ATMOS
MedizinTechnik

Operating Instructions

ATMOS S 61 Servant ENT Workstation

English

GA1GB.110101.0

2023-10 Index 30

CE 0124

Table of contents

1 Introduction 5
1.1 Notes on the operating instructions 5
1.2 Explanation of pictograms and symbols 6
1.2.1 System frame label 9
1.2.2 Variotherm plus front-foil module 9
1.2.3 Hygrotherm front-foil module 9
1.3 Intended use 10
1.3.1 ATMOS S 61 Servant ENT workstation 10
1.3.2 Hygrotherm 11
1.3.3 Variotherm plus 12
1.4 Function 12
1.5 Scope of delivery 13
1.6 Delivery 13
1.7 Transport and storage 13

2 Notes for your safety 14
2.1 General safety instructions 14
2.2 Important safety instructions 14
2.3 Specific safety instructions for Hygrotherm and Variotherm plus 16
2.4 Hygrotherm / Variotherm plus 16
2.5 Avoiding damage to the device 17

3 Set-up and start-up 18
3.1 Connections required for all units of the ATMOS S 61 Servant 18
3.2 Electrical connection 19
3.3 Water connection 20
3.4 Water drainage 21
3.5 Set-up proposal 22
3.6 Controls and options with complete equipment 23
3.7 Rear view 24
3.8 Assembling the canister 24
3.8.1 Design of the secretion canister 25
3.9 Adjustment of the front feet 25
3.10 Connections in the service compartment 26
3.10.1 Hoses 26

4 Operation 28
4.1 On/off switch 28
4.2 Suction unit 28
4.2.1 Control and display of the suction capacity 28
4.2.2 Hose rinsing system 28
4.2.3 Disposable canister system 30
4.3 Hygrotherm ear irrigation module 31
4.3.1 Overview 31
4.3.2 Switching on 31
4.3.3 Activating the Hygrotherm 32
4.3.4 Irrigating the ear 32
4.3.5 Temperature setting 32

4.4 Thermal nystagmus stimulation, Variotherm plus ... 33
4.4.1 Overview ... 33
4.4.2 Switching on ... 34
4.4.3 Activating the Variotherm plus ... 34
4.4.4 Performing the thermal nystagmus stimulation ... 34
4.4.5 Time setting (1 – 99 s) ... 34
4.4.6 Temperature setting ... 35
4.4.7 Setting the flow rate ... 35
4.4.8 Information on the maintenance indicator of the ATMOS S 61 Servant ENT workstation with software version V 1.2 ... 36
4.5 Ear irrigation bulb incl. own separate suction channel (REF 530.2070.0) ... 37
4.6 Compressed-air module ... 37
4.6.1 Activation ... 38
4.6.2 Adapting/depositing the sprayer ... 38
4.7 Compressed-air module ... 38
4.7.1 Compressed-air ear irrigation module (REF 530.2080.0) ... 39
4.8 LED light module ... 39
4.9 Instrument heating ... 39
4.9.1 Quick mirror heater ... 39
4.9.2 Heating module for instrument tray ... 40
4.10 Endoscopy clipboard ... 40
4.10.1 ATMOS LED Light Cube two-channel option ... 40
4.10.2 ATMOS LED Light Cube three-channel option ... 41
4.10.3 Endoscope management option (heated) ... 41
4.10.4 Hook for headlamp with automatic activation ... 41

5 Sterilization ... 42
5.1 General information on cleaning and disinfection ... 42
5.1.1 Cleaning the device surface ... 42
5.1.2 Secretion canister, bacterial filter and suction hose ... 43
5.1.3 Checking the DDS bacterial filter / oversuction stop ... 43
5.1.4 Medication sprayer ... 43
5.1.5 Instrument trays ... 44
5.1.6 Endoscope quiver ... 44
5.1.7 Ear irrigation bulb ... 44
5.1.8 Hose tip and nozzle ... 44
5.2 Recommended instrument disinfectants ... 44
5.3 Recommended surface disinfectants ... 46
5.4 Recommended disinfectants for endoscopes ... 47

6 Hygiene plan ... 49

7 Maintenance and service ... 51
7.1 Changing fuses ... 51
7.2 Exchanging the bacterial filter ... 51
7.3 Exchanging the hose box of the hose pump ... 52
7.4 Hygrotherm / Variotherm plus: Decalcification ... 52
7.5 Hygrotherm / Variotherm plus: Filter replacement ... 52
7.6 Sending in the device ... 52

8 Troubleshooting ... 54

9 Accessories and consumables 57
9.1 Consumables 57
9.2 Accessories 57
9.3 Spare parts 58
10 Disposal 59
11 Technical data 60
12 Notes on EMC 62

1 Introduction

1.1 Notes on the operating instructions

These operating instructions contain important information on how to operate your product safely, appropriately and effectively.

This manual is used to train and instruct operating personnel and is also intended for use as a reference manual. This document may be reprinted, either in part or in whole, only with the written permission of ATMOS.

These operating instructions must always be kept available near the product.

Care, period tests, regular cleaning and proper use are essential. They ensure the operational safety and usability of the product.

Maintenance, repairs and period tests may be carried out only by persons who have the appropriate technical knowledge and are familiar with the product. The person in question must possess the test devices and original spare parts required to take the mentioned measures.

The product ATMOS S 61 Servant ENT workstation bears the CE marking CE 0124 in accordance with the EC directive of the Council concerning medical devices 93/42/EEC and meets the basic requirements of Appendix I to this directive.

The ATMOS S 61 Servant ENT workstation complies with all applicable requirements of the directive 2011/65/EU restricting the use of certain hazardous substances in electrical and electronic equipment (“RoHS”).

The declarations of conformity and our general terms and conditions can be obtained on our website at www.atmosmed.com.

The quality management system used at ATMOS has been certified according to the international standard EN ISO 13485.

Prior to the initial start-up, please read chapter “2 Notes for your safety” on page 14 to avoid any dangerous situations.

These operating instructions apply to the following products:

ATMOS S 61 Servant ENT workstation (230 V~)	REF 530.0000.0
ATMOS S 61 Servant ENT workstation (100 V~)	REF 530.0001.0
ATMOS S 61 Servant ENT workstation (115 V~)	REF 530.0002.0
ATMOS S 61 Servant ENT workstation (127 V~)	REF 530.0003.0

1.2 Explanation of pictograms and symbols

In the operating instructions

⚠ DANGER	Warning of a danger resulting directly in fatal or serious injury. Observe the necessary measures.
⚠ WARNING	Warning of a danger of fatal or serious injuries. Observe the necessary measures.
⚠ CAUTION	Warning of a danger of minor injuries. Observe the necessary measures.
ATTENTION	Notice of a danger of damage to the product or other objects. Observe the necessary measures.
⚠	Warning of a danger of serious or fatal injury.
ⓘ	Notice of potential material damage that can be caused.
☞	Useful information on handling the device.
1.	Call for action. Proceed step by step.
“	Result of an action.
→	Move/plug in this direction.
click	Engage, check for firm seating surface.

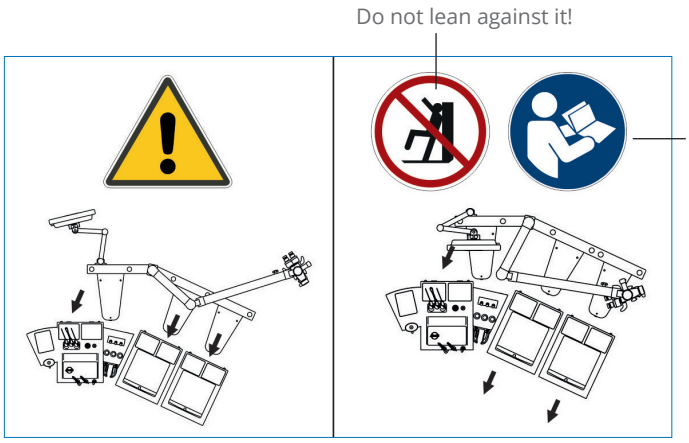
On the device, type plate and packaging

	Follow the operating instructions (blue)
	Observe the operating instructions
	Warning! Pay special attention
	Warning! Pay special attention (yellow)
CE 0124	This product meets with the relevant requirements of EU statutory ordinances.
EAC	This product meets the relevant requirements of the Eurasian Economic Union.
	Manufacturer
	Date of manufacture

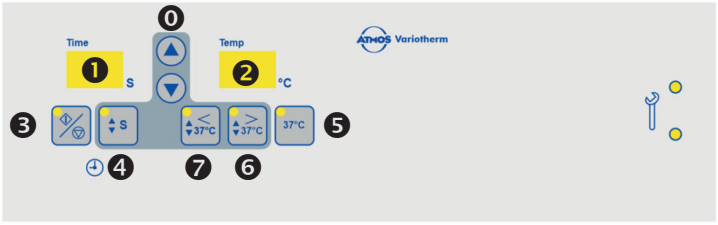
	Date of manufacture Country of manufacture: Germany
REF	Article number
UDI	Unique identifier of a medical device
MD	Medical device
SN	Serial number
EAN	European article number
LOT	Batch code
IP X0	Specification of the degree of protection against the ingress of solids and moisture
	Type B applied part
	Type BF applied part
	No domestic waste
	Do not reuse
	On (supply, mains connection)
	Off (supply, mains disconnection)
	ATMOS LED Light Cube on/off
	Compressed-air system
	Suction system
	Quick mirror heater
	Timer (Variotherm plus)
	Foot switch
	Vacuum regulator adjustment knob

	Pressure adjustment knob
	Dimming control
	Potential equalization
	Device of protection class I
	Protective earth connection
	Fuse
	Alternating current
	This side up
	Fragile! Handle with care
	Store in a dry place
	Keep away from sunlight
	Temperature limit
	Humidity limitation
	Atmospheric pressure limitation
	Warning of hot surface
	ATMOS LED technology

1.2.1 System frame label



1.2.2 Variotherm plus front-foil module



- ❶ Up and down adjustment buttons (for temperature or second settings)
- ❶ Display of stimulation time (two-digit, resolution of 1 s)
- ❷ Temperature display (double-digit, resolution of 1 °C), actual value display
- ❸ Button used to start/stop the stimulation (150 ml/min)
- ❹ Button used to adjust the stimulation period
- ❺ Button used to select the irrigation level (37 °C)
- ❻ Button used to select the warm stimulation level (e.g. 44 °C)
- ❼ Button used to select the cold stimulation level (e.g. 30 °C)

1.2.3 Hygrotherm front-foil module

- ❶ Up and down adjustment buttons (for temperature settings)
- ❶ Temperature display (double-digit, resolution of 1 °C), actual value display
- ❷ Button used to select the stimulation level (36 – 38 °C)

UDI application identifier

(1) 042503651164084
(11) 200630
(21) 1234567

1.3 Intended use

1.3.1 ATMOS S 61 Servant ENT workstation

Product name:	ATMOS S 61 Servant ENT workstation
Main function:	• Medical suction • Ear irrigation (by means of compressed air or Variotherm plus) • Thermal nystagmus stimulation (Variotherm plus) • Medication spraying • Power supply for visualization, lighting or lighting accessories • Instrument storage and disposal • Shelves • Instrument heating
Intended use	Standard ENT examinations and/or therapy
Intended users / user profiles:	Physicians and medically trained personnel
User training:	The product may be used only by persons with medical training
Intended patient target groups:	Patients of all ages without restrictions
Medical condition to be diagnosed, treated or monitored:	Diagnostic examination of anatomy of all kinds
Application organ:	Ear, nose, throat
Application time:	< 60 min.
Application site:	Outpatient medical facilities, e.g. ENT practices, hospital outpatient clinics, ambulatory healthcare centres
Patient selection criteria:	None
Indications:	Standard ENT examinations and/or therapy
Medical contraindications:	Ear irrigation: Must not be used for an infected ear canal or a perforated ear drum.
Other contraindications:	None
Undesired side effects:	None

Warnings:	Refer to chapter 2.0 “Notes for your safety” in the applicable operating instructions for the product.
The product is:	Active
Sterility / specific microbial condition:	Not sterile
Single-use product / re-sterilization:	Not a disposable product. It can be used several times on several patients. It must be re-sterilized according to the operating instructions.

1.3.2 Hygrotherm

Product name:	Hygrotherm
Main function:	Irrigation of the external ear canal.
Intended use:	Irrigation of the external ear canal.
Intended users / user profile:	Physicians and medical specialists.
Intended patient group:	Patients of all ages without restrictions.
Medical conditions to be diagnosed, treated or monitored:	Reduction in hearing due to cerumen in the ear canal.
Application organ:	External ear canal to the ear drum.
Application time:	Temporary (< 60 min).
Application site:	Outpatient medical facilities, e. g. ENT practices, hospital outpatient clinics, ambulatory healthcare centres.
Criteria for patient selection:	Patients with intact, physiological ear drum and external ear canal.
Indications:	Hearing loss due to impacted ear wax.
Medical contraindication:	Pathological ear drum.
Medical contra indication:	Pathological ear drum.
Other contraindications:	Pathological external ear canal.
Warnings:	N/a
The product is:	Active
Sterility / specific microbial condition:	Not sterile
Single-use product / re-sterilization:	Not a disposable product. Options for re-sterilization according to the operating instructions.

1.3.3 Variotherm plus

Product name:	Variotherm plus
Main function:	Stimulation of the vestibular organ Irrigation of the external ear canal
Intended use	Stimulation of the vestibular organ Irrigation of the external ear canal
Intended users / user profile:	Physicians and medical specialists.
Intended patient group:	Patients of all ages without restrictions.
Medical conditions to be diagnosed, treated or monitored:	Dizziness due to a disorder of the vestibular organ; reduction in hearing due to cerumen in the ear canal.
Application organ:	External ear canal to the ear drum
Application time:	Temporary (< 60 min)
Application site:	Outpatient medical facilities, e. g. ENT practices, hospital outpatient departments, medical care centres
Criteria for patient selection:	Patients with an intact, physiological ear drum and external ear canal
Indications:	Differential diagnosis of vertigo Hearing loss due to impacted ear wax
Medical contraindication:	Pathological ear drum
Other contraindications:	Pathological external ear canal
Warnings:	N/a
The product is:	Active
Sterility / specific microbial condition:	Not sterile
Single-use product / re-sterilization:	Not a disposable product. Options for re-sterilization according to the operating instructions.

