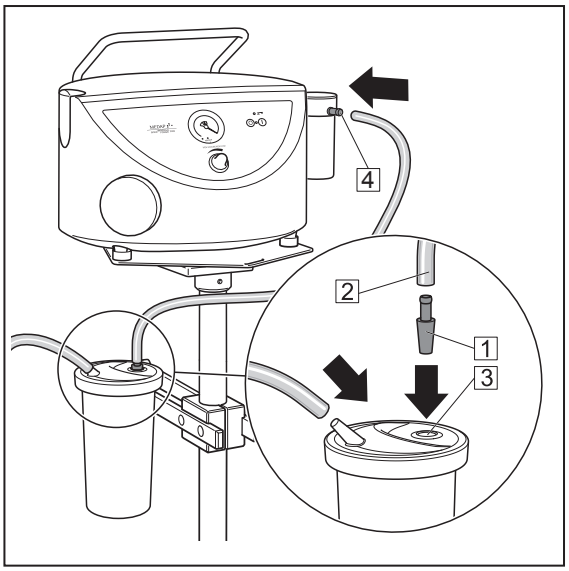


Fig. 20: Mounting the tubes

☒ Attach the tube adapter (1) to the connection tube (2).

☒ Attach the tube adapter and the connection tube to the septic fluid jar cap (3).

☒ Attach the other end of the connection tube to the overflow protection device (4).

3.6.6 Tube connection for vacuum shift (REF HM57522049)

The mounting of the tubes is described using the septic fluid jar cap (REF HM57525655) as an example.

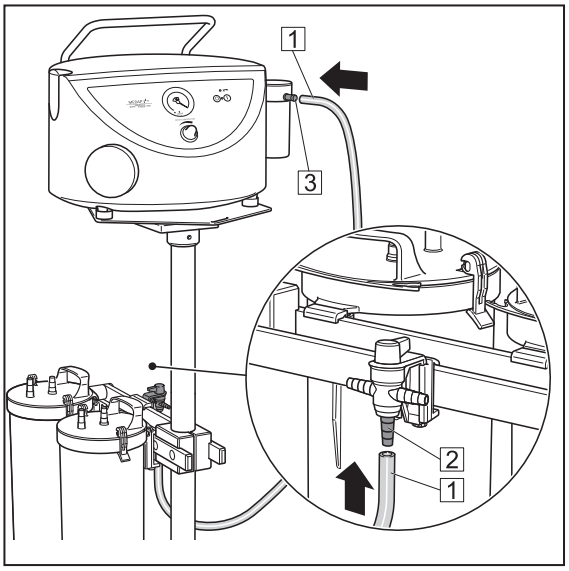


Fig. 21: Mounting the tubes

☒ Connect the connection tube (1) to the lower adapter (2) of the vacuum shift.

☒ Attach the other end of the connection tube to the tube connector (3) on the overflow protection device.

✓ Overflow protection device and vacuum shift are connected by the tube.

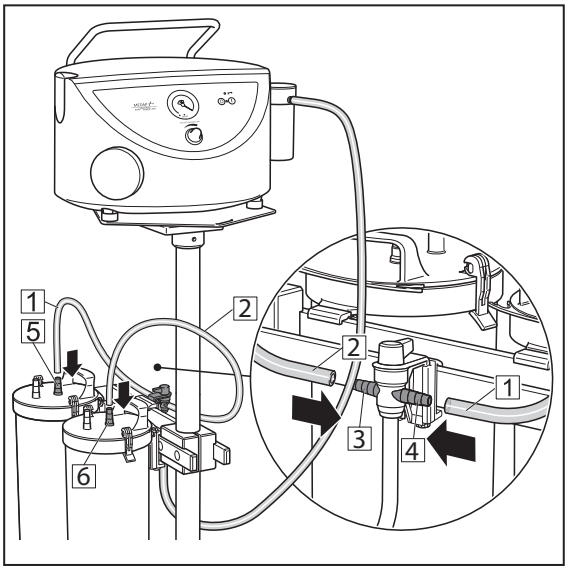


Fig. 22: Mounting the tubes

☒ Attach the connection tube (1) to the right tube connector (4) of the vacuum shift.

☒ Attach the other end of the connection tube onto the middle of the left septic fluid jar cap (5).

☒ Attach the connection tube (2) to the left tube connector (3) of the vacuum shift.

☒ Attach the other end of the connection tube onto the middle of the right septic fluid jar cap (6).

✓ Vacuum shift is mounted.

3.7 Foot switch (only for BORA UP 2080 OP)

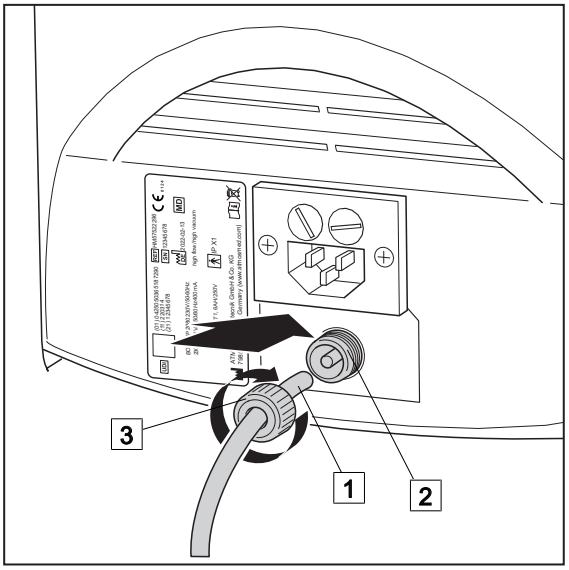


Fig. 23: Attaching the foot switch

Attaching the foot switch

☒ Insert the tube (1) of the foot switch into the opening (2) on the rear of the device.

☒ Fasten the tube with the cap nut (3).

