ATMOS
MedizinTechnik

English

Operating instructions

ATMOS® S 61 Servant ENT workstation

ENT treatment unit

CE 0124

530.0000.B

2015-07 Index: 25

Further information, accessories, consumables and spare parts are available from:

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1.0 Introduction

1.1 Notes on operating instructions

These operating instructions contain important notes on how to operate the ATMOS® S 61 Servant ENT workstation safely, correctly and effectively. Their reading helps to avoid risks, and also to reduce repair costs and down-time. That increases, amongst other things, the reliability and service-life of the device.

These operating instructions serve not only for new operating personnel to be instructed in its use, but also for use as a reference manual. Reprints (also in extracts) only with permission in written form by ATMOS.

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

Care and safety inspections in conjunction with professional execution provide for operational safety and readiness for use of your ATMOS® S 61 Servant ENT workstation and are therefore a must besides regular cleaning.

Repair work and safety inspections may be carried out only by expert personnel authorised by ATMOS. By applying only original spare parts you will have the guarantee that operational safety, readiness for work and the value of your ATMOS® S 61 Servant ENT workstation will be preserved.

- The product ATMOS® S 61 Servant ENT workstation bears CE marking CE according to the EU guideline of the council for medical products 93/42/EWG and meets the basic requirements of annex I of this guideline.
- The product ATMOS® S 61 Servant ENT workstation complies with all applicable requirements of the directive 2011/65/EC restricting the use of certain hazardous substances in electrical and electronic equipment ("RoHS").
- The declaration of conformity and our general standard terms and conditions can be obtained on our website at www.atmosmed.com.
- The quality management system applied at ATMOS has been certified according to international standards EN ISO 9001 and EN ISO 13485.
- Prior to start-up please peruse chapter 2.0 „For your safety", in order to be prepared for any possible dangerous situations.

1.2 Intended Use

Name: ATMOS® S 61 Servant ENT workstation

Main functions:
- Suction
- Compressed air module for medication spraying and the Politzer manoeuvre
- Ear irrigation
- Thermal nystagmus stimulation
- Electric power supply for LED light handles and LED headlight
- Power supply for optional LED cold light source
- Mirror quick heater

Med. indications/ application:
Standard ENT examination and/or therapy

Specification of the main function:
- suction at 40 l /min / 760 hPa
- alternatively suction at 55 l/min / 920 hPa
- ear rinsing with 37 °C ± 1 °C, max. 500 ml/min
- alternatively ear rinsing with 37 °C ± 2 °C with compressed air system
- compressed air for medication spraying, max. 2 bar
- compressed air for the Politzer manoeuvre, regulated
- electric power supply for LED, 700 mA
- LED cold light source 210 kLux ± 10%, colour temperature 5.600 K

Application organ:
Mouth to pharynx, auditory canal to the ear drum and the nasal cavities.

Application time:
ENT unit: Short term use on the patient (up to 30 days)
Suction / Compressed air / ear rinsing / light source:
Temporary application on the patient (less than 60 minutes)

Application site:
Application sites are clinics and practices for ENT doctors and phoniatrists. The examination and/or therapy with the ENT unit may only be executed by medically trained persons.

Contraindications:
May not be used for irrigation of the paranasal sinuses. The ear irrigation should not be applied to an infected auditory canal or a perforated eardrum.

The product is: X active □ not active

Sterility: The ENT unit is no sterile product.

Single use product / reprocessing:
The ENT workstation is designed for multiple use. The device and part of the accessories are reusable, for information on reprocessing and disinfection please see the operating instructions.

1.3 Function

The treatment unit ATMOS® S 61 Servant ENT workstation makes modular assembly possible for the following functional modules:
- suction system
- compressed-air system
- ear rinsing module 37°C basic
- ear rinsing system (Hygrotherm)
- system for thermal nystagmus stimulation
- LED light source ATMOS® LS 21 LED
- LED head light ATMOS® HL 21 LED

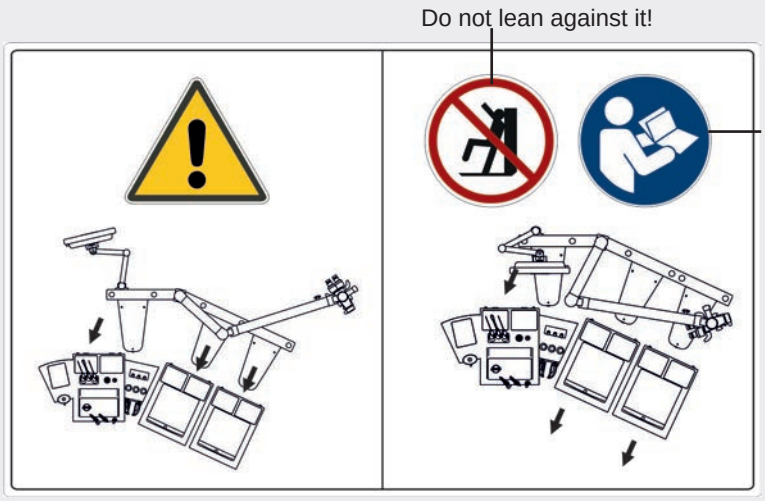
1.4 Explanation of pictures and symbols

Short cuts / symbols contained in this manual

- Follow the arrows whilst proceeding, sequence
- Please press where dot indicates
- Activate the optional foot switch
- Please read, important information
- ■ General information
- ● Numeration
- → Subnumeration
- Check
- Move, plug ... in this direction
- Turn, shift ... in this direction
- Replace
- click — Engage, check correct fit

Pictures contained in this manual

- Warning, especial diligent notice
- Fuse according to IEC 47/5016, DIN 30600/0186
- Application part type B
- Potential equalization
- Mirror quick heater
- Adjustment
- Compressed air
- Suction
- Foot switch
- Ground wire connection
- ~ Alternating current
- | On (feed-in, power connection)
- ○ Off (feed-in, power connection)