1.4 Function

The product is a diagnostic and therapeutic device for ear, nose and throat physicians. The workspace including options and accessories can be individually configured by the user according to their personal needs. The product is used in clinics or in ENT practices.

The ATMOS S 61 Servant ENT workstation treatment unit enables the modular installation of the following functional modules:

- Suction module
- Compressed-air system
- Ear irrigation module (Hygrotherm)
- Stimulation of the vestibular organ
- LED light source ATMOS LS 21 LED
- LED headlamp ATMOS HL 21 LED

1.5 Scope of delivery

The ATMOS S 61 Servant ENT workstation was subjected to an extensive functional test and was carefully packed prior to dispatch.

Nevertheless, please check the contents of the shipment immediately upon receipt to ensure it is complete (see delivery note).

1.6 Delivery

Please pay attention to any damage to the packaging when accepting the delivery of the goods. Report any damage directly to ATMOS or your partner.

1.7 Transport and storage

Transport the product only in a shipping box that is padded and offers sufficient protection.

If you notice transport damage:

1. Document and report the transport damage.
2. Send in the device to ATMOS.

Ambient conditions for transport and storage:

- Temperature: -10...+50 °C
- Humidity without condensation: 30...95 %
- Pressure: 500...1060 hPa

2 Notes for your safety

Please read the safety instructions thoroughly and pay attention to them before using the product.

2.1 General safety instructions

Use only accessories and options that are explicitly defined as suitable for combination with the product and meet the performance and safety requirements.

If you wish to connect more than one device or applied part, you must comply also with the safety instructions for them.

Report all serious incidents that have occurred in connection with this product to the manufacturer and the national authority responsible for you.

Make sure the rollers are always locked when using the treatment unit.

The device must not be operated within the range of MRI (magnetic resonance imaging).

2.2 Important safety instructions

- Protection against electric shock: protection class I
- The device may be connected only to a properly installed protective contact socket.
- Correct configuration for the assembly of country-specific connections:
  - Green/yellow: protective conductor (PE)
  - Blue: neutral conductor (N)
  - Black or brown: phase (L)
- Caution! Temperatures above 40 °C may prevail at quick mirror heaters!
- The ATMOS S 61 Servant ENT workstation may be used only by specialists authorized by ATMOS and trained in its operation **under supervision** (IEC 601-1 / EN 60601-1).
- The mains voltage indicated on the type plate must correspond to the values of the mains supply.
- Make sure the device is technically safe and in orderly condition each time before using it. Immediately replace any **damaged cables or hoses**!
- Display instruments and valves must be checked for correct function at regular intervals!
- Conduct a visual inspection of the hoses, secretion canister and cables every morning. Exchange damaged parts! Use only proper and undamaged mains connections and extension cables.
- Switch off the unit before opening it and disconnect it from the mains voltage.
- Maximum load for clipboard: 2 kg!
- Never leave the patient unattended at the treatment unit.
- The control panel must be clearly visible and accessible for the user.
- This product is cannot be re-sterilized. It is forbidden to reuse components marked with ②. If reused repeatedly, these components will lose their function and there will be a high risk of infection.
- In case that there is no adapter attached to the light conductor, touching the light source with either your fingers or any tools should be avoided. On the one hand, this may damage the lenses and on the other hand there will be a risk of injury.
- Temperature control of the instruments by the user, e.g. on the back of your hand.
- Clean heating modules regularly and disinfect them if necessary. Heat only clean instruments.

- For existing water consumers, switch on the device only when the water supply is ensured!
- The ENT unit requires clean water of drinking water quality for operation. If this is not ensured by the water network, a pre-filter must be installed. The country-specific connection conditions must be observed!
- Please note:
  A medical isolation transformer with earth leakage monitor or a similar safety system according to EN 60601-1 must be used if several devices are connected over one common mains. The transformer must correspond to the power consumption of all the devices to be connected.
- You can disconnect the device from the mains supply only by pulling the power plug.
- Position the device so that you can always easily disconnect it from the mains power supply.
- Installation work, new settings, alterations, extensions, and repairs may be carried out only by authorized persons.
- Do not modify the device without the manufacturer's permission.
- Do not place used contaminated instruments on the ENT unit except on shelves specially intended for this purpose!
- The ambient conditions specified in the technical data must be strictly observed!
- Switch off the main switch after finishing work in the practice and close the water supply (if present).
- Be careful when working with endoscopes at the light sources. Do not look directly into the light outlets! In the event of a light failure, remove the endoscope from the working area!
- The ATMOS S 61 Servant ENT workstation may be operated only in rooms used for medical purposes, but not in areas subject to explosion hazards and in oxygen-rich environments.
- The ATMOS S 61 Servant ENT workstation meets the immunity to interference requirements of IEC 60601-1-2 / EN 60601-1-2 "Electromagnetic Compatibility- Medical Electrical Devices".
- The ATMOS S 61 Servant ENT workstation must not be operated with devices that do not comply with the requirements of the standard EN 60601-1 "Medical Electrical Equipment" and EN 60601-1-2 "Electromagnetic Compatibility" (Medical Electrical Equipment)".
- ATMOS shall not be liable for any personal injury or damage to property if:
  - No original ATMOS parts are used.
  - The instructions for use included in these operating instructions are disregarded.
  - Assembly work, new settings, alterations, extensions and repairs are carried out by personnel not authorized by ATMOS.
- Do not obstruct the air supply at the rear of the unit!
- Prior to starting the treatment, applied parts should be checked regarding their temperature.
- No highly flammable substances are allowed to be used with the device.
- The dual system frame incl. the microscope must be screwed into the floor.
- To prevent cross contamination, the cleaning instructions in chapter "5 Sterilization" on page 42 must be observed.

2.3 Specific safety instructions for Hygrotherm and Variotherm plus

- Metal parts could be hot!
- Prior to spraying, the water temperature must be checked by the user (display)!
- The nozzle must not come into contact with contaminated material.
- The nozzle may be used only with the hose tip installed!
- Be careful when inserting the hose tip as it could cause damage to the ear drum.
- For hygienic reasons, the nozzles must be exchanged after each patient. This also prevents retrograde contamination of the warm water system.
- Variotherm plus: Use only for ear irrigation or vestibular stimulation!
- The flow rate must be checked after switching on the unit or at least once a day with a volume measuring funnel. The water jet must not exceed 500 ml/min. The jet stream must be straight.
- Prior to use, the user must check the outlet pressure. It must not exceed 2.2 bar.

2.4 Hygrotherm / Variotherm plus

Important instructions for maintaining the hygienic status

To loosen cerumen in the ear canal and stimulate the labyrinthine system, ATMOS provides the warm water units Hygrotherm plus (37 °C) and Variotherm plus (20 – 47 °C).

These units heat the drinking water that comes from the household connection to the respective pre-selected temperature. At these water temperatures, there may be increased germ counts in the rinsing water which, in turn, can lead to adverse health effects in sensitive patients if the following operating instructions are not observed.

Prerequisite for the start-up

❒ The water provided by the household connection must at least meet the international WHO directives and country-specific directives for drinking water.

Connection

❒ Prior to connecting the ATMOS unit, fresh water must flow through the wall connection for a period of approx. one minute.*

❒ Ensure that the installation is carried out hygienically! Disinfect the threaded connections with 70% alcohol before screwing them into place.*

❒ Wear disposable gloves when carrying out maintenance work on parts that conduct the water.*

* This work is carried out by an authorized ATMOS service technician.

Running operation

❒ Before starting work at the practice, switch on the unit and remove the irrigation handle from the support for 10 minutes so that fresh water is pumped into the pipes (after long downtimes, for example after weekends or holidays: 30 min). The heating can be switched off during this period.

❒ Immediately replace contact parts, for example the hose tip, each time the patient is changed (to prevent retrograde contamination).

❒ Prior to use, spray water and check the temperature.

Service

- ❒ Ensure that the suspended particle filter is exchanged hygienically (see start-up) (dispose of the filter and carefully clean the filter glass). Avoid contact with contaminated parts in the process.
- ❒ Biofilm growth cannot be excluded, depending on the quality of the available drinking water. We therefore recommend examining the drinking water quality at regular intervals at the drinking water connection of the devices and at the applied part in accordance with ISO 6222. If there is a significant rise of germs between the drinking water connection and the applied part, a biofilm-removing process with subsequent disinfection can be carried out.

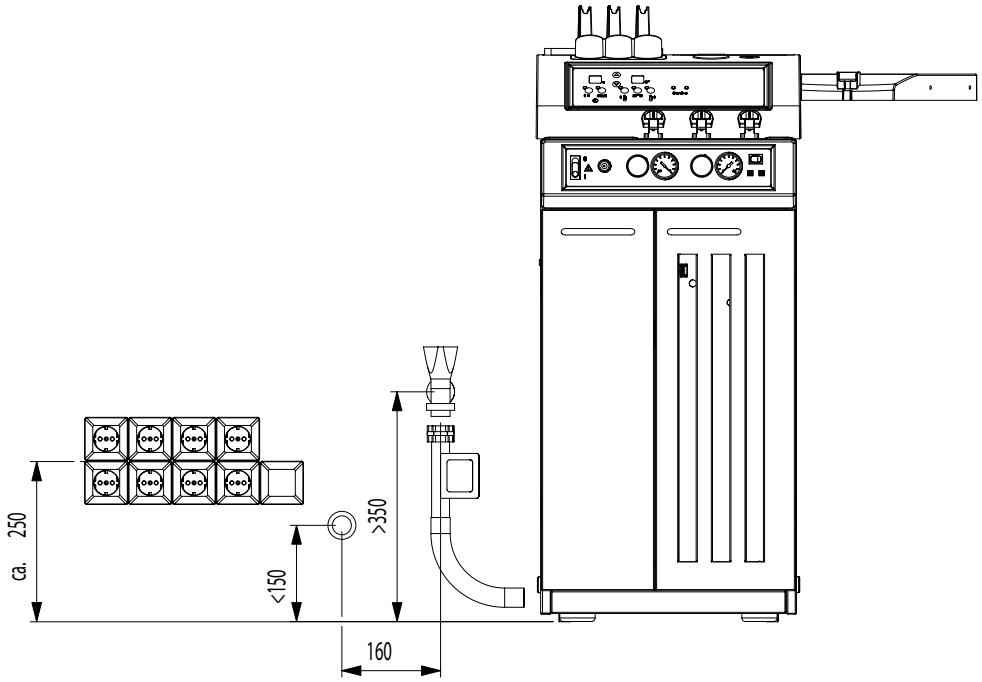
2.5 Avoiding damage to the device

Storage and operation in an unsuitable environment.

The product may become damaged.

☞ Please observe the ambient conditions regarding transport, storage and operation.

3 Set-up and start-up



Connection to the central gas supply of max. 8 bar.

Standardized NIST connection for central vacuum and central compressed air is optionally available on the rear side of the device. The connection lines are **not** included in the scope of delivery.

3.1 Connections required for all units of the ATMOS S 61 Servant

Flexible multi-port distributors must not be used as mains supply for the ATMOS S 61 Servant ENT workstation, ATMOS S 61 Servant ENT vision or an optional HF or radio frequency surgical device.

Unit / device	Maximum connections required
ATMOS S 61 Servant ENT workstation	1 x earthing contact socket outlet
ATMOS S 61 Servant vision	1 x earthing contact socket outlet (basic version) or 1 x fixed connection for integrated camera or stroboscope LED
ATMOS S 61 Servant instruments	3 x earthing contact socket outlet
Water separating system (WTA)	1 x earthing contact socket outlet
Monitor	1 x earthing contact socket outlet
Patient chair	1 x earthing contact socket outlet
Please provide additional sockets for the connection of further electrical devices (installation of an electrically operated ATMOS patient chair, water separating system, camera, monitor etc.).	

3.2 Electrical connection

Prerequisites

- Installation according to IEC 60346-7-710: earth leakage circuit breaker (FI-circuit breaker) with rated leakage current < 0.03 A
- Connection of the power cable of the ATMOS S 61 Servant ENT workstation to a safety socket outlet near the device, max. 3 m, preferably left (figure).
- The supply circuit must be separated from other devices, such as PCs.
- If isolation transformers are used, isolation monitoring must be integrated in the isolation transformer.
- Maximum power consumption:
  - ATMOS S 61 Servant ENT workstation: 2,300 VA
  - ATMOS S 61 Servant vision: 300 VA
  - ATMOS S 61 Servant instruments: 250 VA
- Flexible multi-port distributors may not be used as mains supply.
- The ATMOS S 61 Servant ENT workstation ENT treatment unit has a potential equalization port on the rear, which can be connected to the potential equalization rail of the room if necessary. This port can be used for devices of protection class I to avoid differences in potential between the protective earth of the device and the protective earth of other devices of a system, which can be used at the same time on the patient or can be touched.

3.3 Water connection

Requirements for water supply:

- Easy-to-access water tap or ball valve with G 3 3/4" external thread.
- The port must be able to be closed without any additional effort.
- A connection with pipe ventilation is recommended.
- Minimum height of the water tap from the floor: 35 cm.
- Distance of the water tap to the ATMOS® S 61 Servant ENT workstation: < 3 m.
- Water pressure required by the domestic system: > 2 bar, but < 5 bar.
- The water which is provided by the household connection must meet at least the international WHO directives and the country-specific directives for drinking water.
- The country-specific connection conditions must be observed for the connection to the public water supply.
- Before connecting: flush the water supply line to remove any residual dirt from the installation.
- As soon as it has been ensured that clean water is available, connect the pressure hose to the water tap mentioned above.
- To observe the regulations of DIN EN 1717, we recommend installing an upstream water isolating system.
- There is no special calcification safety device integrated in the water system. An upstream calcification safety device must be installed for drinking water of hardness grade 3 (14 – 21 °dH or 2.5 – 3.8 mmol/l = hard water) or hardness grade 4 (from 21 °dH or 3.8 mmol/l = very hard water).