3.8 Mains cable

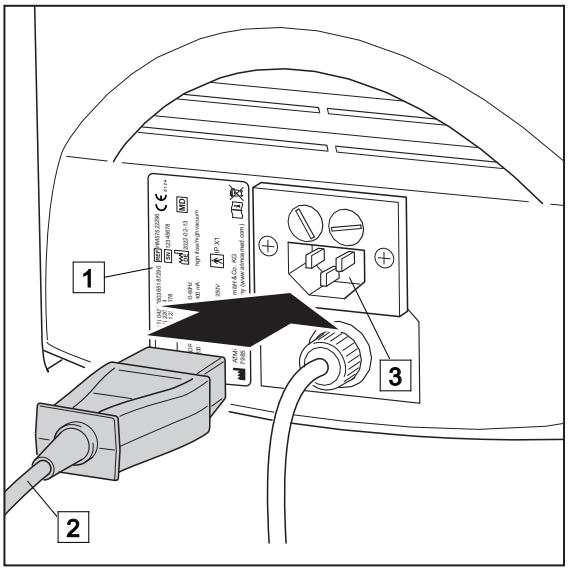


Fig. 24: Connecting the mains cable

Connecting the mains cable

☒ Check to ensure that the mains voltage is identical to the specifications given on the type plate (1).

☒ Plug the mains cable (2) into the equipment socket (3) and connect to the mains socket.

4 Operation

4.1 Functional test

NOTE

Connecting several septic fluid jars in series can cause delayed suction effect and reduced suction power.

Prior to each use, carry out the following functionality checks:

- All components are properly attached.
- The mains cable is undamaged.
- Components made of plastic or rubber (e.g. control panel film, tube, septic fluid jar cap, septic fluid jar) are in good condition and show no damage due to ageing.
- Bacterial filter paper is in proper condition.
- The overflow protection device and hydrophobic bacterial and viral filter are mounted and functional.
- The overflow protection device and hydrophobic bacterial and viral filter have been properly cleaned and neither residue nor contamination are present.
- Tube connectors and septic fluid jar cap are tightly seated and do not leak.
- No mechanical forces are acting on the tubes.
- Tubes must not be kinked.
- Maximum vacuum of approximately −90 kPa is reached within about 20 seconds when the connection tube is held shut.
- The vacuum can be infinitely variably regulated throughout the entire range.
- The septic fluid jar is attached to the aspirator.
- The aspirator has been properly cleaned and neither residue nor contamination are present.
- Damaged parts have been replaced by new parts.

4.2 Suction

WARNING!

Backflow of aspirated secretion!

In the event of oversuction, the aspirated secretion may flow back to the patient if there is secretion still left in the suction tube.

Before replacing the septic fluid jar in the event of oversuction or switching off the vacuum, always remove the tube from the patient first.

WARNING!

Risk of injury!

Use an extraction catheter with openings at the side during endobronchial extraction.

WARNING!

Injury hazard if the catheter attaches itself to tissue!

Always use a fingertip so that the extraction process can be interrupted quickly by releasing the fingertip.

NOTE

In the event that the overflow protection device has been tripped, switch off the aspirator. Empty and clean or replace all parts.

NOTE

Replace the hydrophobic bacterial and viral filter immediately if it is discoloured, contaminated or oversucked. Furthermore, the filter must be exchanged if the vacuum displayed is above −0.3 bar / 30 kPa when the vacuum controller is in the ‘max’ position and the suction tube is open.

NOTE

Rinse the suction tube briefly with clean water after each extraction cycle.

4.2.1 Switching on the aspirator

CAUTION!

Property damage!

The unit will get hot if the aspirator is switched on when vacuum is activated.

Ensure that no vacuum is present when the aspirator is switched on.

NOTE

The plug must always be accessible to ensure that the aspirator can be unplugged from the power source at any time.

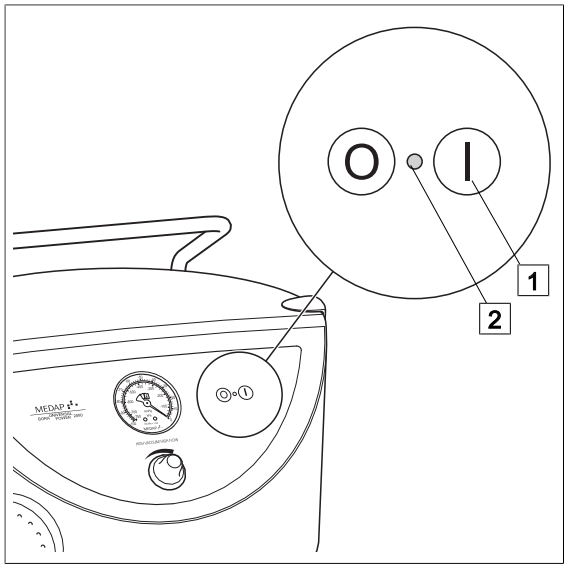


Fig. 25: Switching on the aspirator

☒ Switch on the aspirator (1).

✓ The green power control light (2) is illuminated.

4.2.2 Setting the vacuum level

NOTE

Refer to the troubleshooting guide if there is insufficient vacuum or no vacuum at all.

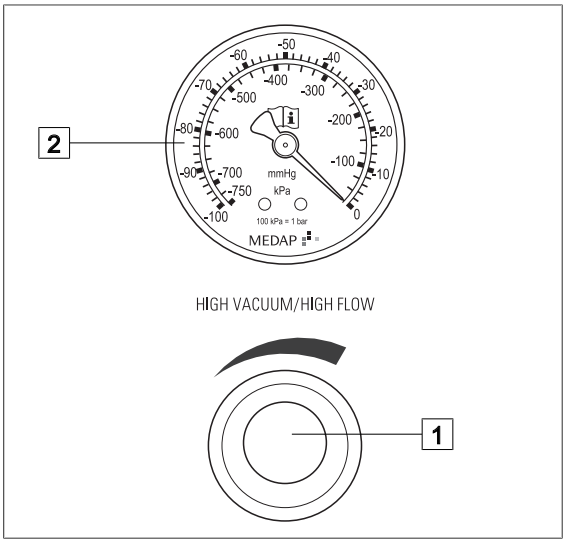


Fig. 26: Setting the vacuum level

Setting the vacuum level

☒ Kink the suction tube on the patient side and hold it closed. Set the vacuum with the regulating knob (1) and check.

Increasing vacuum

☒ Turn the regulator knob (1) to the right.

☒ Read the value on the vacuum gauge (2).