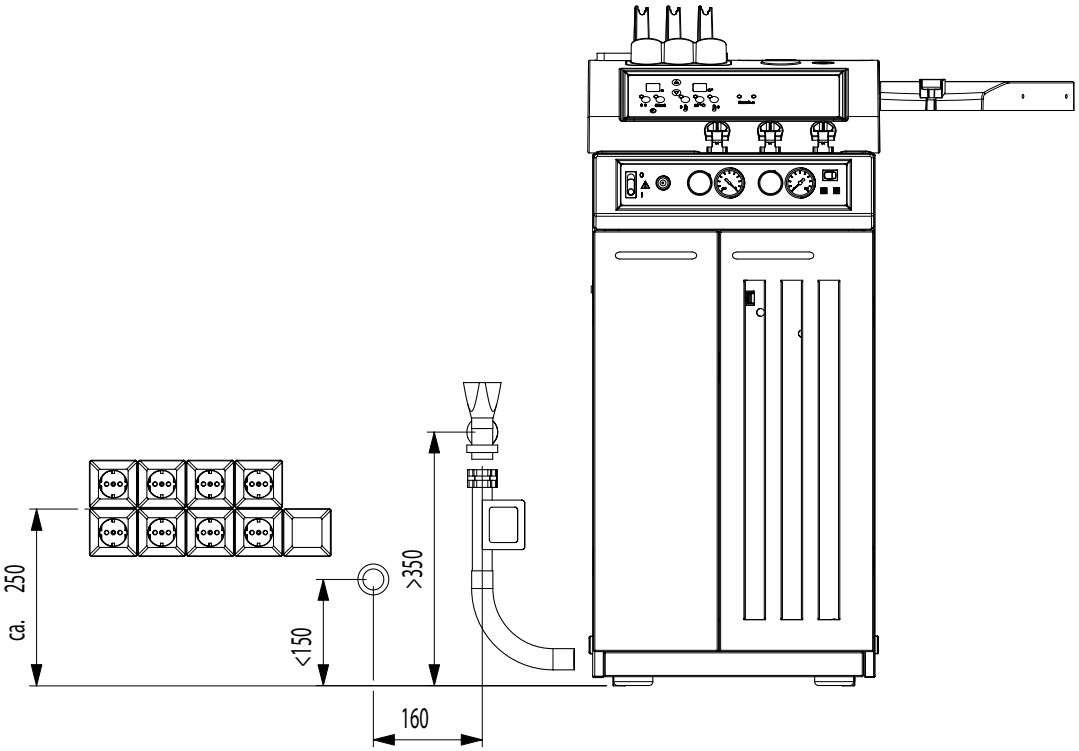
Warning: the ATMOS® S 61 Servant workstation may only be removed from the system frame when the microscope is in the park position.

2.0 For your safety

For your safety

- The ATMOS® S 61 Servant ENT workstation unit is produced according to IEC 601/ EN 60601 and listed in the following classes:
  - VDE Class of protection 1
  - Class IIa (EEC 93/42).
- Correct configuration in assembly of country-specific connections:
  green/yellow: protective conductor (PE)
  blue: neutral conductor (N)
  black resp. brown: phase (L)
- Attention! Mirrorheaters may generate temperatures above 40°C!
- The ATMOS® S 61 Servant ENT workstation may be used in **supervised operation** by qualified personnel only which has been authorised by ATMOS and which has been trained for operating the appliance (IEC 601-1/ EN 60601-1).
- The mains voltage specified on the type plate must correspond with the data of the power supply system.
- Make sure prior to every application of the equipment that it is technically safe and in proper condition. **Damaged leads and hoses** must be replaced immediately!
- Display instruments and valves must be checked for correct function at regular intervals!
- Arrange a sight check every morning for the hoses, secretion canister and cables.
  Exchange damaged parts!
  Only use correct and undamaged line voltages and extension cables.
- Switch off the unit before you open it and separate it from the line voltage.
- Maximum load for clipboards: 2 kg
- Never leave the patient unattended at the treatment unit.
- This product is not re-sterilisable. Repeated reuse of components which are marked with a ⓧ is forbidden. In case of repeated reuse these components lose their function and there is a high infection risk.
- In case that there is no adapter attached to the light conductor, touching the light source with either the fingers or any tools should be avoided. On the one hand this may damage the lenses and on the other hand there is a risk of injury.
- Only switch on unit at available water consumption, when water supply is guaranteed!
- The ENT unit requires clean water (drinking-water quality) for the operation. In case the clean water cannot be provided by the water supply, a pre-filter has to be installed. The relevant country specific regulations for the instal-lation have to be considered !
- Please note:
  A medical insulating transformer with earth leakage monitor or any similar safety system acc. to EN 60 601-1 is required, if several devices are connected over one common power supply. The transformer must correspond to the power consumption of all the devices to be connected.
- Do not place used contaminated instruments on the ENT unit except on destined places!
- The ambient conditions specified in section "Technical specifications" must be strictly observed!
- Switch off main switch after finishing work in practice and close water supply, if present.
- Attention when working with endoscopes near the light sources. Do not look directly into the cone of light!
  At a contingent light blackout remove the endoscope out of the area!
- The ATMOS® S 61 Servant 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 fully complies with the electromagnetic immunity requirements of standard **IEC 601-1-2 / EN 60601-1-2** "Electromagnetic compatibility - Medical Electrical Equipment".
- The ATMOS® S 61 Servant may not be operated with units not complying with the requirements of standard EN 60601-1 "Medical Electrical Equipment" and EN 60601-1-2 "Electromagnetic compatibility (Medical Electrical Equipment)".
- ATMOS is not liable for personal injury and damage to property if
  - no original ATMOS parts are being used,
  - the advice for use in these operating instructions is not being observed,
  - assembly, new settings, alterations, extensions and repairs have been carried out by personnel not authorised by ATMOS.
- These operating instructions correspond with the construction of the unit and with the current status of safety-related standards at the time of printing. Proprietary rights are existing for all described circuits, processes, names, software programs and units..
- Do not constrict the air supply on the back of the unit!
- The ear rinsing modlue 37°C basic must not be actuated with a 55l-aspiration system!
- Prior to starting the treatment application parts have to be checked regarding their temperature.
- It is not allowed to use flammable substances with the device.
- The system frame for 2 modules incl. microscope must be screwed into the floor.

3.0 Assembly: Connecting conditions



Connection to central gas supply up to max. 8 bar.
The standard NIST connection for central vacuum and central compressed air on the rear side of the device is optional, connecting hoses are not included in delivery.

3.1 Required connections for all units of ATMOS® S 61 Servant

Flexible multi-port distributors may not be used as a power supply for the ATMOS® S 61 Servant Vision or for an optional HF or radiofrequency surgical device.

Unit / Device	Maximum required connections
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 the 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
An adequate number of socket outlets with earthing contact should be mounted for possible connection of further electrically operated units which may be installed (e.g. installation of an electrically operated ATMOS® patient chair, camera, monitor, etc.)	

3.2 Connection to electrical power line

Requirements:
- Installation acc. to IEC 60346-7-710: earth leakage circuit breaker (FI-circuit breaker) with rated leakage current <0.03 A
- Connection of the power supply cable of the ATMOS® S 61 Servant Workstation to a safety socket outlet near the device, max. 3 meters, preferably left (fig.). This may only be carried out by authorized qualified personnel.
- The supply circuit must be separated from other devices e.g. PCs etc.
- If isolating transformers are used then isolation monitoring must be integrated in the isolating transformer.
- Maximum power consumption:
  - ATMOS® S 61 Servant 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 a power supply.