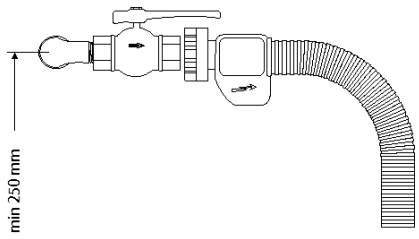
⚠ Please contact your local water supplier and/or plumber.

The water tap must be closed at the end of operation!

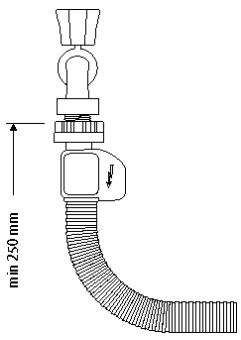
Water hardness	Total hardness in millimol per litre	°dH	
1 (soft)	≤ 1.3	≤ 7.3	Calcification protection system not required
2 (medium)	1.3 to 2.5	7.3 to 14	
3 (hard)	2.5 to 3.8	14 to 21.3	Calcification protection system required
4 (very hard)	> 3.8	> 21.3	

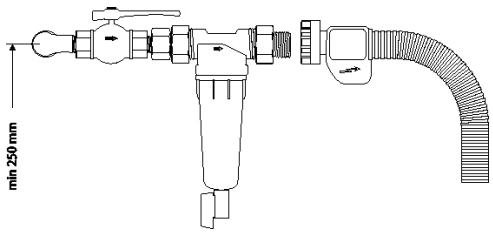
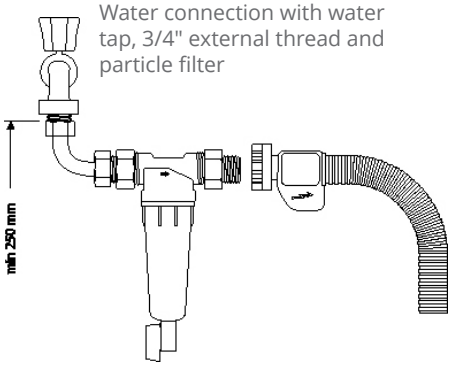
☞ The use of demineralized water may affect the function of the waste water disposal system!

Water connection with ball valve



Water connection with water tap, 3/4" external thread



Water connection with ball valve and particle filter  	Water connection with water tap, 3/4" external thread and particle filter 

3.4 Water drainage

Prerequisites:

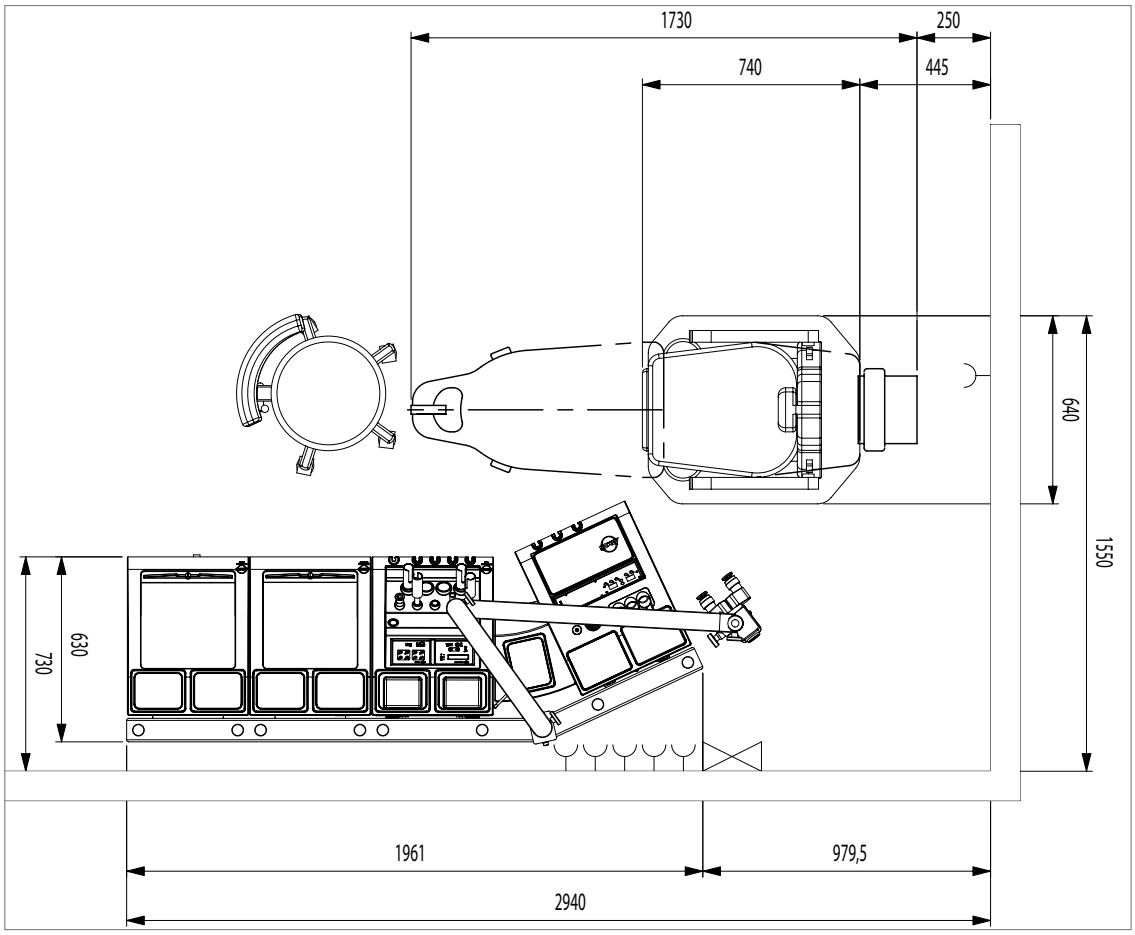
- Permanently installed connection fitting with G3/4" external thread or
- Drain outlet, standard HT 40 or HT 50 (connection adapters can be ordered for the adaptation of the waste water hose: REF 510.2130.0 for HT 40; REF 510.2129.0 for HT 50) or
- Conical hose connection for 1/2" inner hose diameter
- Connection height: approx.15 cm
- Distance from the wall connection to the installation site: < 3 m

☞ **An anti-syphon trap is integrated in the device!**

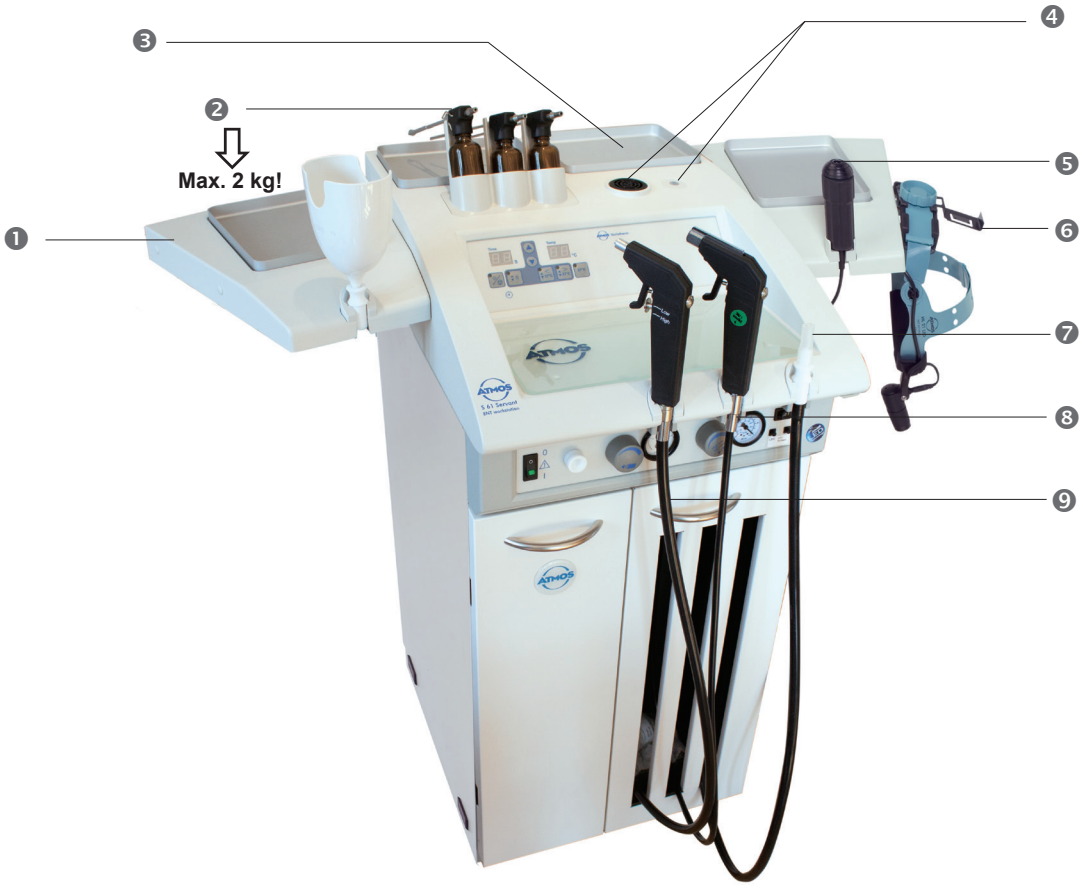
- Connect the waste water hose with the device and the G3/4" connection fitting. Insert the supplied sealings into the screw connections.

		
3/4" wall connection	Standard HT	Conical hose connection

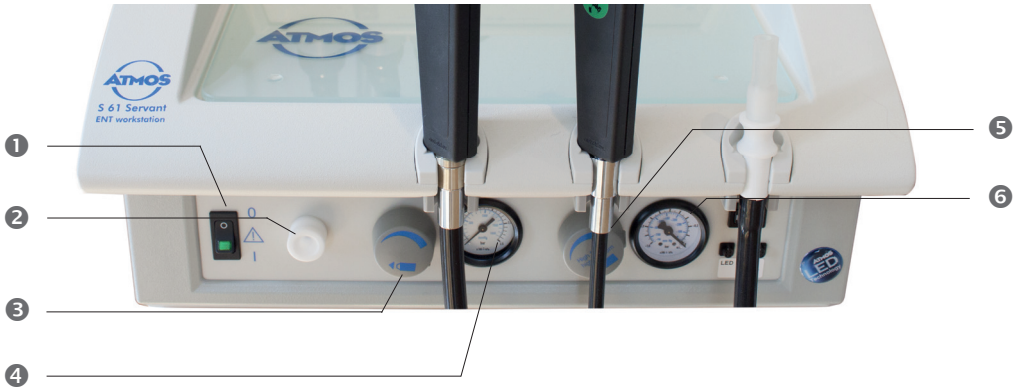
3.5 Set-up proposal



3.6 Controls and options with complete equipment



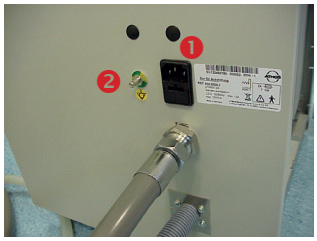
❶	Clipboard
❷	Medication spraying (compressed air)
❸	Heatable instrument tray
❹	Quick mirror heater
❺	LED light source
❻	LED headlamp
❼	Automatic suction unit
❽	Compressed air
❾	Ear irrigation / thermal nystagmus stimulation



❶	**On/off switch**
❷	Hose rinsing flushing valve
❸	Pressure adjuster
❹	Compressed air gauge
❺	Vacuum regulator
❻	Vacuum gauge

The plastic adapter of the hose rinsing system (❷) is a consumable (REF 506.2228.1). Exchange it weekly. Pull it out while twisting it slightly and replace it.

3.7 Rear view

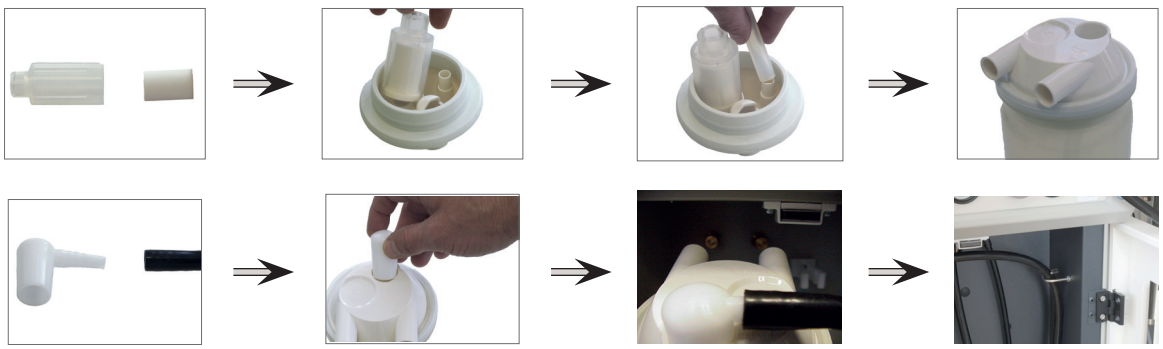


Connect the mains cable to the IEC plug ❶ and the potential equalization cable to the potential equalization plug ❷.

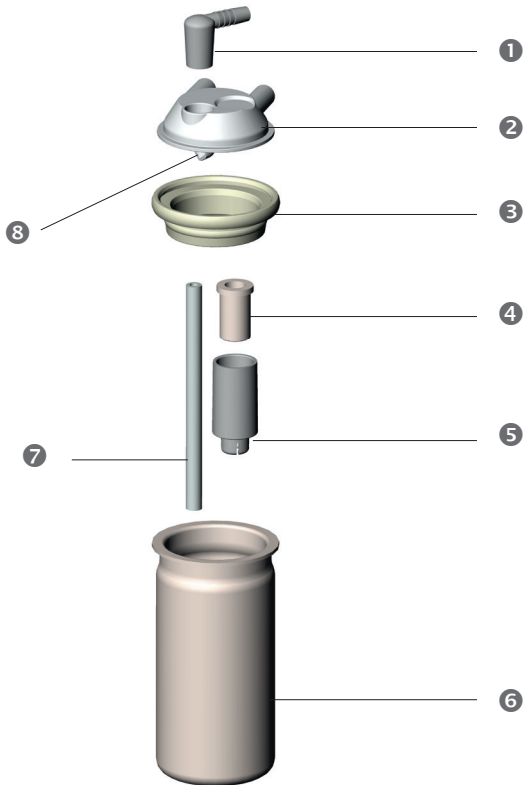
☞ Please observe the safety instructions in chapter “2 Notes for your safety” on page 14.