Reducing vacuum

☒ Turn the regulator knob (1) to the left.

☒ Read the value on the vacuum gauge (2).

4.2.3 Foot switch (only for BORA UP 2080 OP)

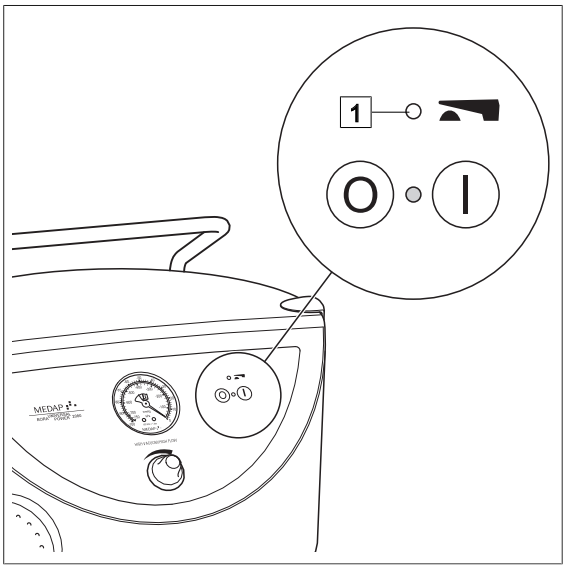


Fig. 27: Foot switch BORA UP 2080 OP

☒ Operate the foot switch.

- ✓ Aspirator is set to stand-by mode.
- ✓ Yellow light emitting diode (1) is illuminated.

☒ Operate foot switch again.

- ✓ Yellow light emitting diode goes out.
- ✓ Aspirator is set to operating mode.

4.2.4 Setting the vacuum shift

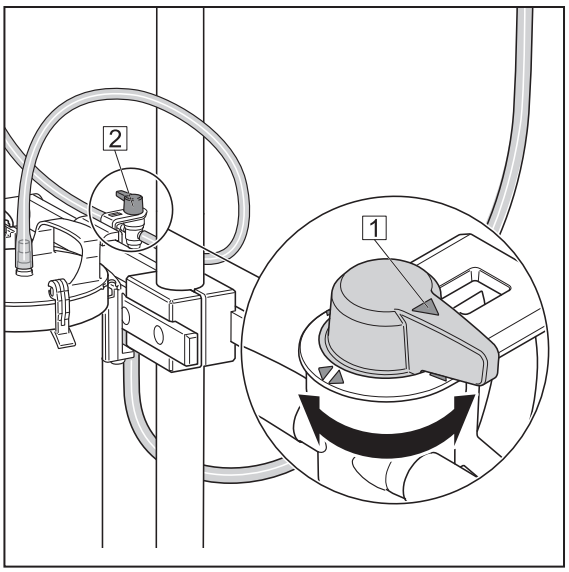


Fig. 28: Vacuum shift

The vacuum shift can be set in four different ways

- Arrow (1) on the rotary switch (2) of the vacuum shift points to the right side: The aspirated secretion will be conducted into the septic fluid jar on the right.
- Arrow (1) on the rotary switch (2) of the vacuum shift points to the left: The aspirated secretion will be conducted into the septic fluid jar on the left.
- Arrow (1) on the rotary switch (2) of the vacuum shift points forward: The aspirated secretion will be conducted into the septic fluid jars on the left and right.
- Arrow (1) on the rotary switch (2) of the vacuum shift points to the back: Vacuum shift is switched off, aspiration processed is halted.

4.3 Utensil

A suction catheter is used to describe how to connect application sets.

WARNING!

Risk of injury!

Tissue may be injured during extraction.

Never extract directly with the suction tube, only with extraction catheter in the correct size or utensil.

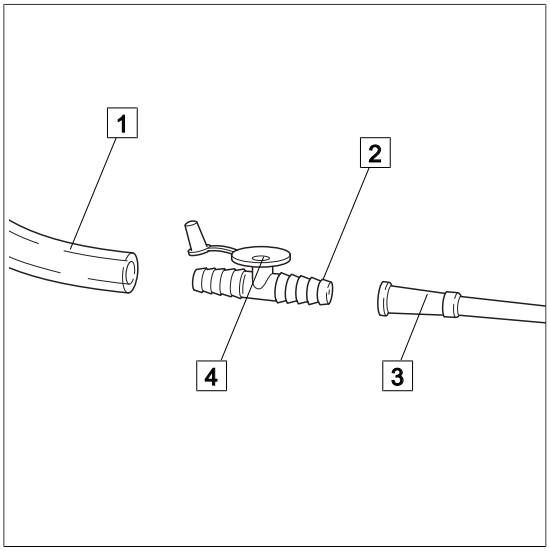


Fig. 29: Connecting the application set

Connecting the application set

☒ Connect the suction tube (1) with the fingertip (2).

☒ Connect the extraction catheter (3) with the fingertip.

Extraction

☒ Use a finger to shut off the shunt air opening (4).

Interrupting the aspiration process

☒ Open the shunt air opening (4).

4.4 Replacing the bacterial filter paper

WARNING!

Infection hazard!

Any and all the parts of the product could be contaminated.

Wear gloves and be absolutely sure to follow the hygiene rules during all cleaning and reconditioning work.

NOTE

Using the aspirator requires daily replacement of the bacterial filter paper.

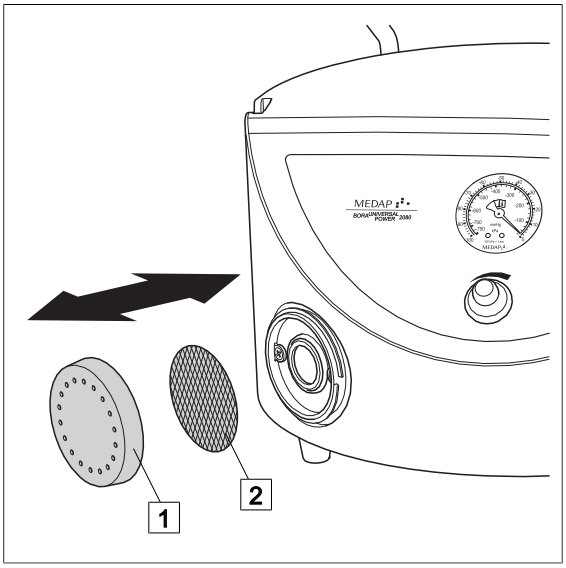


Fig. 30: Replacing the bacterial filter paper

☒ Screw off cap (1).