3.0 Assembly: Connecting conditions

3.3 Water connection

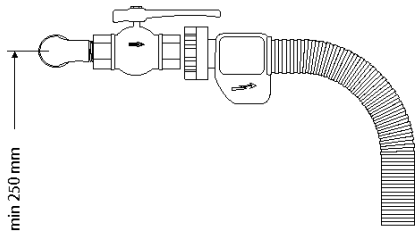
Requirements for water supply:

- Easily accessible water tap or ball valve with external thread G 3/4“.
- The connection may be closed without any additional effort.
- Connection including pipe aeration is recommended.
- Minimum height of the water tap: 35 cm.
- Distance of the water tap to the ATMOS® S 61 Servant Workstation: < 3 m.
- Required pressure in domestic water system: >2 bar, but <5 bar.
- The water which is provided by the household connection must at least meet the WHO guidelines or the country-specific guidelines for drinking water.
- There are country-specific regulations for the installation to be considered when the unit is connected to the public water supply.
- Before connecting: Rinse water supply line in order to remove any contamination from the system.
- When clean water is available, connect delivery hose to water tap mentioned above.
- For observance of the regulations of DIN EN 1717 we recommend adding a water isolating system.
- The water system is not equipped with any calcification protection. For drinking water with a water hardness of 14-21°d resp. 2.5-3.8 mmol/l (= hard water) and up from 21°d resp. up from 3.8 mmol/l (= very hard water) a calcification protection system is required.
  Please contact your local water supplier and/or plumber.
  The water tap must be closed at the end of operation

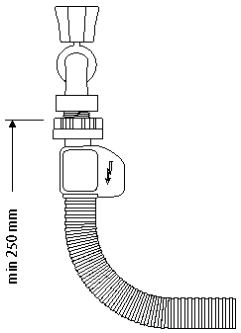
Water hardness	Millimol per litre	°dH	
1 (soft)	≤1.3	≤7.3	Calcification protection system is not required
2 (medium)	1.3 - 2.5	7.3 - 14	
3 (hard)	2.5 - 3.8	14 - 21.3	Calcification protection system is required
4 (very hard)	>3.8	>21.3	

- The use of demineralised water may affect the function of the waste water disposal!

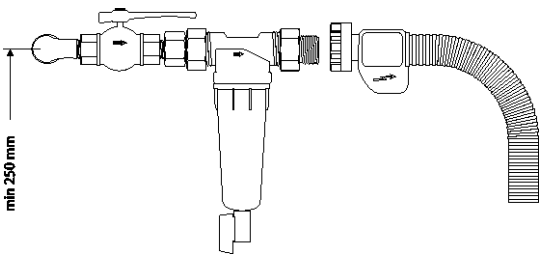
Water connection with ball valve



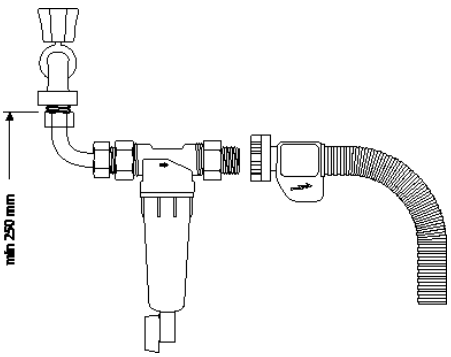
Water connection with water tap 3/4“ external thread.



Water connection with ball valve and particle filter



Water connection with water tap 3/4“ external thread and particle filter



3.0 Assembly: Connecting conditions

3.4 Water drain

Requirements:
- 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 adaption of the discharge hose) or
- Conical connection for 1/2“ hose inner diameter
- Connection height; approx.15 cm
- Distance from the wall connection to the installation site: < 3 m

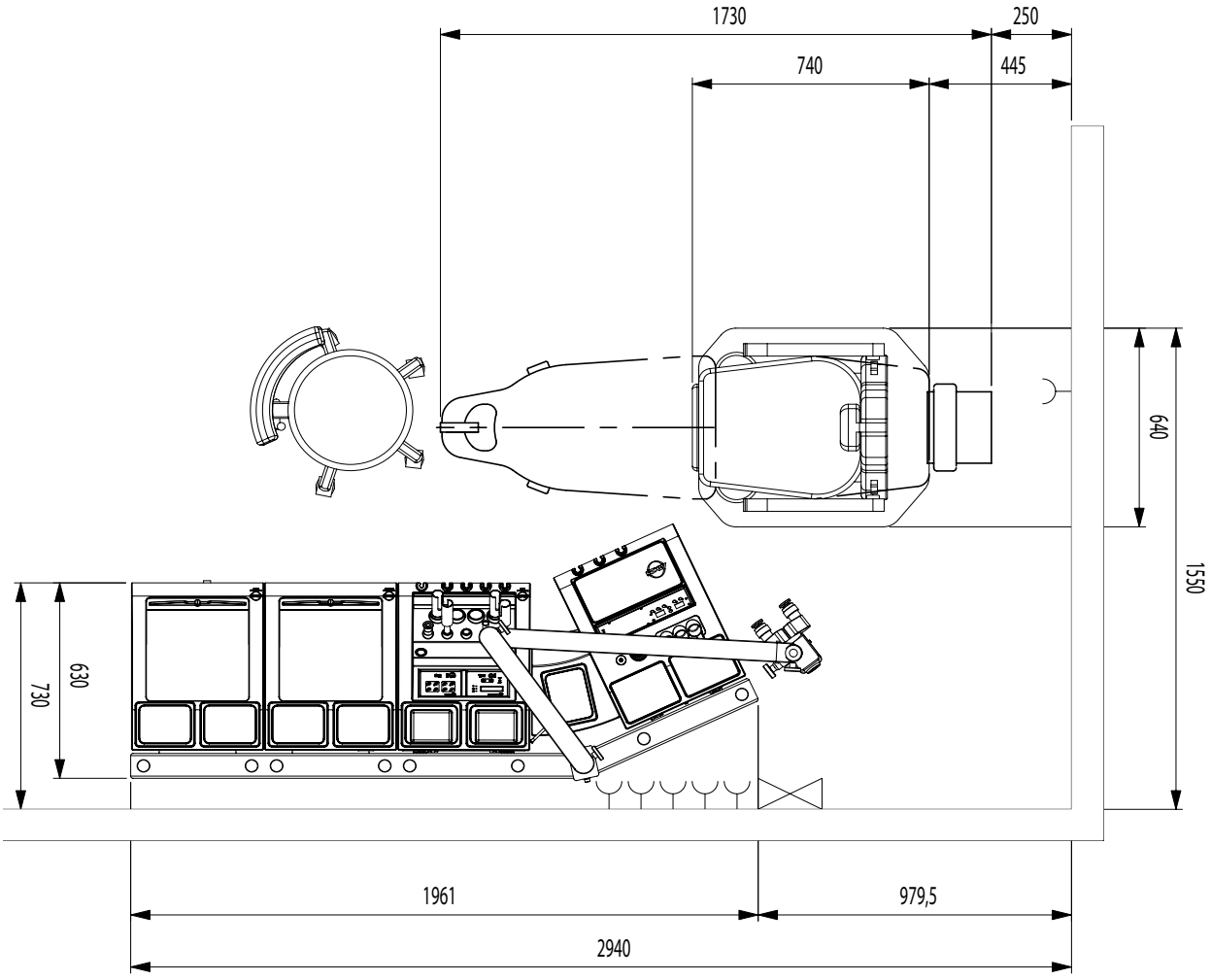
An anti-syphon trap is integrated in the unit!
- Connect waste water hose with unit and the G3/4“ connection fitting. Thereby fit enclosed gaskets into the screwing.