3.8 Assembling the canister

Check the system for leaks before using it; otherwise, it may not be possible to build up a vacuum!

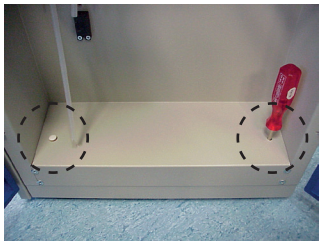


3.8.1 Design of the secretion canister



1	Hose connection (grommet)	REF 340.0057.0
2	Suction lid	REF 530.1108.0
3	Sealing	REF 320.0013.0
4	Bacterial filter	REF 340.0054.0
5	Splash protection	REF 312.0827.0
6	Secretion canister	
7	Suction hose (only for automatic mode)	REF 006.0008.0, 220 mm
8	**Intake for foam prevention:** The hose attachment with intake ensures a smoother liquid surface. Less foam formation and extended filter life times are achieved in this way.	

3.9 Adjustment of the front feet



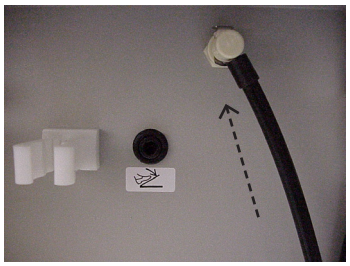
The front feet can be adjusted to put the workstation into a stable position.

Procedure:

Adjust the screws of the feet through the bore holes with a size 4-5 flat-bladed screwdriver.

3.10 Connections in the service compartment

3.10.1 Hoses



Connect the compressed-air handle to the pressure system.

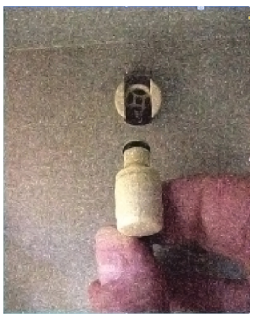
Insert applied parts into the hanging strip

Insert the three-hole gasket at the inlet hose of the water connection for ear irrigation.

☞ Use only “three-hole gaskets”, because otherwise a malfunction of the device could be caused!

Connect the water hose in the service compartment

☞ Open the water tap of the treatment unit. Check whether all connections are tight.



Connect the compressed-air hose in the service compartment.

Initial start-up

Each ATMOS S 61 Servant ENT workstation is checked by the manufacturer for function and safety prior to shipment. To ensure the safe functioning of the device after transport and installation at the operating company, the following points should be observed:

The operating company should only operate the device once:

1. The device has been subjected to a functional test at the place of operation.
2. The operating instructions have been read and acknowledged.

After transport/storage of the device at low temperatures and prior to the initial start-up, it should be kept at room temperature for at least four hours. If the device is not acclimatized, there will be a danger of formation of condensation water, resulting in malfunctions.

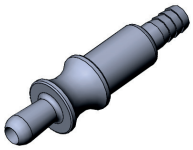
4 Operation

4.1 On/off switch

After switching on the main switch, all integrated and connected devices are ready for operation.

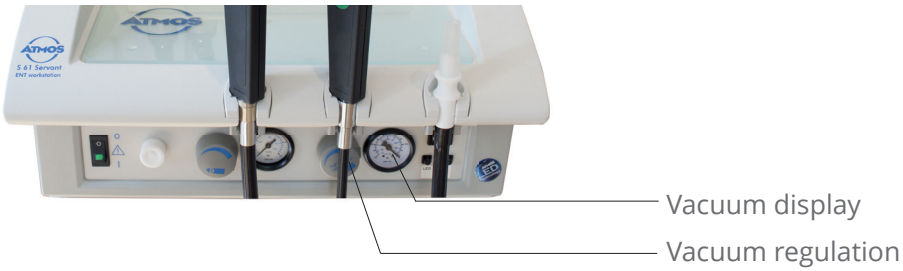
4.2 Suction unit

⚠
- Do not operate the suction system without a bacterial filter! It is integrated in the lid of the secretion canister. Always use the splash protection to extend the service life of the bacterial filter. The guarantee will expire in the case of improper use!
- Exchange the bacterial filter regularly. You can find details in chapter “5 Sterilization” on page 42.



☞ The hose attachment must be exchanged after each patient.

4.2.1 Control and display of the suction capacity



Remove the handle from the support to activate the suction unit. The suction unit is automatically activated by the installed light barrier. Set the desired vacuum with the controller. The end of the suction hose must be closed. Only in this way can vacuum be built up.

4.2.2 Hose rinsing system

Rinse the suction hose thoroughly after each application. Attach the suction hose without a cannula to the suction nipple of the hose-rinsing aperture and soak up the rinsing fluid for at least 30 s.

Refilling the rinsing canister for hose rinsing

A) Fully automatic refilling (REF 530.1060.0)

The water storage canister is automatically refilled if necessary.

☞ Attention: Make sure the water supply system is switched on and the water supply is ensured! Do not use any foaming cleaning agents or disinfectants.

B) Manual refilling (REF 530.1050.0)

Fill the canister with water and/or a non-foaming instrument disinfectant.

Draining the reusable canister system

☞ The canister system must be cleaned and disinfected at regular intervals. You can find details in chapter “5 Sterilization” on page 42.

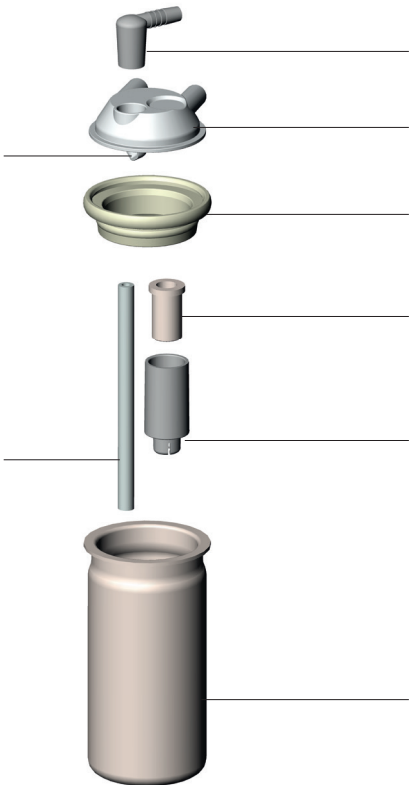
A) Manually

1. Empty the secretion canister when it is approximately half full.
2. Remove the secretion canister horizontally from the support in the service compartment and remove the suction hose.

B) Automatically (REF 530.1070.0)

The secretion canister is emptied automatically when the filling level is reached.

Design of the secretion canister



Intake for foam prevention

Hose connection (grommet)
REF 340.0057.0

Suction lid
REF 530.1108.0

Sealing
REF 320.0013.0

Bacterial filter
REF 340.0054.0

Splash protection
REF 312.0827.0

Suction hose (only for automatic)
REF 006.0008.0, 220 mm

Secretion canister

☞ The hose attachment with intake ensures a smoother liquid surface. Less foam formation and extended filter life times are achieved in this way.

4.2.3 Disposable canister system

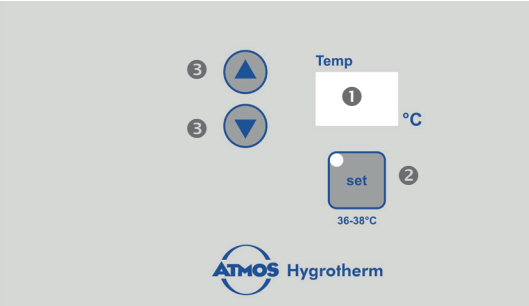
Serres®

Medi-Vac®

4.3 Hygrotherm ear irrigation module

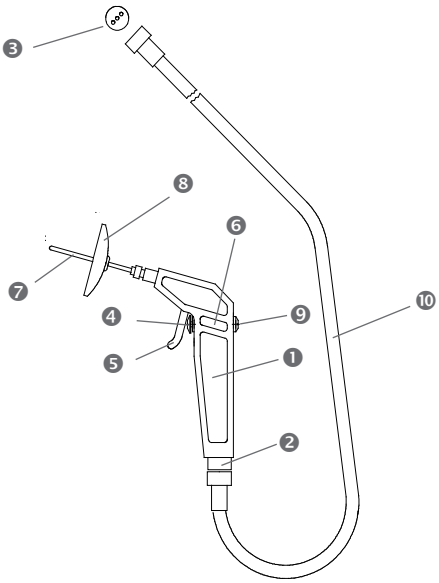
4.3.1 Overview

Front view



1. Temperature display (double-digit, resolution of 1 °C), actual value display
2. Adjustment mode for the temperature
3. Up and down adjustment buttons

Irrigation handle



1. Handle
2. Connection for double-lumen hose
3. Three-hole gasket
4. Knurled screw
5. Release lever
6. Valve plunger
7. Nozzle
8. Splash protection
9. Sealing cap
10. Double-lumen hose

4.3.2 Switching on

Attention: Make sure the water supply is ensured!

- A segment test is performed when the device is switched on. All LEDs are activated briefly. Visually check the function of the LEDs during this time.
- Prior to the caloric measurements, check the water pressure on the vacuum gauge in the service compartment! A target pressure of 2 bar – max. 2.2 bar must be present. Danger in the event of overpressure!

4.3.3 Activating the Hygrotherm

- Remove the handle from the support.

☞ The Hygrotherm is automatically activated by the installed light barrier. The adjustment control of the Hygrotherm takes approx. 20 s until the desired temperature is reached.

☞ Check the temperature display!

- The LED of the “set” button flashes as long as the actual temperature value deviates from the target value.
- The LED lights up permanently when the target and actual value match.

☞ Now you may begin with the irrigation of the ear canal.

4.3.4 Irrigating the ear

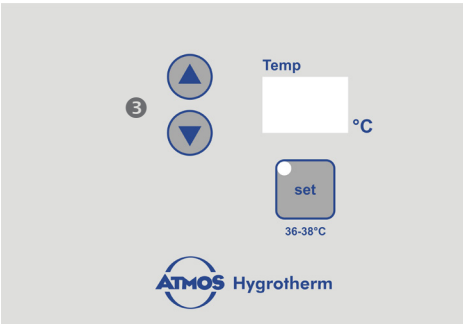
⚠ **Warning:**

Use only with the ear irrigation bulb.

The hose tip and nozzle must be replaced/sterilized each time after changing the patient.

Remove the handle ⇨ Hold the nozzle in working position and operate the trigger ⇨ Irrigate the ear.

4.3.5 Temperature setting



You can use the Hygrotherm at temperatures from 36 to 38 °C.

To change the target temperature, the “set” button must remain pressed. Now the target temperature is displayed on the temperature display. The adjustment button ❸ can be used to change the target temperature within a range of 36 to 38 °C. By releasing the “set” button, the new target temperature is adopted and the target temperature is displayed again on the temperature display.

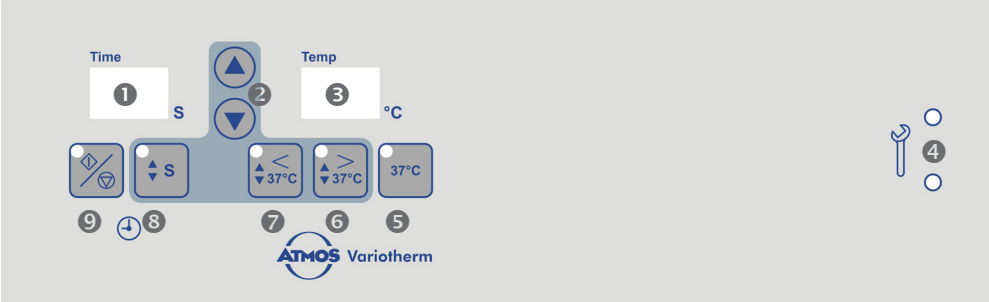
Heating off:

Press the “set” button to turn the heating on and off.

4.4 Thermal nystagmus stimulation, Variotherm plus

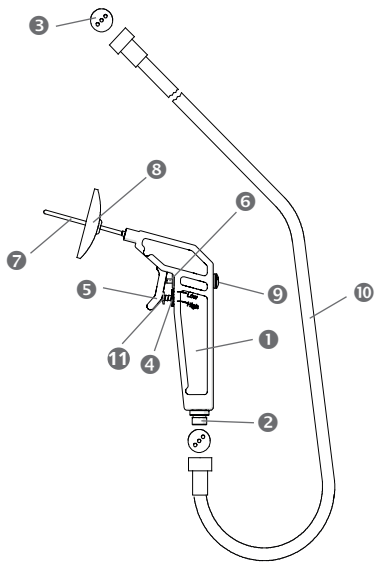
4.4.1 Overview

Front view



1	Stimulation time display (double-digit, resolution of 1 s)	6	Button used to select the warm stimulation level (e.g. 44 °C)
2	Up and down adjustment buttons (for temperature or second settings)	7	Button used to select the cold stimulation level (example 30 °C)
3	Temperature display (double-digit, resolution of 1 s), actual value display	8	Button used to adjust the stimulation time
4	Maintenance indicator	9	Button used to start/stop the stimulation (150 ml/min)
5	Button used to select the irrigation level (37 °C)		

Irrigation handle



1. Handle
2. Connection for double-lumen hose
3. Three-hole gasket
4. Set screw
5. Release lever
6. Valve plunger
7. Nozzle
8. Splash protection
9. Sealing cap
10. Double-lumen hose
11. Adjusting screw

4.4.2 Switching on

Attention: Make sure the water supply is ensured!