☒ Remove used bacterial filter paper (2).

☒ Clean and wipe-disinfect the cap.

☒ Insert new bacterial filter paper into the cap.

✓ Fine-structured side faces towards the pump.

☒ Screw on cap.

☒ Connect the aspirator.

5 Taking the unit out of operation

5.1 Completing the aspiration process

☒ Remove the tube from the patient.

☒ Switch off the aspirator.

☒ Empty the septic fluid jar.

☒ Clean the components.

5.2 Emptying the septic fluid jar

DANGER!

Infection hazard!

Any and all of the components in the septic fluid jar might be contaminated.

Always wear gloves when emptying the septic fluid jar and be absolutely sure to follow the hygiene rules.

CAUTION!

Property damage!

If the septic fluid jar is held by the septic fluid jar cap (REF HM57525432), the septic fluid jar may fall.

Do not hold the septic fluid jar by the cap.

CAUTION!

Property damage!

The connection between the septic fluid jar and the septic fluid jar cap may have loosened during use.

Check that the connection between the septic fluid jar and the septic fluid jar cap is secure.

NOTE

Monitor the filling level in the septic fluid jar before and after aspiration and, if larger volumes are being extracted, during aspiration. When the maximum filling level is reached, switch off the aspirator and empty the septic fluid jar.

5.3 Disassembly

5.3.1 Detaching tubes

The disassembly of the tubes is described using the septic fluid jar cap (REF HM57505362) as an example.

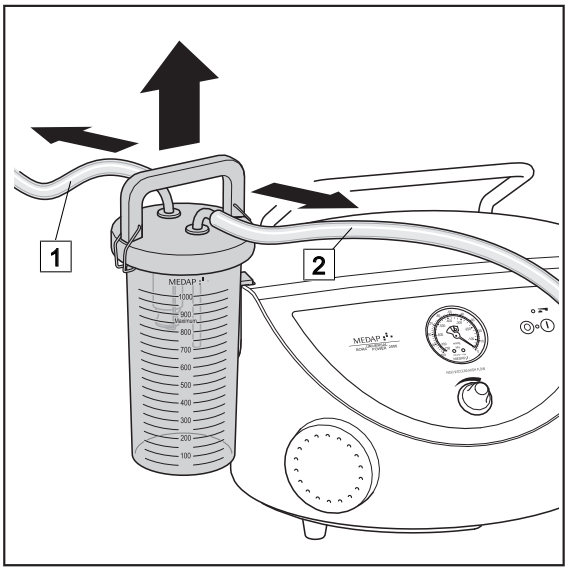


Fig. 31: Disassembly of tubes

☒ Remove the suction tube (2) from the chromed tube connector on the patient side.

☒ Switch off the aspirator.

☒ Remove the connection tube (1) from the black connection of the septic fluid jar cap.

☒ Remove the suction set from the equipment mount connection.

5.3.2 Removing the overflow protection device

NOTE

Avoid damages to the edge of the float.

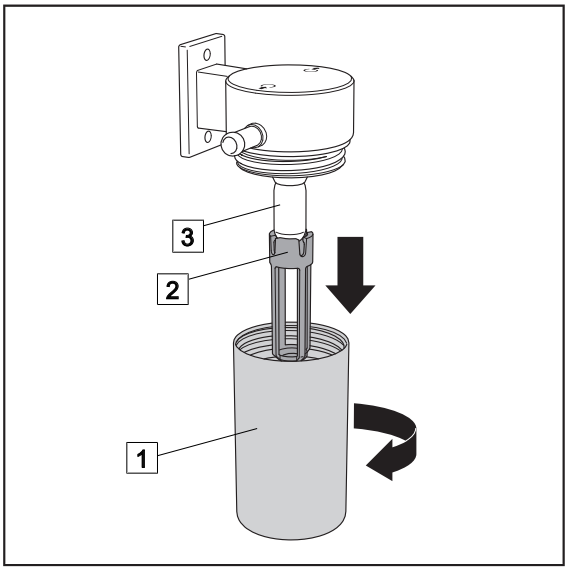


Fig. 32: Disassembling the universal overflow protection

Universal overflow protection

☒ Screw off cap (1) from the overflow protection device.

☒ Detach float cage (2) and remove float (3).

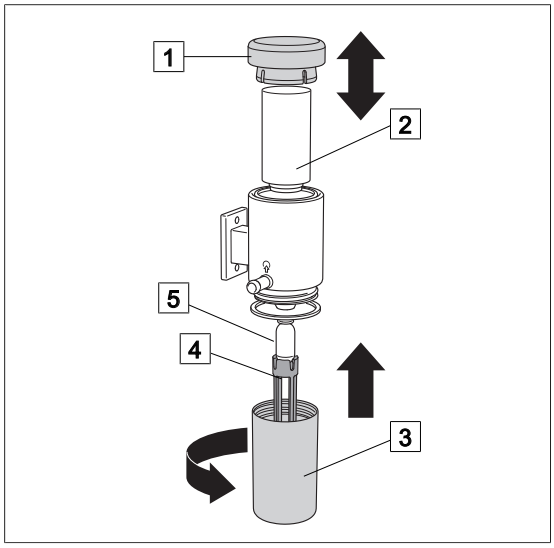


Fig. 33: Disassembling the surgical overflow protection

Surgical overflow protection

☒ Remove the lid (1) from filter housing by lifting upwards.

☒ Remove the bacterial filter (2).

☒ Unscrew the lid of the overflow protection device (3).

☒ Detach float cage (4) and remove the float (5).

6 Cleaning and disinfection

6.1 General

All the components in the aspirator which come into contact with septic fluid must be cleaned and disinfected after each use.

DANGER!

Danger to life!

Electric shock!

Remove the mains plug from the socket before cleaning / disinfection.

DANGER!

Danger to life!

Electric shock!