3/4“ wall connection

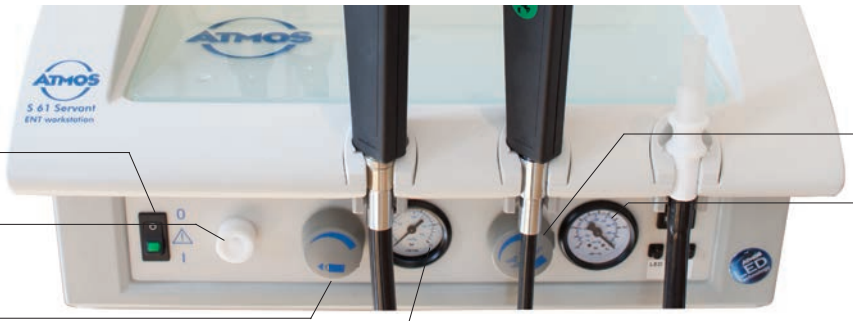
standard HT

conical hose connection

3.5 Installation proposal



3.6 Controls and options at complete equipment



The plastic adapter of the hose rinsing system (❶) is a consumable (REF 506.2228.1), exchange weekly. It is removed by twisting it out with a slight rotation.

3.7 Back view

Plug the power cable into the non-heating socket.
Please attend also the safety instructions for it on page 7!

3.8 Assembly of secretion canister

Prior to use, check the system up on density, otherwise it is possible that vacuum can not be built up.

insert bacterial filter (❹) into splash guard (❺)

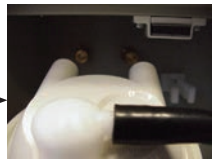
put splash guard into lid

insert exhaust hose (❼)

impose seal (❸) on, put lid onto container (❻)

connect hose on grommet (❶)

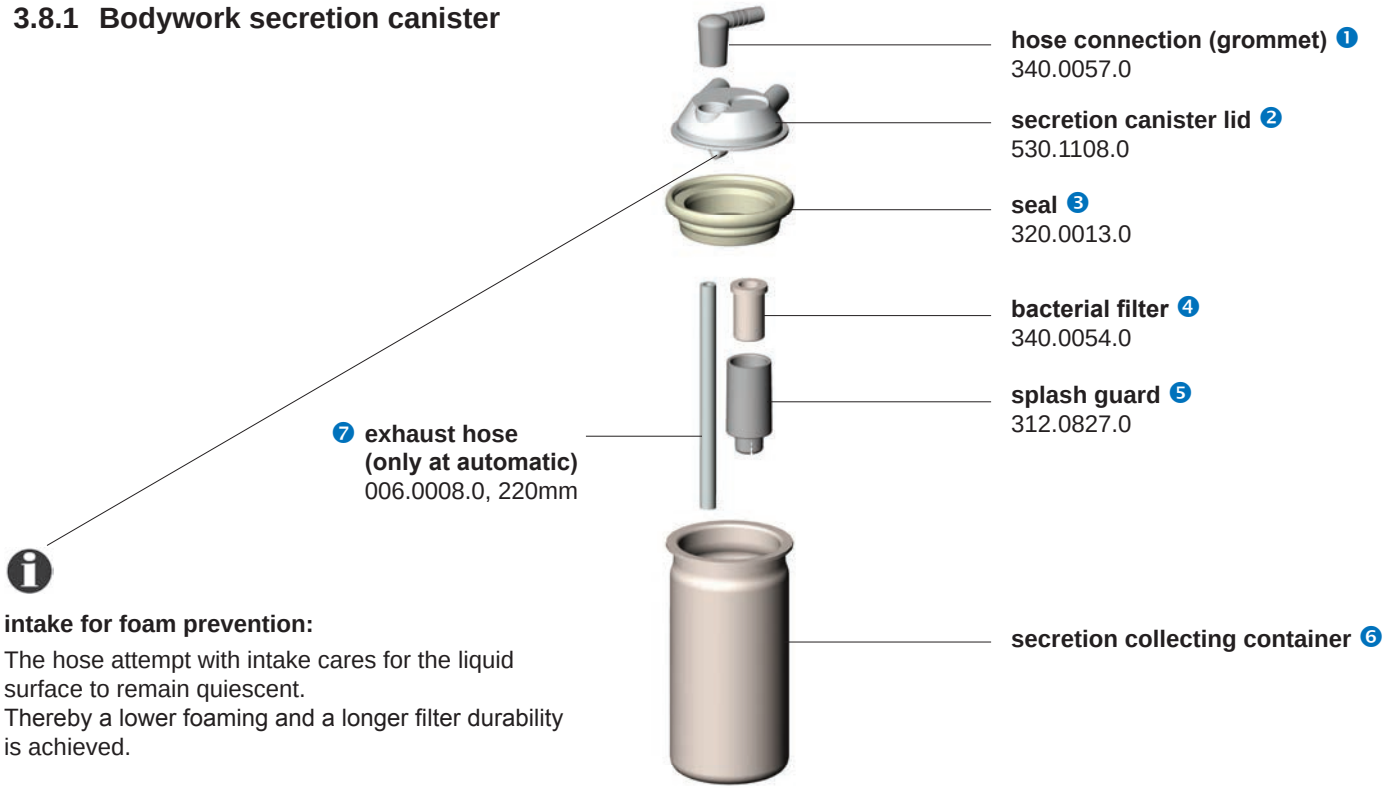
insert grommet into lid



put quiver horizontal onto the both nipples

fix hose into cramp

3.8.1 Bodywork secretion canister



intake for foam prevention:

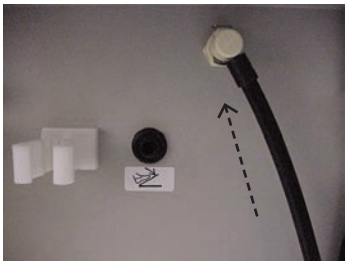
The hose attempt with intake cares for the liquid surface to remain quiescent.
Thereby a lower foaming and a longer filter durability is achieved.