- A segment test is performed when the device is switched on. All LEDs are activated briefly. Visually check the function of the LEDs during this time.
- Prior to the caloric measurements, check the water pressure on the vacuum gauge in the service compartment! A target pressure of 2 bar to max. 2.2 bar must be present. Danger in the event of overpressure!

4.4.3 Activating the Variotherm plus

- Remove the handle from the support.

☞ The Variotherm plus is automatically activated by the installed light barrier.

☞ The adjustment control of the Variotherm plus takes approx. 20 s until the desired temperature is reached.

⚠ Check the temperature display! The LED of the “set” button flashes as long as the actual temperature value deviates from the target value.

- The LED lights up permanently when the target and actual value match. Now you may begin with the irrigation of the ear canal.

The last active temperature level is selected.

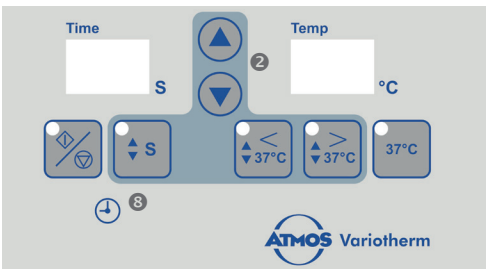
4.4.4 Performing the thermal nystagmus stimulation

⚠ **Warning: Use only with the ear irrigation bulb.**

The hose tip and nozzle must be replaced/sterilized each time after changing the patient.

Remove the handle ⇨ Select the temperature and set it if necessary ⇨ Set the time if necessary ⇨ Press ❶ (flashes approx. 10 s) ⇨ When the Variotherm plus is ready for use, a beep can be heard ⇨ Hold the nozzle in working position and operate the trigger ⇨ Perform the nystagmus stimulation ⇨ A beep sounds again when the time expires.

4.4.5 Time setting (1 – 99 s)



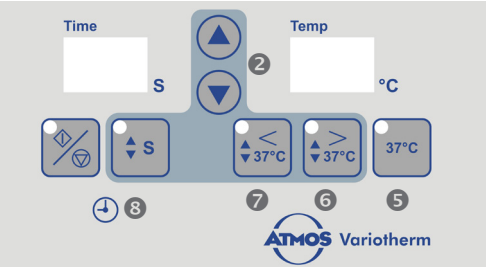
Remove the handle.

Press and hold ❽ and set the desired stimulation time with ❸.

When selecting the next respective temperature, the previous time setting will be automatically adopted.

☞ Check the time setting of the timer now and again.

4.4.6 Temperature setting



You can use the Variotherm plus at temperatures of 20 to 47 °C. The minimum temperature is defined by the temperature of the tap water.

Setting at 37 °C:

Press ❻ for the temperature.

Warm stimulus (38 – 47 °C):

Remove the handle.

Press and hold ❹. Use ❷ to set the desired temperature. Release ❹.

The temperature previously set will be adopted the next time the ❹ button is selected.

Cold stimulus (20 – 36 °C):

Remove the handle.

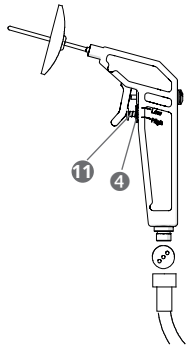
Press and hold ❹. Use ❷ to set the desired temperature. Release ❹.

The temperature previously set will be adopted the next time the ❹ button is selected.

Heating off:

Press the active temperature level on the “Temperature” button to switch the heating on and off.

4.4.7 Setting the flow rate



Prior to the stimulation, the set screw ❹ must be locked in the upwards position.

There are two options here:

- High: flow rate for ear irrigation
- Low: flow rate for stimulation of the vestibule

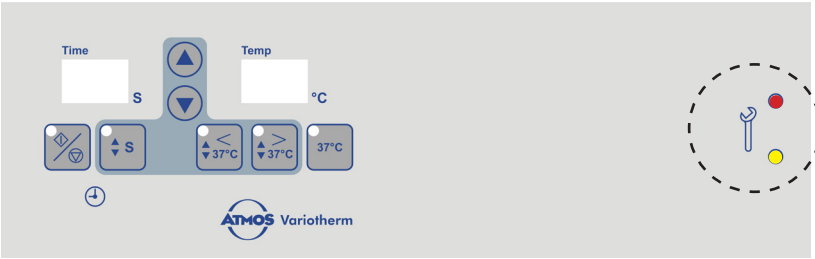
Prior to the ear irrigation, the set screw is turned downwards, pushed into the handle and then locked in place by continuing to turn it downwards.

For the fine adjustment of the flow rate, the adjusting screw ⓫ must be screwed in or out.

☞ Check the flow rate for the stimulation of the vestibular organ at regular intervals and readjust it if necessary.

4.4.8 Information on the maintenance indicator of the ATMOS S 61 Servant ENT workstation with software version V 1.2

The ATMOS S 61 Servant ENT workstation has a maintenance indicator on the front panel. The indicator consists of a red and a yellow LED.



After switching on the module, the electronics run through a test cycle. The following types of indication are possible:

	Red LED	Yellow LED	Beep	Remark
The LED test takes place directly after switching on the device.				
Switching on	Lights up	Lights up	Yes	Both LEDs light up simultaneously each time the module is switched on (duration: 500 ms).
A functional and aggregate test follows. For this purpose, six flashing signals are issued (light-up/pause time ratio, 500 ms/500 ms).				
Pressure pump operating time		Lights up for the first time	No	OK
Suction pump operating time		Lights up for the second time	No	OK
Suction pump 2 operating time		Lights up for the third time	No	OK
Hose pump operating time		Lights up for the fourth time	No	OK
Waste water pump operating time		Lights up for the fifth time	No	OK
Annual maintenance		Lights up for the sixth time	No	OK
Battery voltage		Lights up for the seventh time	No	OK

Possible maintenance cases:

Pressure pump operating time	Lights up for the first time		Yes	Critical operating time
Suction pump operating time	Lights up for the second time		Yes	Critical operating time
Suction pump 2 operating time	Lights up for the third time		Yes	Critical operating time
Hose pump operating time	Lights up for the fourth time		Yes	Critical operating time
Waste water pump operating time	Lights up for the fifth time		Yes	Critical operating time
Annual maintenance	Lights up for the sixth time		Yes	Annual maintenance due
Battery voltage	Lights up for the seventh time		Yes	Low battery voltage

If one of the aforementioned maintenance cases occurs, please contact your local ATMOS service partner.

4.5 Ear irrigation bulb incl. own separate suction channel (REF 530.2070.0)

The ear irrigation bulb with optional, separate suction channel may be used only for suction during ear irrigation or stimulation. Only the ear irrigation bulb with integrated sieve (hole diameter ≤ 1 mm) may be used. The suction channel is not suitable for any other suction procedure in the medical field! The liquid pump is not suitable for pumping coarse particles, such as cerumen etc, which is why suction may be performed only with the bulb and sieve.

Greasy and pasty substances can be sucked off, but only to a limited degree. It is recommended to clean the bulb after each rinsing procedure and rinse it with water (disinfectant) in order to prevent the pump valves from sticking.

The suction system is automatically switched on when you remove the hose-rinsing aperture with the ear irrigation bulb from the suspension. Apply the bulb with the lateral recess against the throat below the ear which needs to be irrigated and start the irrigation. The suction system is switched off by hooking the hose-rinsing aperture back into the support.

4.6 Compressed-air module

1	Compressed-air handle
2	Medication spraying (compressed air)
3	Ear irrigation module (compressed air)

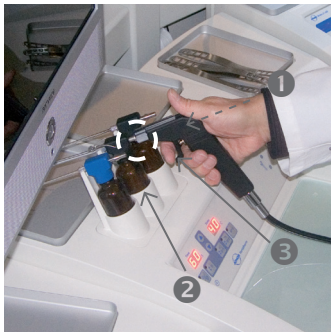
- Make sure the devices and hoses are firmly connected in order to build up sufficient pressure.
- When using Politzer olives, control the pressure in accordance with the application.

4.6.1 Activation

Remove the handle from the support to activate the compressed-air module. The compressed-air module is automatically activated by the installed light barrier.

4.6.2 Adapting/depositing the sprayer

Adapting:



1. Put the handle onto the medication bottle (❶).
2. Engage it and then lift the medication bottle with the handle from the support (❷).
3. Compressed air is applied into the sprayer by operating the trigger (❸).

Depositing:

1. Insert the medication bottle from above into the support.
2. Operate the trigger (❶) and pull away the handle to the rear (❷).

- Handle the sprayer carefully to avoid injuries.
- Before using the sprayer bottles, check the durability of the medication in them.
- Clean all parts of the sprayer regularly! You can find details in chapter “5 Sterilization” on page 42.

4.7 Compressed-air module

ATTENTION

☞ Check the leak tightness of the compressed-air system prior to application.

☞ Remove the handle and see if any air escapes. Contact the service technician in the event of a leak (chapter “7 Maintenance and service” on page 51).

ATTENTION

For safety reasons, you should avoid repeated activation of the compressed-air handle in a rapid sequence.

Make sure devices and hoses are firmly connected to build up sufficient pressure.

Make sure you insert the compressed-air handle into the right support, marked with .

4.7.1 Compressed-air ear irrigation module (REF 530.2080.0)

To start the ear irrigation, please close the vent valve (❷) and press the adjusting lever (❶). To finish the ear irrigation, release the adjusting lever (❶) and vent valve (❷). The ear irrigation is immediately finished!

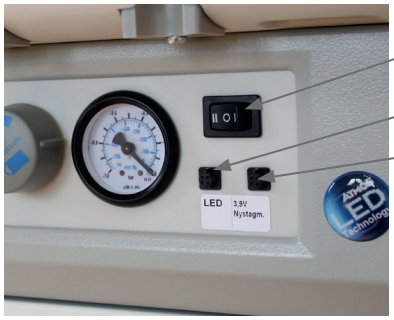
ATTENTION

The glass bottles must be checked for intactness (cracks, chippings on the winding etc.) before they are used. Damaged glass bottles must not be used for the ear irrigation.

☞ Please observe that the glass bottles must not be filled in the area of the ATMOS S 61 Servant ENT workstation. Spilled liquid could enter the treatment unit.

❶	Adjusting lever
❷	Vent valve

4.8 LED light module



On/off LED

LED port (for light source or headlamp)*

LED port (for light source or headlamp), optional connection for nystagmus binoculars*

☞ The aforementioned connections supply a constant current of 700 mA, which is required for the connected ATMOS LS 21 LED or ATMOS HL 21 LED.

☞ The on/off LED switch has three settings. This switch supplies two connections below it with power. Right position - right connection, left position - left connection. The ATMOS LS 21 LED or ATMOS HL 21 LED can be connected there.

* For ATMOS LS 21 LED or ATMOS HL 21 LED: insert the plug firmly.

4.9 Instrument heating

4.9.1 Quick mirror heater

Press ❶.

☞ The mirror quick-heater heats up for ten seconds and then switches off automatically.

Danger of burns!

Check the mirror temperature (e.g. on the back of your hand) before using it on the patient.

⚠ CAUTION

The cover of the mirror quick-heater can become hot if the mirror-quick heater is used several times. There is a danger of burns!

ⓘ Heat up only cleaned instruments!

4.9.2 Heating module for instrument tray

When the unit is switched on, the heating module for the instrument tray is also activated and heated up to 37 °C.

- Place the instruments to be heated on the metal tray.
- Trays are designed for non-sterile instruments.

☞ Clean and disinfect the instrument trays regularly! Please observe the notes in chapter “6 Hygiene plan” on page 49.

4.10 Endoscopy clipboard

Integration of three-channel endoscope management for rigid and flexible endoscopes.

☞ There are three endoscope quivers and two light channels for endoscopes.

4.10.1 ATMOS LED Light Cube two-channel option

The ATMOS LED Light Cube is also activated when the unit is switched on.

The adapters are screwed in as far as they will go and fixed in the clipboard with a simple turning movement. The fibre optic light cables can be plugged into the connection. The light channel is automatically activated when the light conductor is removed from the support.

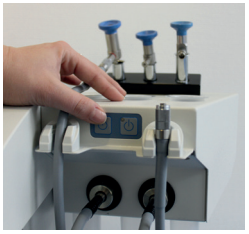
☞ Adapters from STORZ, OLYMPUS and WOLF can be procured from ATMOS.

☞ Please observe that only one light channel can be active at a time!

It is also possible to switch the light channels on and off manually at any time on the control panel foil.

Screwing in the adapter

Clipboard with connected fibre optic light cables



Operating the control panel foil

4.10.2 ATMOS LED Light Cube three-channel option

The ATMOS Light Cube combines three high-performance cold light sources for medical application. In combination with a fibre optic light cable and instruments connected to it, the light source enables the illumination of the viewing area for diagnostic purposes.

- Automatic activation: on for removal and off for attachment.
- Passive cooling: no disturbing fan noises; no stirring up of dust.
- Perfect colour temperature close to sunlight.
- Compatibility due to adapter that can be screwed in for all common fibre optic light cables

☞ The light sources can be switched on and off manually with the three top buttons.

☞ The brightness can be adjusted in ten stages with the two right buttons. The next time the light channel is switched on, the previously set brightness level is then used.

☞ The three bottom buttons are linked to a timer. The timer button must be held pressed and the time level then changed with the up and down button.

☞ The timers can be adjusted in six-minute stages from stage 1 = 6 minutes to stage 10 = 60 minutes. As long as the timer is active, the respective LED on the timer button lights up in red. As soon as the set time has expired, a short signal tone sounds and the LED lights up in green again.

4.10.3 Endoscope management option (heated)

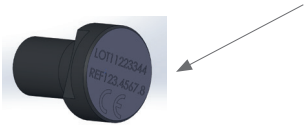
Endoscope heating is also activated when the unit is switched on and the quivers are heated up to 41 °C.

4.10.4 Hook for headlamp with automatic activation

Clipboard with connected headlamp

The headlamp can be easily removed and put back during the examination. Connect the headlamp to the clipboard. Always use the right light channel. This light channel is then automatically activated when the headlamp is removed from the hook.