Liquid should never be allowed to enter live parts.

DANGER!

Risk due to incorrect use of detergents and disinfectants!

It is strictly advised to observe the manufacturer's instructions regarding how to use the detergents and disinfectants as well as to observe the valid hospital hygiene rules.

DANGER!

Infection hazard!

Product may be contaminated.

Always wear gloves for cleaning and disinfection.

DANGER!

Infection hazard!

Particles of grime may become encapsulated and lead to the product not reaching the desired germ-reduction after disinfection.

Before disinfection, the product must be cleaned thoroughly of contamination and encapsulated particles of grime.

CAUTION!

Improper cleaning and disinfection can cause property damage!

Do **not** use the following products for cleaning and disinfection:

- Products containing alcohol (e.g. hand disinfectants)
- Halogenides (e.g. fluorides, chlorides, bromides, iodides)
- Dehalogenating compounds (e.g. fluorine, chlorine, bromine, iodine)
- Products that may scratch the surface (e.g. scouring agents, wire brushes, wire wool)
- Standard commercial solvents (e.g. benzene, thinner)
- Water containing iron particles
- Cleaning sponges containing iron
- Products containing hydrochloric acid

Use a soft, lint-free cloth or a soft nylon brush to clean the product.

CAUTION!
Improper cleaning and disinfection can cause property damage!
Use only as much detergent and disinfectant as required.

CAUTION!
Improper cleaning and disinfection can cause property damage!
Perform visual and functional inspections after each cleaning and disinfection process.

CAUTION!
Property damage due to changes in materials!
Almost all the components in the product are made of plastic. Solvents, some disinfectants and some cleaning agents can soften plastic or cause tension fissures.
Do not use alcohol-containing agents to clean the surfaces. Follow the instructions for using disinfectants.

CAUTION!
Property damage due to tension cracks!
Acids or bases may cause tension cracks.
Do not treat polysulphone containers with strong acids or alkaline solutions.

NOTE
To clean the operating foil, rotate the regulation button to the left and unscrew to remove. After cleaning, screw the regulation button back into place and rotate fully to the right.

NOTE
Refer to the respective manufacturer's instructions for information on cleaning and disinfection.

6.2 Cleaning

6.2.1 General

NOTE
Use only all-purpose cleaners which are slightly alkaline (soap solution) and which contain surfactants and phosphates as the active cleaning agents.
In the event of heavily contaminated surfaces, use concentrated multi-purpose detergent.

CAUTION!
Improper cleaning can cause property damage!
Residues of physiological saline solutions (e.g. sodium chloride) can attack the surfaces of the product.
Remove residues of physiological saline solutions with a cloth dipped in clean water. Then dry the product with a dry, lint-free cloth.

CAUTION!

Improper cleaning can cause property damage!

Do not spray cleaning agent directly into the joints or gaps and never use a high-pressure cleaning unit!

6.2.2 Cleaning procedure

☒ Use the correct dose of multi-purpose detergent with water for the degree of surface contamination and in accordance with the instructions of the detergent manufacturer.

☒ Thoroughly wipe off the product with a soft cloth slightly moistened with a multi-purpose detergent solution.

☒ Ensure that the product is free of contamination and encapsulated particles of grime.

☒ Thoroughly wipe off the product with a soft cloth dipped in clean water.

☒ Ensure that the product is free of detergent residues.

☒ Dry the product with a dry, absorbent and lint-free cloth.

✓ This will help to reduce pathogen growth on the product's surface.

☒ Wipe the product with disinfectant after each cleaning.

6.3 Disinfection

6.3.1 General

NOTE

In the event of product surfaces that are very dirty, carry out an additional cleaning procedure before disinfecting.

CAUTION!

Material damage due to excessive exposure times!

Exceeding the specified exposure time of the disinfectant may damage the surfaces.

Observe the specified exposure time of the disinfectant manufacturer.

NOTE

The septic fluid jar, all the components of the septic fluid jar cup and the tubes are consumption materials. Depending on the cleaning process used, they are subject to greater or lesser wear and tear due to the materials used. Inspect all components for proper functionality before use. Replace them in case of any signs of damage.

NOTE

Using surgical drapes which are not colour-fast can cause discolouration in plastic components.

6.3.2 Suitable disinfectants

Only surface disinfectants based on the following combinations of active ingredients may be used for disinfection:

- Aldehydes
- Quaternary ammonium compounds
- Guanidine derivatives

Ingredient group	Active ingredients
Aldehydes	2-ethyl-1-hexanal, formaldehyde, glutardialdehyde, glyoxal, o-phthaldialdehyde, succinaldehyde
Quaternary ammonium compounds	Alkyl-didecyl-polyoxethyl ammonium propionate, alkyl-dimethyl-alkylbenzyl ammonium chloride, alkyl-dimethyl-ethyl ammonium chloride, alkyl-dimethyl-ethylbenzyl ammonium chloride, benzalkonium propionate, benzalkonium chloride (alkyl-dimethyl-benzyl ammonium chloride, coco-dimethyl-benzyl ammonium chloride, lauryl-dimethylbenzyl ammonium chloride, myristyl-dimethyl-benzyl ammonium chloride), benzethonium chloride, benzyl-dihydroxyethyl-coco-alkyl ammonium chloride, dialkyl-dimethyl ammonium chloride (didecyldimethyl ammonium chloride), didecyl-methyl-oxyethyl ammonium propionate, mecetronium-ethyl sulfate, methyl-benzethonium chloride, n-octyl-dimethyl-benzyl ammonium chloride
Guanidine derivatives	Alkyl-biguanide, chlorhexidine-digluconate, cocospropylene-diamine guanidinium diacetate, oliogomeric biguanide, polyhexamethylene biguanide hydrochloride (oligo-diimino imiodo-carbonyl imino-hexamethylene, polyhexanide)

Tab. 5: Active ingredients of disinfectants

6.3.3 Disinfection procedure

☒ Wipe disinfect the product in accordance with the instructions of the disinfectant manufacturer after every cleaning process.

☒ Ensure that the product is free of disinfectant residue.

☒ Perform visual and functional inspections.

6.3.4 Disinfection procedures

Different disinfection procedures may be used for the various components, depending on the properties of the materials. Before disinfection remove contaminations and residues from the parts and dry well.