3.9 Adjustment of front feet

Adjust the screws of the feet through the boreholes with a flat-bladed screwdriver scaled 4-5.

3.10 Connectors in the service room

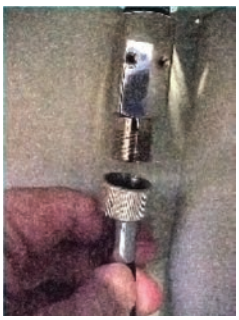
3.10.1 Hoses



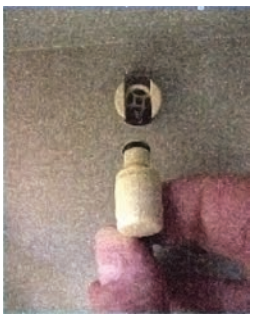
insert phone jack into marked jack

insert application parts into the border

insert three-hole seal near the supply hose of the tap for ear rinsing



connect water hose in the service compartment



connect compressed-air hose in the service compartment

First start-up
Prior to shipment each ATMOS® S 61 Servant is being inspected by the manufacturer for function and safety. In order to make sure that the appliance is working safely after transport and installation, the following points should be observed: The user should put the appliance into operation only if

1. a functional test on the appliance at the place of operation has been carried out.

2. the operating instructions have been read and noticed.

Following transportation at low temperatures the appliance must be held for up to fours hours at ambient temperature before first start-up. When the appliance has not been acclimatised the formation of condensation water is possible and a malfunction might be the result.

4.0 Operation

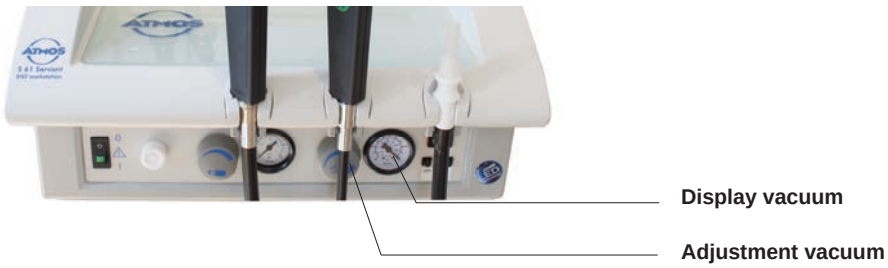
4.1 On / off switch

With engaging the main switch all integrated and connected devices are ready.

4.2 Suction system

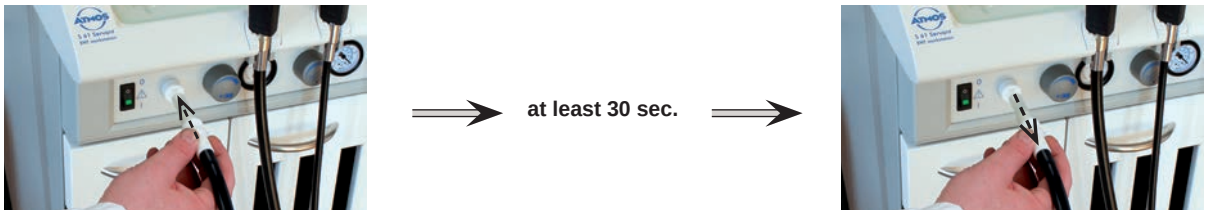
Never drive the suction system without bacterial filter! Always use the splash guard for extention of the utilization of the bacterial filter. Incorrect using makes expire the guaranty!
Change the bacterial filter regularly. Advices in section 5.0!
The hose attachment must be exchanged after each patient.

4.2.1 Control and display of the suction rate



Take handle from holder. By the installed light barrier the suction system activates automatically.
Set the desired vacuum via adjustment, therefor the end of the suction hose has to be closed. Only in this case a vacuum will be built up.

4.2.2 Hose rinsing system



After each application rinse the suction hose thoroughly. Add the suction hose (without canula) with the suction nipple to the suction attachment for the hose rinsing and soak up the rinsing fluid at least 30 sec.

Refilling / Storage canister / Hose rinsing

A) Fully automated refilling (530.1060.0)

If required, the water storage canister will be refilled automatically.

ATTENTION:
Make sure that the water supply system is on and the water supply secured !
Do not use any foaming cleaning agents respectively disinfectants.

B) Manual refilling (530.1050.0)

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

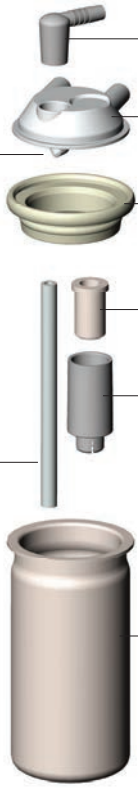
4.2.3 Draining of reusable canister system

The canister system has to be cleansed and disinfected regularly.
Advices in section 6.0 'Hygiene plan'.

A) Manual
Drain the secretion canister at approx. half level.
Pull the secretion canister horizontal out of the holder in the service compartment and remove the suction hose.

B) Automatic (530.1070.0)
The automatic secretion canister draining cares for a self-acting evacuation at an according level.

Bodywork secretion canister



hose connection
340.0057.0

secretion canister lid
530.1108.0

intake for foam prevention

seal
320.0013.0

bacterial filter
340.0054.0

splash guard
312.0827.0

exhaust hose (only at automatic)
006.0008.0, 220mm

secretion canister

The hose attempt with the intake cares for the liquid surface to remain quiescent. Thereby a lower foaming and a longer filter durability is achieved.

4.2.4 Disposable canister system

A) Receptal

B) Medi-Vac

4.3 Ear irrigation module Hygrotherm

The integrated ear irrigation module Hygrotherm features separate operating instructions.

Please note:
Read these separate operating instructions attentively and follow the stated notes for your safety to guarantee ideal and safe use of all functions!

- If you switch on the appliance, a segment-test will be carried out. For a moment all LEDs will be activated. In this time please check the function of the LEDs optically.
- Before the caloric measurements you have to check the water pressure at the manometer in the service room. It has to be a desired pressure of 2 bar. Beware of overpressure !

4.3.1 Ear irrigation bowl with separate suction channel REF 530.2070.0

The ear irrigation bowl with optional, separate suction channel may only be used for suction during ear irrigation or stimulation. Only the ear irrigation bowl with integrated sieve (hole diameter 1 mm at a maximum) 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 sucking off bigger particles like, for example, cerumen, etc. Therefore, suction may only be performed with bowl and sieve.

Greasy and pasty substances can be sucked off but only limited. It is recommended to clean the bowl after each suction procedure and to rinse it with water (disinfectant) in order to prevent the pump valves from jamming.

Take out the suction nozzle with the ear irrigation bowl from the suspension, the suction system switches on automatically. Then apply the bowl with the lateral cut-out below the ear which needs to be irrigated and start irrigation. When the suction nozzle is put back to the suspension, the suction system stops automatically.
Attention: Please use the suction system with ear irrigation bowl only.