To ensure error-free operation, please seal the light barrier of the right light channel with the provided blind plug.



5 Sterilization

5.1 General information on cleaning and disinfection

Prior to cleaning

Switch off the ATMOS S 61 Servant ENT workstation with the main switch before beginning with cleaning and disinfection.

Prior to each use:

☞ The described measures relating to cleaning and disinfection do not replace the valid regulations for operation!

- All surface and instrument disinfectants listed in the following sub-chapter “Recommended disinfectants” are suitable for disinfection.
- Please make sure that no surfaces remain wet. Always use a disposable cloth to absorb any liquid.
- If any disinfectant is spilled, make sure to wipe the surface immediately in order to prevent any liquid from entering gaps and edges.

☞ Always observe the concentration specifications and instructions of the respective manufacturer!

- **Do not use**
  - Disinfectants that contain organic or inorganic acids or bases because they could cause corrosion damage.
  - Disinfectants containing chloramides or phenol derivatives, since these could cause stress cracks in the plastic material used.

☞ **Colour changes may occur if disinfectants containing aldehyde and amine are used on the same object.**

5.1.1 Cleaning the device surface

- The surfaces of the ATMOS S 61 Servant ENT workstation are resistant against all surface disinfectants listed in the chapter “Recommended disinfectants”.
- Wipe the unit surface with a cloth moistened with a cleaning or disinfecting solution.
- Disinfectant sprays or disinfectant tissues may also be used for cleaning and disinfection.
- Please observe that the alcohol contained in these agents could corrode or cloud the protective covers if employed on a long-term basis.
- Do not use any process chemicals that contain any of the following ingredients on CORIAN® surfaces:
  - Strong acids (e.g. concentrated sulphuric acid)
  - Ketones (e.g. acetones)
  - Solvents containing chlorine (e.g. chloroform)
  - Strong solvent combinations (e.g. paint remover)

- All applied parts exposed to direct contact with the patient during treatment must be exchanged or cleaned and disinfected immediately for hygienic reasons.
- Deposit only clean instruments on the shelves!
- Clean and disinfect the instrument shelves regularly!

5.1.2 Secretion canister, bacterial filter and suction hose

At the end of every working day, **all of the following parts must be cleaned and disinfected**:

- Reusable secretion canister with locking system and bacterial filter:
  - Carefully pull off all hose connections from the locking system and remove the canister carefully to prevent spills and contamination of the area.
  - Dispose of secretion properly. Grip the locking system firmly, open the lid of the filter housing by turning it anti-clockwise and remove the filter. Rinse all parts thoroughly under running water. A detergent or cleaning agent may also be used.
- Check the DDS bacterial filter / oversuction stop:
  - The DDS bacterial filter / oversuction stop is intended to be used only once.
  - Prior to each use, check whether the DDS bacterial filter is dry and clean. Wet or dirty DDS bacterial filters must be replaced with new ones.
  - The DDS bacterial filter must be replaced when a vacuum of more than -0.3 bar is indicated with the vacuum regulator set to “max” and the suction hose open.
  - Replace the DDS bacterial filter at least once a day. Use only original ATMOS bacterial filters.
  - Never operate the device without a DDS bacterial filter / oversuction stop.
- Suction system and hose attachment:
  - After every use, please rinse the suction system by drawing in a small amount of irrigating fluid (e.g. special cleanser for suction system REF 080.0006.0, dosage: 10 ml for 1 l of water).

☞ Prevents the suction hoses from becoming sticky.

- The hose attachment is only connected and can be pulled off for cleaning and disinfection.

☞ The suction capacity is limited due to the 1.25 l secretion canister. Therefore, do not use more than 1 l irrigating liquid and then empty the canister.

5.1.3 Checking the DDS bacterial filter / oversuction stop

Prior to each use, check whether the DDS bacterial filter is dry and clean. Wet or dirty DDS bacterial filters must be replaced with new ones.

Replace the DDS bacterial filter at least once a day. Use only original ATMOS bacterial filters.

Never operate the device without a DDS bacterial filter / oversuction stop.

5.1.4 Medication sprayer

- The sprayer nozzle must be exchanged after each patient.
- Disassemble the medication sprayer by unscrewing the sprayer nozzle and pulling it off the sprayer head. Rinse all parts thoroughly under running water. A detergent or cleaning agent may also be used.
  - Thoroughly rinse the sprayer to eliminate any residues of these substances.

☞ The air opening must be unobstructed!

☞ Disinfect all components with the disinfectants specified in 5.2.

☞ When placing the twin tube nozzle again, make sure the mark (0, X or milling area) on the nozzle shows upwards!

☞ Sprayer nozzles are available as spare parts at ATMOS.

5.1.5 Instrument trays

Before disinfection, thoroughly rinse the trays under running water. A detergent or cleaning agent (surface disinfectant) may also be used.

- Thoroughly rinse the sprayer to eliminate any residues of these substances.
- Then use one of the disinfectants specified in chapter "5.3 Recommended surface disinfectants" on page 46.

Melamine and anodized aluminium trays **cannot** be sterilized.

5.1.6 Endoscope quiver

The endoscope quivers for the endoscope holder are used only to store **endoscopes previously cleaned and disinfected**. The quivers must be cleaned daily and subsequently disinfected. To do this, the screw plug at the bottom end must be pulled off.

5.1.7 Ear irrigation bulb

The ear irrigation bulb is **not** autoclavable! Cleaning and disinfection (also mechanical) up to 93 °C.

5.1.8 Hose tip and nozzle

The Hygrotherm and Variotherm plus are operated properly with (disposable) hose tips. These hose tips must be disposed of each time after using them on a patient.

When using the hose tips, the nozzle must be cleaned and disinfected daily.

5.2 Recommended instrument disinfectants

Manual disinfection of instruments

Disinfectant	Ingredients	in 100 g	Manufacturer
Korsolex® med AF (application concentrate)	N-dodecylpropane-1,3-diamine N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine Surfactants, corrosion inhibitors ph-value regulators, foam inhibitors	15.6 g 5.1 g	Bode Chemie, Hamburg
Korsolex® basic (application concentrate)	Glutaral (Ethylenedioxy) dimethanol Surfactants, salts, corrosion inhibitors	15.2 g 19.7 g	Bode Chemie, Hamburg
Korsolex® plus (application concentrate)	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine Didecyldimethylammonium chloride Surfactants, corrosion inhibitors Complexing agents, ph-inhibitors	9.2 g 13.0 g	Bode Chemie, Hamburg
Korsolex® extra (application concentrate)	(Ethylenedioxy) dimethanol Glutaral Benzyl-C12-18-alkyldimethyl-ammonium chlorides Didecyldimethylammonium chloride Surfactants, foam inhibitors, corrosion inhibitors	15.3 g 7.5 g 1.0 g 1.0 g	Bode Chemie, Hamburg
neodisher® Septo MED (application concentrate)	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine Didecyldimethylammonium chloride Non-ionic surfactants, perfumes	9.2 g 13.0 g	Dr. Weigert, Hamburg

neodisher® Septo 3000 (application concentrate)	Glutaral (Ethylenedioxy) dimethanol	15.2 g 19.7 g	Dr. Weigert, Hamburg
Sekusept® PLUS (application concentrate)	Glucoprotamin	25 g	Ecolab, Düsseldorf
Sekusept® aktiv (application concentrate)	Sodium percarbonate, non-ionic surfactants, phosphonate		Ecolab, Düsseldorf
Gigasept® Instru AF (application concentrate)	Cocospropylendiaminguanidindiacetate Phenoxypropanols Benzalkonium chloride Non-ionic surfactants, ph-value regulators, corrosion inhibitors	14 g 35 g 2.5 g	Schülke & Mayr, Norderstedt
Gigasept® FF (new) (application concentrate)	Succindialdehyde Dimethoxytetrahydrofurane Anionic and non-ionic surfactants, perfumes, methylisothiazolinones	11.9 g 3.2 g	Schülke & Mayr, Norderstedt
Gigazyme® (application concentrate)	Non-ionic surfactants Enzymes, corrosion inhibitors	5–15 g	Schülke & Mayr, Norderstedt

Automatic disinfection of instruments

Disinfectant	Ingredients	in 100 g	Manu-facturer
Dismoclean® 24 Vario (application concentrate)	Surfactants, micro-encapsulated enzymes, corrosion inhibitors, complexing agents		Bode Chemie, Hamburg
Dismoclean® 28 alka med (application concentrate)	Alkali dispenser, complexing agents, corrosion inhibitors, surface active materials		Bode Chemie, Hamburg
Dismoclean® twin basic / twin zyme Dismoclean® twin basic Dismoclean® twin zyme	 Alkali dispenser, complexing agents, corrosion inhibitors Surface active materials, enzymes, stabilizers, corrosion inhibitors		Bode Chemie, Hamburg
neodisher® FA	Phosphates	15–30 g	Dr. Weigert, Hamburg
neodisher® MediClean forte (application concentrate)	Non-ionic and anionic surfactants Enzymes	< 5 g	Dr. Weigert, Hamburg
Thermosept® alka clean forte (application concentrate)	Non-ionic surfactants Anionic surfactants NTA and its salts Enzymes, poly carboxylates Corrosion inhibitors	< 5 g < 5 g < 5 g < 5 g	Schülke & Mayr, Norderstedt
Thermosept® RKN-zym	Non-ionic surfactants, Enzymes, corrosion inhibitors, glycols	5–15 g	Schülke & Mayr, Norderstedt

Colour changes may occur if disinfectants containing aldehyde and amine are used on the same object.

5.3 Recommended surface disinfectants

CORIAN®

Disinfectant	Ingredients	in 100 g	Manu-facturer
Terralin® Protect (application concentrate)	Benzyl-C12-16 alkyldimethyl-chloride 2-phenoxyethanol Aminoalkylglycine Non-ionic surfactants, perfumes	22 g 17 g 0.9 g	Schülke & Mayr, Norderstedt

Other suitable active ingredients:

- Ortho-phthalaldehyde
- Glutaraldehyde
- Glutaraldehyde and phenol
- Hydrogen peroxide
- Hydrogen peroxide and peracetic acid
- Peracetic acid
- Phenol
- Sodium hypochlorite
- Quaternary ammonium compounds

Painted surfaces

Disinfectant	Ingredients	in 100 g	Manu-facturer
Green & Clean SK	Di alkyl dimethyl ammonium chloride Alkyl dimethyl ethyl benzyl ammonium chloride Alkyl dimethyl benzyl ammonium chloride	< 1 g < 1 g < 1 g	Metasys, Rum (Austria)
Dismozon® pur (granulate) End of product 12/2014	Magnesium monoperoxyphthalate hexahydrate	80.0 g	Bode Chemie, Hamburg
Dismozon® plus (granulate)	Magnesium monoperoxyphthalate hexahydrate	95.8 g	Bode Chemie, Hamburg
Kohrsolin® FF (application concentrate)	Glutaral Benzyl-C12-C18-alkyldimethyl-ammonium chlorides Didecyldimethylammonium chloride	5 g 3 g 3 g	Bode Chemie, Hamburg
Perform®	Pentapotassium-bis(peroxymonosulphate)-bis(sulphate)	45 g	Schülke & Mayr, Norderstedt
Terralin® Protect (application concentrate)	Benzyl-C12-16 alkyldimethyl-chloride 2-phenoxyethanol Aminoalkylglycine Non-ionic surfactants, perfumes	22 g 17 g 0.9 g	Schülke & Mayr, Norderstedt

Other surfaces

Disinfectant	Ingredients	in 100 g	Manu-facturer
Dismozon® pur (granulate) End of product 12/2014	Magnesium monoperoxyphthalate hexahydrate	80.0 g	Bode Chemie, Hamburg
Dismozon® plus (granulate)	Magnesium monoperoxyphthalate hexahydrate	95.8 g	Bode Chemie, Hamburg
Kohrsolin® FF (application concentrate)	Glutaral Benzyl-C12-18-alkyldimethyl-ammonium chlorides Didecyldimethylammonium chloride	5 g 3 g 3 g	Bode Chemie, Hamburg
Perform®	Pentapotassium-bis(peroxymonosulphate)-bis(sulphate)	45 g	Schülke & Mayr, Norderstedt
Terralin® Protect (application concentrate)	Benzyl-C12-16 alkyldimethyl-chloride 2-phenoxyethanol Aminoalkylglycine Non-ionic surfactants, perfumes	22 g 17 g 0.9 g	Schülke & Mayr, Norderstedt
Surface disinfection F 312	Alkyl-benzyl-dimethyl-ammonium chloride Non-ionic surfactants, complexing agents, hexyl cinnamal, butyl phenyl propionale, linalool	13 g	Dürr Dental, Bi-etigheim-Bissin-gen

Colour changes may occur if disinfectants containing aldehyde and amine are used on the same object.