Components	In solution[1]	Wipe, spray disinfection[2]
Aspirator basic equipment		X
Trolley		
Catheter holder		
Mains cable		
Foot switch		
Cap to cover the equipment mount interface	Only spray disinfection	
Bacterial filter cap	X	X
Float / float cage		
Suction tube / connection tube		
Tube adapter	X	
Housing of overflow protection device, universal / surgical	X	X
Hydrophobic bacterial and viral filter (REF HM57524514, REF HM57521783)[3]	Disposable	
Bacterial filter paper	When in use, must be replaced daily.	

1. After exposure (as prescribed in the manufacturer's instructions), rinse components thoroughly with water and dry them afterwards.

2. After exposure (as prescribed in the manufacturer's instructions) remove disinfectant residues from the components using a moist cloth and dry them afterwards.

3. Replace the hydrophobic bacterial and viral filter immediately if it is discoloured, contaminated or oversucked. Furthermore, the filter must be exchanged if the vacuum displayed is above −0.3 bar / 30 kPa when the vacuum controller is in the 'max' position and the suction tube is open.

Tab. 6: Disinfection procedures

7 Maintenance

7.1 General

Maintenance, repairs and period tests may only be carried out by persons who have the appropriate technical knowledge and are familiar with the product. To carry out these measures, the person must have the necessary test devices and original spare parts.

ATMOS recommends: Work should be carried out by an authorised ATMOS service partner. This ensures that repairs and testing are carried out professionally, original spare parts are used and warranty claims remain unaffected.

WARNING!

Health hazard!

The aspirator is used in the treatment of patients. The aspirator or parts of the unit may be contaminated.

Prior to returning the aspirator for inspection or repair, remove the bacterial and viral filter and all tubes and clean and disinfect the equipment.

7.2 Periodic tests

At least every 12 months a repeat test of the electrical safety should be performed according to IEC 62353.

ATMOS recommends an inspection according to the manufacturer‘s specifications.

7.3 Malfunctions and troubleshooting

No.	Malfunction	Cause	Remedy
1	Aspirator does not start operation, operating status display is illuminated.	Vacuum is still present.	Switch off the aspirator, turn regulating knob to the left, switch on the aspirator.
		The motor is defective.	Have the equipment repaired by a service technician authorised by ATMOS.
2	Aspirator with foot switch does not start, yellow LED lights up.	Aspirator is in standby mode.	Switch off standby mode using the foot switch. The aspirator starts operating. If the foot switch is operated again, the aspirator switches back into standby mode.
3	Aspirator does not start operation, operating status display is not illuminated.	Equipment or mains plug is not seated properly in the socket.	Check the equipment and mains plugs for proper contact.
		None or improper voltage.	Check the building fuse, check the specifications on the type plate.
		The mains fuse is defective.	Replace the mains fuse. [⏩ Page 50]
4	Equipment cannot be switched on and off.	The electronics are defective.	Have the equipment repaired by a service technician authorised by ATMOS.

No.	Malfunction	Cause	Remedy
5	Aspirator operates but operating status display is not illuminated.	LED on the operating status display is defective.	Have the equipment repaired by a service technician authorised by ATMOS.
6	Vacuum cannot be regulated.	The membrane regulator is defective.	Have the equipment repaired by a service technician authorised by ATMOS.
7	Aspirator working but vacuum gauge indicates no vacuum.	The vacuum gauge is defective.	Have the equipment repaired by a service technician authorised by ATMOS.
8	Reduced / no flow rate	Septic fluid jar cap is not in the correct position.	Position septic fluid jar cap properly.
		Hydrophobic filter is clogged (vacuum gauge indicates vacuum).	Replace hydrophobic filter.
		Crack in the tube	Replace tube.
		Seal is contaminated.	Replace seal.
		Porous seal of septic fluid jar cap	Replace seal.
		Bent clamp, septic fluid jar cap does not close.	Replace septic fluid jar cap.
		Septic fluid jar is full, mechanical overflow protection is closed (vacuum gauge indicates vacuum).	Empty the septic fluid jar and clean or replace septic fluid jar and mechanical overflow protection.
		Mechanical overflow protection is contaminated with exudate.	Clean overflow protection device or replace septic fluid jar cap.
		Tube connection in septic fluid jar cap is clogged.	Clean the tube connection.
		Suction tip is clogged.	Clean suction tip.
		The motor is defective.	Have the equipment repaired by a service technician authorised by ATMOS.
9	Aspirator has been exposed to oversuction.	No mechanical overflow protection device and no hydrophobic bacterial filter installed.	Aspirator may no longer be used. Have the equipment repaired by a service technician authorised by ATMOS.
		Mechanical overflow protection device is sticking; no hydrophobic bacterial filter used.	

Tab. 7: Malfunctions and troubleshooting

7.3.1 Replace mains fuse

WARNING!

Electric shock!

Disconnect the electrical plug before changing the fuses.

CAUTION!

Property damage!

You may only use fuses of the following type:

- 2 x T 1.6 A H / 250 V for nominal voltage 230 V AC (REF HM57522696, REF HM57522301);
- 2 x T 3.15 A H / 250 V for nominal voltage 115 V AC (REF HM57522302, REF HM57522303).

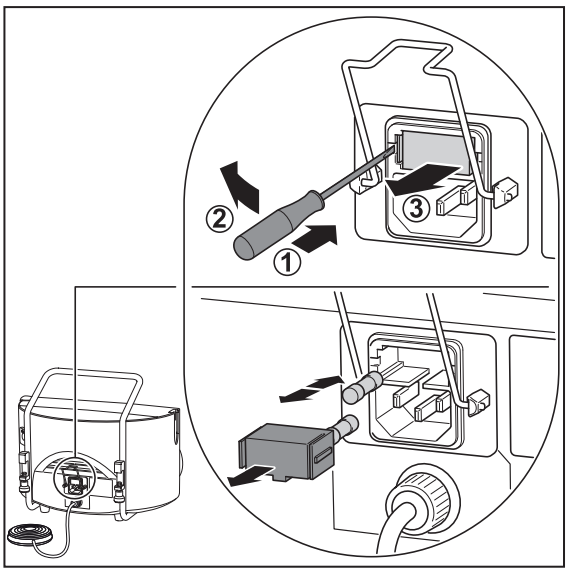


Fig. 34: Replacing fuses

☒ Release the bracket.
☒ Disconnect equipment plug.
☒ Use a screwdriver (1) to open the fuse carrier (3) from the side (2).
☒ Remove the fuse carriers (3).
☒ Remove the fuses from the fuse carriers.
☒ Insert new fuses.
☒ Insert new fuses and click into place.