4.3.2 Activation of the Hygrotherm

Take handle from holder. By the installed light barrier the Hygrotherm activates automatically.
The last adjusted temperature level will be chosen.

4.3.3 Accomplishment of the ear rinsing

Take handle ⇨ hold nozzle in work item and activate trigger ⇨ accomplish ear rinsing

ATTENTION:
Make sure the water supply system is on and the water supply secured !

4.4 Thermal nystagmus stimulation, Variotherm

The integrated Variotherm features separate operating instructions.

Please note:
Read these separate operating instructions attentively and follow the stated notes for your safety to guarantee ideal and safe use of all functions!

ATTENTION:
Make sure that the water supply system is on and the water supply secured!

- If you switch on the appliance a segment-test will be carried out. For a moment all LEDs will be activated. In this time please check the function of the LEDs optically.
- Before the caloric measurements you have to check the water pressure at the manometer in the service room. It has to be a desired pressure of 2 bar. Beware of overpressure!

4.4.1 Ear irrigation bowl with separate suction channel REF 530.2070.0

The suction channel for the ATMOS ear irrigation bowl may only be used for suction during ear irrigation or stimulation. Only the ear irrigation bowl with integrated sieve (hole diameter 1 mm at a maximum) 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 sucking off bigger particles like, for example, cerumen, etc. Therefore, suction may only be performed with bowl and sieve.
Greasy and pasty substances can be sucked off but only limited. It is recommended to clean the bowl after each suction procedure and to rinse it with water (disinfectant) in order to prevent the pump valves from jamming.
Take out the suction nozzle with the ear irrigation bowl from the suspension, the suction system switches on automatically. Then apply the bowl with the lateral cut-out below the ear which needs to be irrigated and start irrigation. When the suction nozzle is put back to the suspension, the suction system stops automatically.
Attention: Please use the suction system with ear irrigation bowl only.

4.4.2 Activation of the Variotherm

Take handle from holder. By the installed light barrier the Variotherm activates automatically.
The last actived temperature level will be chosen.

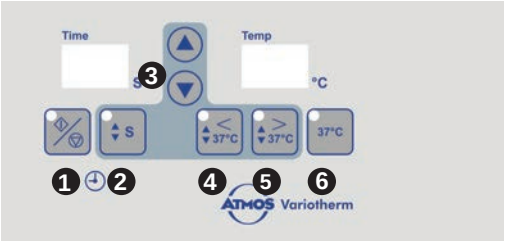
4.4.3 Accomplishment of the thermal nystagmus stimulation

Take handle ⇨ choose temperature and adjust if necessary (q.v. 4.4.4) ⇨ if required set time ⇨ press ❶ (flashing approx. 10 sec.) ⇨ if the Variotherm is ready for use you hear a beep ⇨ hold nozzle in work item and activate trigger ⇨ accomplish nystagmus stimulation ⇨ after the lapse of time you here a beep again

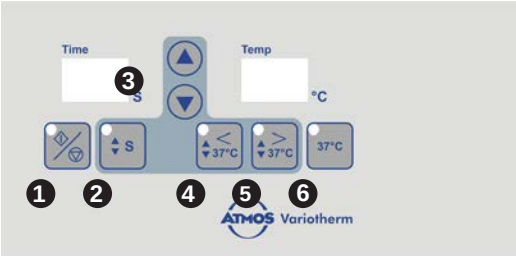
4.4.4 Time setting (1-99 sec.)

Take handle.
Press and hold ❷. Set the desired stimulation time with ❸.
At the next selection of the particular temperature, the time setting from the previous time will automatically be assumed.

Casually check the time setting of the timer.



4.4.5 Temperature setting



You can apply the Variotherm at temperatures from 20°C to 47°C. The minimum temperature is given from the temperature of the tap water.

setting at 37°C**:**

Press ❻ for the temperature.

warm stimulus (38 - 47°C)**:**

Take handle.
Press and hold ❺. Set the desired temperature with ❸. Release ❺.
At the next selection of the key ❺ the presetted temperature will be assumed.

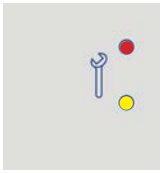
cold stimulus (20 - 36°C)**:**

Take handle.
Press and hold ❹. Set the desired temperature with ❸. Release ❹.
At the next selection of the key ❹ the presetted temperature will be assumed.

4.4.6 Information about the service display of the ATMOS® S 61 Servant up from software version V 1.2

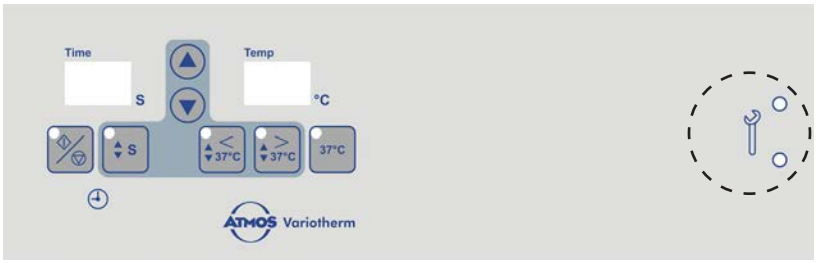
The ATMOS® S 61 Servant workstation has a service display on the front panel.

The display consists of a red and a yellow LED.



red LED

yellow LED



After switch on of the module a test cycle starts to check the electronics. The following indications are possible:

	Red LED	Yellow LED	Beep	Remarks
Immediately after switch on the LED test starts.				
Switch on	flash up	flash up	yes	Both LEDs flash up simultaneously during switch on (duration: 500 ms).
Afterwards a functional and aggregate test follows where 6 flashlight signals appear (duration: flash up/stop: 500 ms/500 ms).				
Operating time pressure pump		first flash up	no	o.k.
Operating time suction pump		second flash up	no	o.k.
Operating time suction pump 2		third flash up	no	o.k.
Operating time hose pump		fourth flash up	no	o.k.
Operating time drainage pump		fifth flash up	no	o.k.
Annual maintenance		sixth flash up	no	o.k.
Battery voltage		seventh flash up	no	o.k.
Maintenance is required:				
Operating time pressure pump	first flash up		yes	critical operating time
Operating time suction pump	second flash up		yes	critical operating time
Operating time suction pump 2	third flash up		yes	critical operating time
Operating time hose pump	fourth flash up		yes	critical operating time
Operating time drainage pump	fifth flash up		yes	critical operating time
Annual maintenance	sixth flash up		yes	annual maintenance is due
Battery voltage	seventh flash up		yes	low battery voltage

In the case any maintenance is required, please contact your local ATMOS® Service partner.