5.4 Recommended disinfectants for endoscopes

Manual disinfection of endoscopes

Disinfectant	Ingredients	in 100 g	Manu-facturer
Helipur® H plus N	Glutaral 2-propanol Ethyl hexanol Surfactants, complexing agents, corrosion inhibitors, colorants, perfumes	12 g, 7.5 g 0.5 g	BBraun, Melsungen
Helix® Ultra	Peracetic acid		BBraun, Melsungen
Korsolex® basic	Glutaral (Ethylenedioxy) dimethanol Surfactants, corrosion inhibitors, salts, perfumes	15.2 g 19.7 g	Bode Chemie, Hamburg
neodisher® MediClean forte (application concentrate)	Non-ionic and anionic surfactants Enzymes	< 5 g	Dr. Weigert, Hamburg
Sekusept® aktiv (application concentrate)	Sodium percarbonate, non-ionic surfactants, phosphonate		Ecolab, Düsseldorf

Automatic disinfection of endoscopes

Disinfectant	Ingredients	in 100 g	Manu-facturer
Korsolex® basic	Glutaral (Ethylenedioxy) dimethanol Surfactants, corrosion inhibitors, salts, perfumes	15.2 g 19.7 g	Bode Chemie, Hamburg
neodisher® MediClean forte (application concentrate)	Non-ionic and anionic surfactants Enzymes	< 5 g	Dr. Weigert, Hamburg
Gigasept® FF (neu) (granulate)	Succindialdehyde Dimethoxytetrahydrofurane Anionic and non-ionic surfactants, perfumes Methylisothiazolinone	11.9 g 3.2 g	Schülke & Mayr, Norderstedt
Endozime® AW Plus	2-propanol		Ruhof, Mineola (USA)
Adaptaclean™	Potassium hydroxide, surfactants		ASP, Norder-stedt

6 Hygiene plan

Cleaning and Disinfection Plan
ATMOS S 61 Servant

	What	How			Notes	When				Who
	Parts to be sterilized	C Cleaning	D Disinfection	S Sterilization		After each application	Daily	Weekly	Monthly	Qualified and trained staff who are familiar with sterilization procedures (please fill in the responsible person with a water-based overhead marker)
	Secretion canister									
	Hose connection (grommet)	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	Suction lid	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	Sealing	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	Bacterial filter				Exchange daily or when clogged		X			
	Splash protection	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	Float ball	X	X		Cleaning and disinfection (mechanical or manual)		X			
	Suction hose in the canister	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	Secretion canister	X	X		Empty when the canister is full; at least daily; Cleaning and disinfection (mechanical or manual)		X			
	Disposable canister system				Exchange and dispose of the canister when it is full		X			
	Hose rinsing system									
	Hose rinsing aperture	X	X[3]		Wipe cleaning and disinfection		X			
	Silicone attachment piece	X	X[2,4,5,6]		Cleaning and disinfection (mechanical or manual)		X			
					Exchange the silicone attachment piece				X	
	Suction nipple	X			Manual cleaning each time after use	X				
			X[2,4,5,6]		Cleaning and disinfection (mechanical or manual)		X			
	Secretion suction hose	X			Rinse the secretion suction hose with the hose rinsing system each time after use;	X				
			X[2,4,5,6]		Exchange or disinfect the hose				X	
	Rinsing canister, hose rinsing	X	X[2,4,5,6]		Cleaning with a brush; cleaning and disinfection (automatic or manual)		X			
	Ear irrigation / thermal nystagmus stimulation									
	Ear irrigation bulb	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)	X				
	Handle	X	X[3]		Wipe cleaning and disinfection		X			
	Nozzle	X	X[2,4,5,6]		Cleaning and disinfection (mechanical or manual)	X				
	Splash protection	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	Hose tip (disposable)				Exchange each time after use	X				
	Rinsing attachment	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)	X				
	Hygiene filter				See operating instructions for hygiene filter				X	
	Irrigation bottle cap with rinsing hose	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	Irrigation bottle	X	X[2,4,5,6]		Cleaning and disinfection (mechanical or manual); cleaning in the dishwasher with the glass care programme		X			
	Medication sprayer / Politzer									
	Compressed-air handle	X	X[3]		Manual cleaning and disinfection		X			
	Sprayer nozzle	X			Clean each time after use See operating instructions for medication sprayer	X				
			X[2,4,5,6]		Cleaning and disinfection (mechanical or manual)		X			
	Sprayer head		X[2,4,5]		Unscrew the sprayer nozzle and pull it off the sprayer head. Rinse the sprayer head several times with water			X		
	Hose at sprayer head	X	X		Exchange the hose weekly or when changing the medication			X		
	Sprayer bottle	X	X[2,4,5,6]		Cleaning in cleaning and disinfection device; weekly or when changing the medication			X		
	Politzer olive	X	X[2,4,5,6]		Exchange each time after use with subsequent cleaning and disinfection	X				
	Politzer olive adapter	X	X[2,4,5,6]		Exchange each time after use with subsequent cleaning and disinfection	X				
	Endoscope management									
	Plastic quiver	X	X[2,4,5]		Cleaning with a brush with subsequent disinfection		X			
	Endoscope quiver	X	X[2,4,5,6]		Cleaning with a brush with subsequent disinfection (mechanical or manual)		X			
	Endoscope quiver adapter for plastic quiver	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			

	What	How			Notes	When				Who
	Parts to be sterilized	C Cleaning	D Disinfection	S Sterilization		Each time after use	Daily	Weekly	Monthly	Qualified and trained staff who are familiar with sterilization procedures (please fill in the responsible person with a water-based overhead marker)
	**Endoscope management**									
	Endoscope quiver adapter (Teflon) for metal quiver	X	X[2,4,5]		Cleaning and disinfection (mechanical or manual)		X			
	**Instrument management**									
	Instrument bowl	X	X[4]		Cleaning and disinfection (manual)		X			
	Instrument disposal tray with lid	X	X[4]		Cleaning with a brush; subsequent disinfection (manual)		X			
	**Visualization**									
	ATMOS® Cam 21 / 31	X	X[3]		Wipe cleaning and disinfection		X			
	ATMOS® Strobo 21 LED	X	X[3]		Wipe cleaning and disinfection		X			
	ATMOS® LS 31 LED	X	X[3]		Wipe cleaning and disinfection		X			
	Flexible endoscope	X	X[1,7,8]	X[1]	Immediate pre-cleaning after application	X				
	Rigid endoscope	X	X[1,7,8]	X[1]	Immediate pre-cleaning after application	X				
	Laryngoscope	X	X[1,7,8]	X[1]	Immediate pre-cleaning after application	X				
	Fibre optic light cable	X	X[3]		Wipe cleaning and disinfection		X			
	Light handle	X	X[3]		Wipe cleaning and disinfection		X			
	Microscope	X	X[3]		Wipe cleaning and disinfection		X			
	Headlamp	X	X[3]		Wipe cleaning and disinfection		X			
	**Radio frequency surgery**									
	ATMOS® RS 221 (device surface)	X	X[3]		Wipe cleaning and disinfection		X			
	Ergonomic handles	X	X[1,2,4,5]	X[1]	Wipe cleaning and disinfection	X				
	Bipolar tweezers	X	X[1,2,4,5]	X[1]	Immediate pre-cleaning after application; Cleaning and disinfection (mechanical or manual); Use of enzymatic detergents	X				
	Bipolar electrode	X	X[1,2,4,5]	X[1]		X				
	Bipolar electrode cable	X	X[1,2,4,5]	X[1]	Immediate pre-cleaning after application; Cleaning and disinfection (mechanical or manual); Use of enzymatic detergents	X				
	Neutral electrode	X	X[1,2,4,5]	X[1]		X				
	Neutral electrode cable	X	X[1,2,4,5]	X[1]	Immediate pre-cleaning after application; Cleaning and disinfection (mechanical or manual); Use of enzymatic detergents	X				
	ENT electrodes	X	X[1,2,4,5]	X[1]		X				
	**Surfaces**									
	Housing	X	X[3]		Wipe cleaning and disinfection			X		
	Roller cover	X	X[3]		Wipe cleaning and disinfection			X		
	System frame	X	X[3]		Wipe cleaning and disinfection			X		
	Drawers	X	X[3]		Wipe cleaning and disinfection			X		
	Pull-out desk	X	X[3]		Wipe cleaning and disinfection	X				
	Instrument disposal	X	X[3]		Wipe cleaning and disinfection	X				
	Mirror preheater	X	X[3]		Wipe cleaning and disinfection			X		
	Swab dispenser	X	X[3]		Wipe cleaning and disinfection; Daily or when refilling		X			
	Waste disposal bin	X	X[3]		Wipe cleaning and disinfection; Daily or when refilling		X			
	Instrument tray	X	X[3]		Wipe cleaning and disinfection; Daily or when refilling		X			

Recommended disinfectants

[3] Surface disinfection for painted surfaces:
- Green & Clean SK (ATMOS)
- Dismozon® plus (Bode Chemie)
- Kohrsolin® FF (Bode Chemie)
- Perform® (Schülke & Mayr)
- Terralin® Protect (Schülke & Mayr)

Other surfaces:
- Dismozon® plus (Bode Chemie)
- Kohrsolin® FF (Bode Chemie)
- Mikrobac® forte (Bode Chemie)
- Perform® (Schülke & Mayr)
- Terralin® Protect (Schülke & Mayr)
- Surface disinfectant FD 312 (Dürr Dental)

Important information

Wipe cleaning and disinfection:
All surfaces have to be wiped with a clean (disposable) cloth moistened with disinfectant. The entire surface has to be wiped thoroughly and must not be dried afterwards.

[4] Manual disinfection of instruments:
- Korsolex® med AF (Bode Chemie)
- Korsolex® basic (Bode Chemie)
- Korsolex® plus (Bode Chemie)
- Korsolex® extra (Bode Chemie)
- neodisher® Septo MED (Dr. Weigert)
- neodisher® Septo 3000 (Dr. Weigert)
- Sekusept® PLUS (Ecolab)
- Sekusept® aktiv (Ecolab)
- Gigasept® Instru AF (Schülke & Mayr)
- Gigazyme® (Schülke & Mayr)
- Gigasept FF neu (Schülke & Mayr)

[5] Mechanical disinfection of instruments:
- Dismoclean® 24 Vario (Bode Chemie)
- Dismoclean® 28 alka med (Bode Chemie)
- Dismoclean® twin basic/twin zyme (Bode Chemie)
- neodisher® FA (Dr. Weigert)
- neodisher® MediClean forte (Dr. Weigert)
- Thermosept® alka clean forte (Schülke & Mayr)
- Thermosept® RKN-zym (Schülke & Mayr)

[1] Please observe the manufacturer's operating instructions.
[2] Preferred: mechanical cleaning and disinfection in the washer disinfector
[6] Material dimensionally stable at 134 °C

[7] Endoscopes – manual disinfection:
- Helipur® H plus N(BBraun)
- Helix® Ultra (BBraun)
- Korsolex® Basic (Bode Chemie)
- neodisher® MediClean forte (Dr. Weigert)
- Sekusept® aktiv (Ecolab)

[8] Endoscopes - mechanical disinfection:
- Korsolex® Basic (Bode Chemie)
- neodisher® MediClean forte (Dr. Weigert)
- Gigasept® FF new (Schülke & Mayr)
- Endozime® AW Plus()
- ADAPTACLEAN™ (ASP)

For concentrations, contact times, temperature, material compatibility, please refer to the manufacturer's specifications.

Incorrect concentrations can cause material damage!

This hygiene plan was created based on the Medical Devices Act, the Medical Devices Operator Ordinance, §18 IfSG and the recommendations of the Robert Koch Institute.
The required sterilization steps are defined on the basis of the recommendation: "Requirements for the sterilization of medical devices", from the Robert Koch Institute. The medical devices were categorized in the risk groups uncritical, semi-critical and critical. The steps specified in this hygiene plan are a recommendation of ATMOS MedizinTechnik. Any additional sterilization measures are at the operating company's discretion.
All the disinfectants recommended in this hygiene plan are listed disinfectants (VAH/RKI list) and have been tested for their material compatibility for the ATMOS® S 61 Servant. ATMOS MedizinTechnik cannot be held liable for any damage caused by incorrect concentrations of the disinfectants or by the use of any other disinfectants.
Patients with suspicion of a clinical disease or who have developed a transmissible spongiform encephalopathy (CJK, vCJK etc.) have to be treated at facilities that are able to provide for the necessary preventive measures against infection. The sterilization of the reusable instruments and materials may be performed only at facilities with externally certified QM management according to DIN EN ISO 13485.
The Medical Devices Act, IfSG, the RKI directives, BGR 250 and TRBA 250 must always be considered.

ATMOS MedizinTechnik GmbH & Co. KG
Ludwig-Kegel-Str. 16 ■ 79853 Lenzkirch/Germany
Phone +49 7653 689-0 ■ Fax +49 7653 689-190
info@atmosmed.com ■ www.atmosmed.com

GA3EN.110100.0 2019-04 Index: 14

7 Maintenance and service

The ATMOS S 61 Servant ENT workstation is equipped with maintenance-free units for suction and compressed air. Nevertheless, simple maintenance work, which can either be done by the user themself or, if desired, by service technicians, is necessary from time to time to ensure trouble-free functioning of the device over a long period of time:

- To ensure trouble-free functioning of the automatic irrigation and suction mechanism, switch off the ENT unit prior to changing the secretion canister!
- A service compartment is integrated in the bottom part of the function column, which contains the parts needed for maintenance work. The possible maintenance procedures are described in the following.

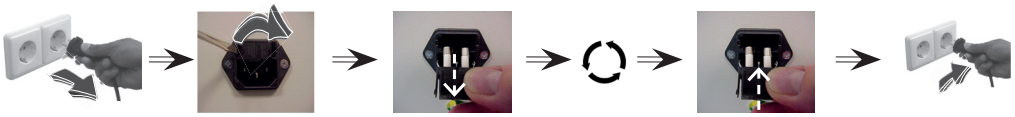
Maintenance, repairs and period tests may be carried out only by persons who have the appropriate technical knowledge and are familiar with the product. The person in question must possess the test devices and original spare parts required to take the mentioned measures. ATMOS recommend commissioning an authorized ATMOS service partner. This will ensure that the repairs and tests are carried out appropriately, original spare parts are used and any warranty claims remain unaffected.

- Conduct a repeat test of the electrical safety in accordance with IEC 62353 at least every 12 months. ATMOS recommend conducting an inspection within this framework in accordance with the manufacturer's specifications.
- Please observe the corresponding service instructions. It they are not supplied, they can be requested from ATMOS.
- With integrated Variotherm plus: Carry out an inspection according to the manufacturer's specifications every 12 months.

☞ Circuit and wiring diagrams etc. can be provided by ATMOS and requested from them if necessary.

7.1 Changing fuses

The fuses are located on the back of the device.



7.2 Exchanging the bacterial filter

- Set the vacuum regulator to "maximum" (far right).
- The filter must be replaced as soon as the vacuum gauge indicates a vacuum value > -0.3 bar while the suction hose is **open**.

ATTENTION

Use only original ATMOS bacterial filters. Never operate the device without a DDS bacterial filter / oversuction stop.

To ensure proper function of the automatic secretion canister evacuation system, the filling level electrodes must always be clean and free from sediments!