7.4 Repairs

The following issues may require repairs by the manufacturer or an authorised service partner:

- Liquid has penetrated the device.
- The performance has significantly decreased.
- Inexplicable notifications appear.
- Abnormal noises occur.
- Functional faults cannot be rectified according to the measures in chapter Malfunctions and troubleshooting [⏩ page 48].

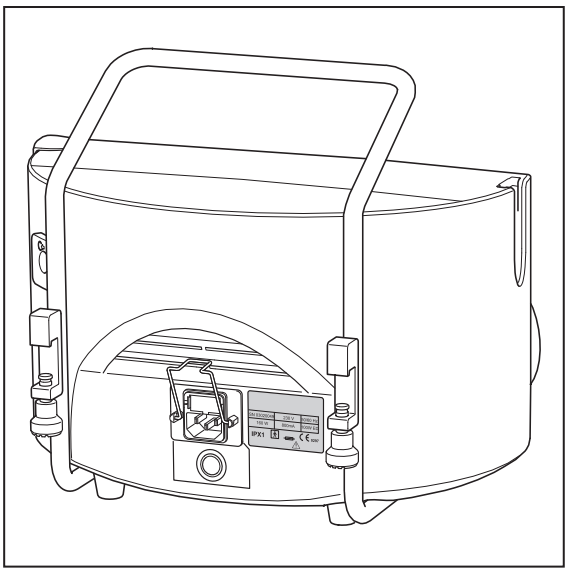
If defects are detected, the product may not be used any longer.

Make a note of the deficiencies and the REF number on the data plate and inform the responsible ATMOS Service.

Inform the appropriate foreign representative outside Germany.

Observe the information in chapter Sending in the device [⏩ page 51].

7.5 Type plate position



Position of the type plate (1) on the product.

Fig. 35: Type plate

7.6 Service hotline:

+49 7653 689-0

7.7 Spare parts

HM57524982	Foot switch
HM57523082	Repair set, bacterial filter cap
HM57505384	Regulating knob
HM57503609	Mains cable 4.0 m
HM57523203	Mains cable, UK, Singapore

Tab. 8: Spare parts

7.8 Sending in the device

☒ Remove and properly dispose of consumables.

☒ Clean and disinfect the product and accessories according to the operating instructions.

☒ Place used accessories with the product.

☒ Fill in form QD 434 ‘Delivery complaint / return shipment’ and the respective **decontamination certificate**.

This form is enclosed with each delivery and can be found at www.atmosmed.com.

☒ The device must be well padded and packed in suitable packaging.

☒ Place form QD 434 ‘Delivery complaint / return shipment’ and the respective **decontamination certificate** in an envelope.

☒ Affix the envelope to the outside of the package.

☒ Send the product to ATMOS or to your dealer.

8 Technical specifications

8.1 Device

Input voltage	230 V~ ± 10%; 50/60 Hz Special voltage: 115 V~ ± 10 %; 60 Hz
Current consumption	max. 0.4 A (at 230 V~, 50/60 Hz) max. 0.7 A (at 115 V~, 60 Hz)
Power consumption	100 VA
Fuses	T 1.6 A H / 250 V (for 230 V~, 50/60 Hz) T 3.15 A H / 250 V (for 115 V~, 60 Hz)
Suction capacity at the device inlet	approx. 42 l/min
Maximum achievable vacuum: • at sea level (0 m) • at 500 m • at 1,000 m • at 1,500 m • at 2,000 m	 −90 kPa −84 kPa −79 kPa −73 kPa −68 kPa
Vacuum adjustment	stepless vacuum regulator
Vacuum display	vacuum gauge (accuracy class 1.6)
Pump	Membrane pump
Available canister systems	Reusable secretion canister: 1 l PSU 2.5 l glass 3 l PSU 4 l PC 4 l PSU 5 l glass Interfaces for the use of disposable systems: 1 l 2 l 3 l
Sound pressure level	50.5 dB (A)
Mode of operation	Continuous operation
Protective earth conductor resistance Earth leakage current Touch current Patient leakage current	max. 0.1 Ω max. 5 mA max. 0.1 mA max. 0.1 mA
Environmental conditions: Transport/storage • Temperature range • Air humidity without condensation • Air pressure	 −15...+50 °C 10...95 % 700...1060 hPa

Environmental conditions: Operation • Temperature range • Air humidity without condensation • Air pressure	 +15...+40 °C 30...75 % 700...1060 hPa
Maximum operating altitude	2,000 m
Contamination level	2
Overvoltage category	II
Dimensions (H x W x D) • with handle • without handle • with trolley	 360 x 310 x 310 mm 360 x 310 x 220 mm 550 x 570 x 1080 mm
Weight	11 kg (without canister and without trolley) 20.6 kg (without canister and with trolley)
Periodic tests	Repeat test of electrical safety every 12 months. Recommended: Inspection according to the manufacturer's specifications.
Protection class against electric shock (acc. to EN 60601-1)	I
Classification of applied parts	Type BF applied parts 
Degree of protection	IPX1
CE marking	CE 0124
Reference number (REF) • 230 V • 115 V	 HM57522296 / HM57522301 HM57522302 / HM57522303

9 Approved accessories

The following accessories are not part of the scope of delivery and must be ordered separately.