4.5 Compressed-air system

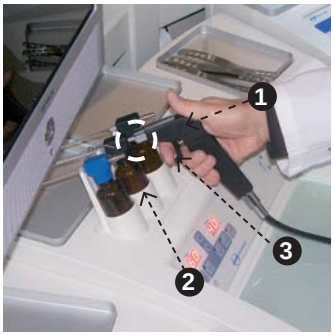
- Make sure equipment and hoses are connected tightly to build up a sufficient pressure.
- If you use politzer olives, control pressure in acc. with the appliance.

4.5.1 Activation

For activation of the compressed-air system take handle from holder. By the installed light barrier the compressed-air system activates automatically.

4.5.1 Adapt / deposit sprayer

Adapt:

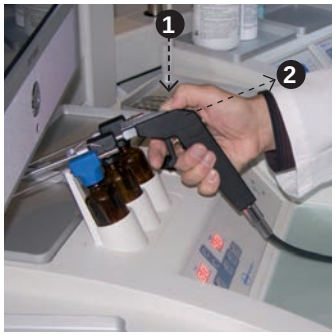


Stick (❶) handle onto the medication bottle.

Let snap, then lift medication bottle with handle out of the attachment (❷).

By pulling the trigger, compressed-air will be applied into the sprayer (❸).

Deposit:



Adapt medication bottle top down into in the attachment.

Press activator (❶) and pull handle (❷) backwards.

- Handle carefully when using a sprayer to avoid injuries.
- Before using the sprayer bottle, check the defensibility of the included medications.
- Clean all parts of the sprayer regularly ! Therefore find advices in section 5.0 `Cleaning` and section 6.0 `Hygiene plan` !

4.5.3 Ear irrigation module compressed air system (REF 530.2080.0)

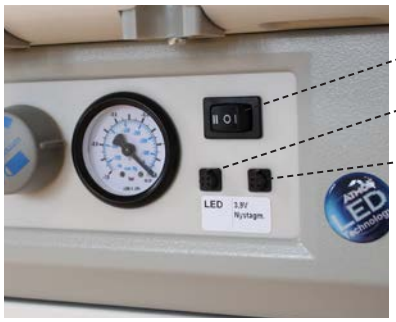
In order to start the ear irrigation, please close the vent valve (❷) and press the adjusting lever (❶). You stop ear irrigation in releasing the adjusting lever (❶) and the vent valve (❷).

Irrigation stops immediately!

The glass vials have to be checked for intactness prior to every use (cracks, chippings on the winding, etc.). Broken glass vials may not be used for ear irrigation.

❶ adjusting lever
❷ vent valve

4.6 LED-Light system



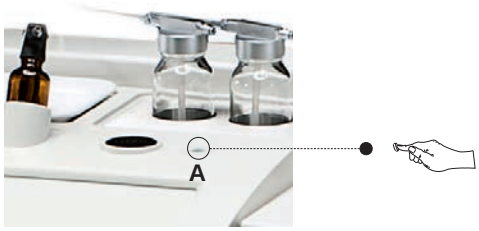
on/off LED

LED-port (for light source or head light)

LED-port (for light source or head light), optional connection for nystagmus binoculars

4.7 Instrument heating

4.7.1 Mirror quick heating



Press A.
The mirror quick heating is activated for 10 sec and then switches off automatically.

Fire hazard !
Before using the mirror on a patient, check its temperatur (on the back of your hand o.s.).

Only heat up disinfected instruments !

4.7.2 Heating module for instrument tray

When switching on the unit, the heating system for the instrument tray will be activated and heated up to 37°C.

⇨ Put the instruments you want to heat down on the metal tray.
⇨ Trays are meant for the use with unsterile instruments only.

Clean and disinfect the quivers regularly! Advices in section 5.0 `Cleaning`.

4.8 Clipboard endoscopy

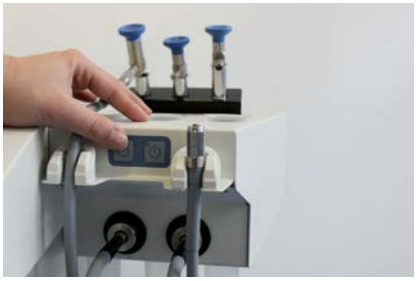
Integration of 3-channel endoscope management for rigid and flexible endoscopes.

4.8.1 Option LED Light Cube

The LED Light Cube is automatically activated when switching on the unit.
With a simple rotary motion the adapters are screwed in up to the stop position and fixed in the Clipboard. The light conductors can be plugged in the connection. The light channel is automatically activated when the light conductor is removed from the support. Manual on and off switching of the light channels by means of the keypad is also possible.


Screwing in the adapter


Clipboard with connected light conductors


Operating the keypad

4.8.2 Option endoscope management (heated)

Endoscope heating is activated automatically when the unit is switched on. The quivers are heated to 41°C.


Clipboard with connected headlight

4.8.3 Hook for the headlamp with automatic switching

Headlight can easily be removed and put back during the examination. Connect the headlamp to the clipboard as described in chapter 4.9.1. Hereto please use the right light channel. This light channel is then automatically activated if the headlight is removed from the hook.

In order to guarantee error-free operation, please seal the light barrier of the right light channel with the provided blind plug.

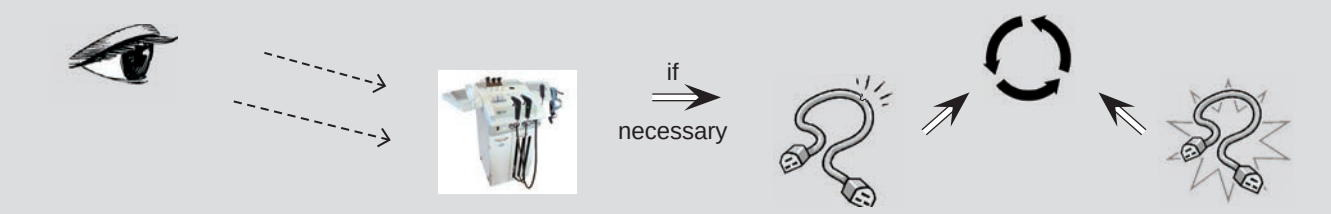
5.0 Cleaning

5.1 General information on cleaning and disinfection

Before cleaning

Medical devices must always offer a maximum in safety and function.
Therefore we recommend:

Prior to each application:



☞ The described measures to clean and to disinfect don`t exchange the instructions given in the particular company!

- In the following sub-chapter `recommended disinfectants` all mentioned surface and instrument disintectants are qualified for disinfection.
- Please take care that all surfaces are dry wiped. Use a single-use cloth to absorb any liquid.
- In case that any disinfectant is spilled, please take care to dry wipe the surface immediately in order that no liquid may penetrate gaps and edges.