If no vacuum is noticeable at the handle after assembling the secretion canister, check whether the bacterial filter is fitted correctly.

7.3 Exchanging the hose box of the hose pump

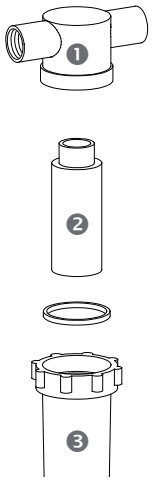
The hose box can be found in the unit's pump compartment. It may be replaced only by authorized personnel during maintenance!

7.4 Hygrotherm / Variotherm plus: Decalcification

Preventive decalcification should be carried out if the tap water is known for mineral precipitation, depending on where the device is used:

1. Close the water tap.
2. Unscrew the filter glass.
3. Fill the glass with approx. 100 ml of decalcifier based on acetic/citric or lactic acid (e.g. Citrosteril from Fresenius).
4. Screw the glass on again.
5. Re-open the water tap.
6. Switch on the device.
7. Remove the irrigation handle from the support for 10–15 s and then re-attach it.
8. Allow to take effect.
9. Remove the irrigation handle from the support and rinse it 2–3 times.

7.5 Hygrotherm / Variotherm plus: Filter replacement



If the filter element is clogged up or discoloured, the filter cartridge must be replaced as follows:

- Close the water supply tap.
- Briefly switch on the device to reduce the pressure in the filter housing (❶).
- Switch off the device when "F 1" appears on the display.
- Unscrew the Plexiglas canister (❸) from the filter cartridge (❷).
- Remove the filter cartridge (❷) and replace it with a new one (REF 000.0998.0).

The filter insert must not come into contact with contaminated objects to prevent the ingress of germs in the water system.

7.6 Sending in the device

- Remove all consumables and dispose of them properly.
- Clean and disinfect the product and accessories in accordance with the operating instructions.
- Enclose any used accessories with the product.
- Fill in the QD 434 form "Delivery Complaint / Return Shipment" and the corresponding **decontamination certificate**.

☞ This form is enclosed with the product and can be found at www.atmosmed.com.

- The device must be well padded and packed in suitable packaging.
- Place the QD 434 form “Delivery Complaint / Return Shipment” and the corresponding **decontamination certificate** in an envelope.
- Affix the envelope to the outside of the package.
- Send the product to ATMOS or your dealer.

8 Troubleshooting

Description	Cause	Measure
Electrical power supply		
No function, main switch actuated, control light not lit up	No voltage at power plug	Check the house fuses. They may have blown
	Cable/plug defective	Replace the cable/plug
Suction		
Low or no suction capacity, but vacuum gauge indicates vacuum	Suction hose is clogged	Clean the suction hose
	Oversuction protection activated	Check the oversuction protection
	Filter moistened/blocked	Replace the filter
Low or no suction capacity, and vacuum gauge indicates low or no vacuum	System leaky	Check all joints, re-assemble the system
	Suction hose kinked	Remove the kink, lay the hose differently
	Vacuum regulator completely open	Set the regulator to higher/maximum vacuum
	Secretion in the suction pump	Inform the service department
Suction pump does not start up or does not switch off	Dirty/defective light barrier in suction hose holder	Clean both small light barriers openings in the side of the suction hose holder and notify the service department if necessary
No suction, but pressure pump is running	Handle positions mixed up	Insert handles in the correct support
Compressed air		
Compressed-air pump does not start up or does not switch off	Dirty/defective light barrier in compressed-air holder	Clean both small light barriers openings in the side of the compressed air holder and notify the service department if necessary
No compressed air, but suction pump is starting up	Handle positions mixed up	Insert handles in the correct support
No adequate pressure build-up	Leaky connections	Check the joints and notify the service department if necessary
Sprayer does not work	Sprayer clogged	Clean the sprayer, clean the ventilation bore hole in the sprayer head
Quick mirror heater		
Heater does not switch on	Defective switch / control unit	Have the switch / control unit replaced by service department
Insufficient or no heater power	Individual or all three heater coils defective, do not glow	Exchange the heater coils

Automatic secretion canister evacuation

The canister is not drained when filled above the sensor point	Sensor does not detect filling level	Clean the canister thoroughly
The pump does not start up when the suction hose is re-attached	Pump defective	Inform the service department
Waste water pump does not start up after switching off the draining pump	Pump defective	Inform the service department
Waste water pump does not switch off	Waste water pipe blocked	Remove the blockage
	Electrodes in the waste water canister dirty and thereby hot-wired	Clean the waste water canister or have the electrodes cleaned
The waste water pump does not start up	The device is supplied with demineralized water via a water connection	Please use drinking water

Automatic filling of the hose rinsing container

Canister overflows	Filling valve does not close	Inform the service department
	Sensor does not detect filling level	Sensor defective – Inform the service department
Canister is not filled	Water supply interrupted	Ensure the water supply
	Safety switch in the support for canister system is not actuated	Place the hose rinsing canister correctly in the support
		Clean the canister thoroughly

LED power supply

LED light source does not light up	Switch in position 0	Set the switch to position I or II, depending on the jack used
	Plug/cable/LED light source defective	Have the service department exchange the defective part

Nystagmus binoculars connection

Nystagmus binoculars do not light	Switch in position 0	Set the switch to position I
	Plug/cable/bulbs defect	Have the service department exchange the defective part

Heating modules

No heating	Temperature sensor, control or heating element defective	Inform the service department

Hygrotherm / Variotherm plus

Error on temperature display

“E1”	No water (water pressure < 0.5 bar)	• Check, whether the water supply delivers a pressure of at least 2 bar (water tap open?). • Filter clogged?
“E2”	-5 V missing (supply voltage on the controller board)	Inform the service technician.
“E3”	Safety NTC breakage	Inform the service technician.
“E4”	Short circuit of the safety NTC	Inform the service technician.
“E5”	Breakage of the regulating NTC	Inform the service technician.
“E7”	Temperature too high, display only in stimulation or irrigation mode	• Check whether the temperature setting is not too high. Set the target temperature to a lower value if necessary • Inform the service technician.
“E8”	Short circuit of the regulating NTC	Have the temperature probe of the regulating NTC checked by a service technician

9 Accessories and consumables

9.1 Consumables

Consumables for disposable secretion management	REF
Receptal® 1.0 l bag, not autoclavable	312.0463.0
Receptal® 1.0 l outer canister	312.0464.0
Disposable suction hose, not autoclavable (10 x)	006.0058.0

Suction unit consumables	
DDS bacterial filter for secretion canister (10 x)	340.0054.0
Special cleaner for suction systems 2 bottles, 500 ml each	080.0006.0

9.2 Accessories

General accessories	REF
Sprayer, straight (liquids)	506.5225.0
Sprayer, rotatable nozzle (liquids and oils)	506.5120.0
Sprayer, straight (powder)	505.0253.0
Politzer olive (universal size)	000.0241.0
Politzer olive (for children)	000.0241.1
Spare hose for sprayer bottle (10 x)	506.5229.0
Nozzle for irrigation handle, 40 mm	502.0984.0
Nozzle for irrigation handle, 80 mm	508.0427.0
Nozzle for irrigation handle, 110 mm	508.0429.0
Hose tips	502.0844.0
Splash protection to be slipped on nozzle	501.0331.0
Spare hose for sprayer bottle (1 x)	506.5228.0
Diagnostic Cube support arm (ATMOS S 61 Servant)	512.1300.0
ATMOS S 61 ENT professional monitor arm	534.3020.0
Deposit board (glass)	534.3050.0
Deposit board (metal)	534.3060.0
Deposit board (glass), high	534.3055.0
Deposit board (metal), high	534.3065.0
Diagnostic Cube deposit board	534.3035.0
Board adapter	534.3090.0

9.3 Spare parts

Spare parts for ear irrigation / thermal nystagmus stimulation	REF
Irrigation handle	530.1190.0
Rubber bush for splash protection	501.0331.1
Three-hole sealing on device side	501.0320.0
Three-hole-sealing on handle side	530.1186.0
Double-lumen hose for irrigation handle	530.1181.0
Nozzle for irrigation handle, 40 mm	502.0984.0
Hygiene filter for water rinsing	000.0918.0

10 Disposal

- The housing materials can be recycled completely.
- The ATMOS S 61 Servant ENT workstation does not contain any hazardous goods.
- The component parts of the ATMOS S 61 Servant ENT workstation must be disposed of properly and the materials separated carefully.

Before disposal or transport, all parts that came into contact with the patient must be thoroughly cleaned and disinfected. The device surface must be disinfected too.

Disposal within the EC

The device described above is a high-quality medical product with a long service life. After its life cycle, the device must be disposed of appropriately. According to EU directives (WEEE and RoHS), the device must not be disposed of in domestic waste. Please observe the applicable laws and regulations for the disposal of old devices in the respective country.

11 Technical data

When fully equipped

Voltage	230 V~ ± 10 %; 50/60 Hz **Special voltages:** 100 V~ ± 10 %; 50/60 Hz 115 V~ ± 10 %; 50/60 Hz 127 V~ ± 10 %; 50/60 Hz
Current consumption	Max. 8.5 A (230 V~) Max. 19.0 A (100 V~) Max. 16.5 A (115 V~) Max. 15.0 A (127 V~)
Power consumption	Max. 2300 VA
Fuses	2 x T10 A / 250 V (f. 230 V~) 1 x M 15 A / 250 V (f. 100 V~, 115 V~, 127 V~)
Standard suction unit Suction capacity (free flow) Vacuum **Suction hose** • Inner diameter • Max. length Secretion canister	High vacuum / high flow rate 40 l/min -91 kPa (-910 mbar or 682.5 mmHg) @NN, infinitely variable 8.0 mm 1.6 m DDS 1.0 l
Professional suction unit Suction capacity (free flow) Vacuum **Suction hose** • Inner diameter • Max. length Secretion canister	High vacuum / high flow rate 55 l/min -95 kPa (-950 mbar or 712.0 mmHg) @NN, infinitely variable 8.0 mm 1.6 m DDS 1.0 l
Compressed-air unit Suction capacity (free flow) Pressure Sprayer	 20 l/min Min. 220 kPa, infinitely variable For liquid, oily and powdery media
Basic ear irrigation module Water temperature	 37.5 °C ± 2 °C
Professional ear irrigation (Hygrotherm) Water temperature Flow rate	 Adjustable 36 – 38 °C ± 0.5 °C Max. 450 ml/min (adjustable on the handle)
Thermal nystagmus stimulation (Variotherm plus) Water temperature Flow rate Timer setting	 Three adjustable levels, 20 – 47 °C ± 0.5 °C Max. 450 ml/min (adjustable on the handle) 1 – 99 s

Instrument heating	
Temperature	Approx. 37 °C
Economy light module	
LED power supply	700 mA (regulated)
LED cold light module	
Number of channels	2
Light intensity	Min. 200 klx
Colour temperature	5500 K ± 10%
Operating mode	Continuous operation
Protective earth conductor resistance	Max. 0.1 Ω
Earth leakage current	Max. 5 mA
Housing leakage current	Max. 0.1 mA
Patient leakage current	Max. 0.1 mA
Ambient conditions Transport/storage	
Temperature	-10...+50 °C
Humidity without condensation	30...95% humidity without condensation
Pressure	At air pressure of 500...1060 hPa
Ambient conditions Operation	
Temperature	+10...+35 °C
Humidity without condensation	30...95% humidity without condensation
Pressure	At air pressure of 700...1060 hPa
Maximum operational altitude	≤ 3000 m
Contamination level	2
Overvoltage category	II
Dimensions H x W x D	88.5 x 42 x 60 cm
Weight	Max. 73 kg
Period tests	Repeat test of electrical safety every 12 months Recommended: inspection according to manufacturer's specifications. **With integrated Variotherm plus:** Inspection according to the manufacturer's specifications every 12 months
Protection class against electric shock (EN 60601-1)	I
Classification of applied part for Variotherm plus, Hygrotherm and suction units	Type B applied parts 
Classification of applied part for compressed-air unit	Type BF applied parts 
Degree of protection	IP X0
CE mark	CE 0124
ID no. (REF)	530.0000.0 (230 V~) 530.0001.0 (100 V~) 530.0002.0 (115 V~) 530.0003.0 (127 V~)

Updated: 02/03/2022

12 Notes on EMC

☞ Medical electrical devices are subject to special precautions with regard to EMC and must be installed according to the following EMC instructions.

Guidelines and manufacturer's declaration – Ambient conditions

The ATMOS S 61 Servant ENT workstation is suitable for use in the following environments:

- In professional healthcare facilities, such as: medical practices, clinics, first aid facilities, and operating theatres.

The following environments are not suitable:

Within the vicinity of HF surgical devices and in settings outside of an HF-shielded room of a magnetic resonance imaging system.

The customer or user of the ATMOS S 61 Servant ENT workstation must ensure that the device is used in a prescribed environment.

Guidelines and manufacturer's declaration – Key features

☞ Please observe the technical data in this manual. The key features are fully usable even in the presence of electromagnetic disturbances.

Guidelines and manufacturer's declaration – Removable components that can be replaced by the operating company

The ATMOS S 61 Servant ENT workstation has the following removable components that can be replaced by the operating company:

Type	REF	Max. cable length
Power cable	507.0559.0	3 m
ATMOS LS 21 LED	507.4600.0	2 m
ATMOS HL 21 LED headlamp	530.4020.0	2 m
Nystagmus binoculars	530.4016.0	2 m

Guidelines 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 be used no closer than 30 cm* to any parts of the ATMOS S 61 Servant ENT workstation, including cables, specified by the manufacturer. This could otherwise result in the degradation of the performance of the device.

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

⚠ WARNING

Avoid placing the device on top of or next to another device. This could result in incorrect operation. If this is unavoidable, the proper functioning of the device must be monitored regularly.
Please switch off any nearby devices that are not in use, if possible.

13 Notes

MedizinTechnik

ATMOS MedizinTechnik GmbH & Co. KG
Ludwig-Kegel-Str. 16
79853 Lenzkirch / Germany
Phone: +49 7653 689-0
info@atmosmed.com