9.1 Accessories

HM57522391	Overflow protection device with equipment mount and jar PSU
HM57522392	Overflow protection device with chamber for hydrophobic bacterial and viral filter
HM57524514	Hydrophobic filter (for AS universal overflow protection)
HM57521783	Hydrophobic bacterial and viral filter (for AS surgical overflow protection)
HM57525320	Trolley
HM57508002	Catheter holder for trolley
HM57525150	Catheter tubular
HM57525151	Cover for catheter tubular
HM57525431	Septic fluid jar with equipment mount, 1 l (polysulphone (PSU))
HM57505228	Septic fluid glass jar 5 l
HM57505297	Septic fluid jar 3 l
HM57505227	Septic fluid glass jar 2.5 l
401.0300.0	ATMOS external canister 3 l
401.0200.0	ATMOS external canister 2 l
401.0100.0	ATMOS external canister 1 l
HM57525656	Septic fluid jar 4 l PSU with equipment mount
HM56525658	Septic fluid jar 4 l PC with equipment mount
HM57525655	Septic fluid jar cap 1.75 / 4 l PSU
HM57525657	Septic fluid jar cap 1.75 / 4 l PC
401.0301.0	ATMOS-Suction Bag 3 l with Gelling Agent, 70 pcs.
401.0201.0	ATMOS-Suction Bag 2 l with Gelling Agent, 100 pcs.
401.0101.0	ATMOS-Suction Bag 1 l with Gelling Agent, 100 pcs.
401.0302.0	ATMOS-Suction Bag 3 l without Gelling agent, 70 pcs.
401.0202.0	ATMOS-Suction Bag 2 l without Gelling Agent, 100 pcs.
401.0102.0	ATMOS-Suction Bag 1 l without Gelling Agent, 100 pcs.
HM57505362	Septic fluid jar cap with integrated overflow protection
HM57500390	Septic fluid jar cap
HM57525432	Septic fluid jar cap, silicone, with overflow protection device
HM57524538	Bowl for trolley, round
HM57522048	Rail clamp for equipment mount / metal
HM57522540	Rail clamp for equipment mount / plastic
HM57520184	Cap plug surgical 9/12 (plastic)
HM57500396	Cap plug surgical 9/12 (chrome-plated)
401.0091.0	Vacuum serial tube for ATMOS-Suction Bags, 20 pcs.
401.0092.0	T-connector for ATMOS-External Canisters, 10 pcs.
HM57522049	Vacuum shift
HM57522295	Tube adapter

Tab. 9: Accessories

9.2 BORA UP 2080 complete unit

HM57524856	BORA UP 2080 / septic fluid aspiration / portable / 1 x 1 l
HM57525511	BORA UP 2080 / septic fluid aspiration / mobile / 1 x 3 l
HM57525512	BORA UP 2080 OP / surgical aspiration / mobile / 2 x 3 l
HM57525673	BORA UP 2080 OP / surgical aspiration / mobile / 2 x 4 l/ PSU
HM57525674	BORA UP 2080 OP / surgical aspiration / mobile / 2 x 4 l/ PC

Tab. 10: BORA UP 2080

9.3 Application sets

NOTE

A detailed description of the individual application set can be found in the current price list.

HM57524558	AS overflow protection universal
HM57522546	AS overflow protection surgical
HM57523400	AS Septic Fluid Aspiration / portable / 1 l
HM57525803	AS Septic Fluid Aspiration / portable / 1 l / ATMOS
HM57525498	AS Septic Fluid Aspiration / on trolley / 3 l
HM57525805	AS Septic Fluid Aspiration / on trolley / 2 l / ATMOS
HM57525503	AS Septic Fluid Aspiration / trolley / 2 l / Serres®
HM57525505	AS Surgical Aspiration / on trolley / 2 x 3 l / CF-proof
HM57525807	AS Surgical Aspiration / on trolley / 2 x 3 l / ATMOS
HM57525667	AS Surgical Aspiration / trolley / 2 x 4 l / PSU
HM57525668	AS Surgical Aspiration / on trolley / 2 x 4 l / PC

Tab. 11: Application sets

9.4 Consumables

HM57524514	Hydrophobic bacterial and viral filter
HM57521783	Hydrophobic bacterial and viral filter for AS surgical overflow protection
HM57505045	Bacterial filter paper (100 pieces)
HM57505483	Vacuum connection tube, 8 x 14 mm, by the metre
006.0009.0	Suction hose, silicone, Ø 6 mm, 1 m (minimum 5 m)
000.0347.0	Fingertip
HM57524928	Smoke evacuation filter

Tab. 12: Consumables

10 Notes on EMC

WARNING!

Medical electrical equipment is subject to special precautions with regard to EMC and must be installed according to the following EMC notes.

Guidance and manufacturer's declaration – ambient conditions

The product is suitable for use in the following environments:

- In professional healthcare facilities such as medical practices, hospitals/clinics, first-aid facilities and operating theatres/rooms.
  It is not suitable for use in the vicinity of HF surgical devices and in settings outside of an HF-shielded room of a magnetic resonance imaging system.
- Special environments such as factory or military facilities and medical areas near HF surgical devices, short-wave therapy equipment, or within an HF-shielded room of a magnetic resonance imaging system.

The customer or user must ensure that the device is used in a prescribed environment.

Guidance and manufacturer's declaration – key features

WARNING!

Please note the technical data in this manual. The essential features are fully usable even in the presence of electromagnetic disturbances.

Guidance and manufacturer's declaration – electrical components

The product has the following electrical components:

Type	REF	Max. cable length
Mains cable Europe	HM57503616	4 m

Guidance and manufacturer's declaration – warnings

WARNING!

The use of electrical components and accessories other than those specified or provided by the manufacturer may cause increased electromagnetic interference or reduced immunity to electromagnetic interference and result in faulty operation of the device.

WARNING!

Portable RF communications equipment (e.g. radios, antenna cables) should not be used within 30 cm* of any parts or cables of the product as specified by the manufacturer. Failure to do so may lead to a reduction in the device's performance.

*The distance may be reduced at higher immunity test levels.

WARNING!

Placement on top of or next to another device should be avoided. This could result in faulty operation. If such placement cannot be avoided, the proper functioning of the device must be monitored regularly.

If possible, please switch off any nearby devices that are not in use.

Notes

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Manufacturer:

ATMOS
MedizinTechnik GmbH & Co. KG
Ludwig-Kegel-Str. 16
79853 Lenzkirch
GERMANY
Phone: +49 7653 689-0
www.atmosmed.com