☞ Always observe the concentration specifications and instructions by the respective manufacturer

- Do not use
  - Disinfectants containing concentrated organic or anorganic acids or bases, since these may cause corrosion damages.
  - Disinfectants containing chloramides or phenol derivatives, since these may cause stress cracks in the material used for the housing of the unit.

5.1.1 Cleaning the unit surface

- The unit's surfaces are coated with a special textured lacquer that fulfills the requirements for workstation hygiene.
- Wipe the unit surface with a cloth, moistened with a cleaning or disinfecting solution.
- You may also use disinfectant sprays or disinfectant tissues for cleaning and disinfection.
  ↳ Long-term use of disinfectants with alcohol might affect the flexibility and transparency of the protective covers.

- All application parts, which are exposed to direct contact with the patient during the treatment, have to be exchanged, cleaned or disinfected immediately for hygienic reasons.
- Only put cleaned instruments on the deposits!
- Clean and disinfect the instrument deposits regularly!

5.0 Cleaning

5.1.2 Secretion canister (without autom. secretion canister draining), bacterial filter and suction hose

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

- Secretion canister with lid system and bacterial filter:
  - Pull all hose connections from the lid system and carefully remove the canister from the canister holder in order to prevent a contamination of the area around the unit (e.g. drops).
  - Properly dispose the sucked material.
    Take the secretion canister at the lid system, open the bacterial filter cover by turning it anti-clockwise and remove the filter plate. Thoroughly rinse all parts under running water. You may, of course, add a cleanser or detergent.

- Check the DDS bacterial filter / overflow protection

  - The DDS bacterial filter / overflow protection is intended for single use only.

  - Prior to use check that the bacterial filter is dry and clean. Wet or dirty bacterial filters must be replaced immediately.

  - When the vacuum is adjusted to “max” and the suction hose shows more than -0,3 bar then the DDS bacterial filter must be replaced.

  - The bacterial filter must be exchanged at least once a day. Please only use original ATMOS® bacterial filters.

  - The device may never be operated without DDS bacterial filter / oversuction stop.

- Suction system and hose attachment:
  - After every use, rinse out the suction system by drawing in a small amount of irrigating fluid (e.g. ATMOS® Special Cleanser 080.0005.0).
    ↳ Keeps the hoses from becoming sticky or clogged.

☞ Suction capacity is limited by the 1.25 l secretion canister. Therefore, do not use more than 1 l rinsing liquid and subsequently evacuate the canister.

5.1.3 Medication sprayers

- The sprayer tube must be exchanged after each patient.

- Dismount the medication sprayer and thoroughly rinse all parts under running water. You may, of course, add a cleanser or detergent.
  - Use water to thoroughly rinse all residues of these substances.

☞ Make sure that the air opening is not closed!

- Disinfect all components with the disinfectants mentioned in 5.2.

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

☞ Sprayer tubes are available as spare parts at ATMOS.

5.1.4 Instrument trays

- Before disinfection, thoroughly rinse the trays under running water. You may, of course, add a cleanser (detergent) or surface disinfectant.
  - Use water to thoroughly rinse all residues of these substances.

- Disinfect with one of the disinfectants mentioned in 5.3 afterwards.

Trays made of anodized aluminium and melamine cannot be sterilized!

5.1.5 Endoscope quivers

- The metal quivers of the endoscope holder exclusively serve for keeping the **berore cleaned and disinfected endoscopes.** Clean quivers daily and disinfect. Thereto, the sealing plug at the lower end should be taken off.

5.1.6 Ear rinsing bowl

- The ear irrigation bowl is not autoclavable!
  Cleaning and disinfection (also machine cleaning) up to 93°C.

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 (ethylendioxy) 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-value regulators	9,2 g 13,0 g	Bode Chemie, Hamburg
Korsolex® extra (Application concentrate)	(ethylendioxy)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 (ethylendioxy) 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 dimethoxytetrahydrofuran anionic and non-ionic surfactants, perfumes, methylisothiazo-linone	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	Manufacturer
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, stabilisers, 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 (nitrilotriacetic acid) 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

5.0 Cleaning

5.3 Recommended surface disinfectants

Coated surfaces

Disinfectant	Ingredients	in 100 g	Manufacturer
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 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®	Potassium peroxymonosulfate	45 g	Schülke & Mayr, Norderstedt
Terralin® Protect (Application concentrate)	benzalkonium chloride (benzyl-C12-18 alkyldimethylammonium, 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	Manufacturer
Dismozon® pur (Granulate) End of product 12/2014	magnesium monoperoxyphthalate hexahydrate	80 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
Mikrobac® forte (Application concentrate)	benzyl-C12-18-alkyldimethyl-ammonium chlorides N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine	19,9 g 5 g	Bode Chemie, Hamburg
Perform®	Potassium peroxymonosulfate	45 g	Schülke & Mayr, Norderstedt
Terralin® Protect (Application concentrate)	benzalkonium chloride (benzyl-C12-18 alkyldimethylammonium, 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 methyl proionale, linalool	13 g	Dürr Dental, Bietigheim-Bissingen
Quick disinfection B 30	ethanol didecyldimethylammonium chloride	62 g 0,05 g	Orochemie, Kornwestheim

If using aldehyde-containing or amine-containing disinfectants at the same object, this may result in discolourations.

5.4 Recommended endoscope disinfectants

Manual disinfection of endoscopes

Disinfectant	Ingredients	in 100 g	Manufacturer
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 (ethylendioxy) dimethanol surfactants, salts, corrosion inhibitors	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)	sodiumpercarbonate, non-ionic surfactants, phosphonates		Ecolab, Düsseldorf

Automatic disinfection of endoscopes

Disinfectant	Ingredients	in 100 g	Manufacturer
Korsolex® basic	glutaral (ethylendioxy) dimethanol surfactants, salts, corrosion inhibitors	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) (Application concentrate)	succindialdehyde dimethoxytetrahydrofuran 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, Norderstedt

6.0 Hygiene plan

	What	How			Recommendations	When				Who
	Reusable parts	C Cleaning	D Disinfection	S Sterilisation		After each procedure	Daily	Weekly	Monthly	Qualified and trained staff who are familiar with reprocessing. (Please fill in the responsible person -> use a water-based overhead marker)
	**Secretion canister**									
	Hose connection (nozzle)	X	X[2,4,5]		Cleaning and disinfection (automatic or manual)		X			
	Suction lid	X	X[2,4,5]		Cleaning and disinfection (automatic or manual)		X			
	Gasket	X	X[2,4,5]		Cleaning and disinfection (automatic or manual)		X			
	Bacterial filter				Daily exchange or when filter is blocked		X			
	Splash protection	X	X[2,4,5]		Cleaning and disinfection (automatic or manual)		X			
	Float ball	X	X		Cleaning and disinfection (automatic or manual)		X			
	Suction hose in the canister	X	X[2,4,5]		Cleaning and disinfection (automatic or manual)		X			
	Secretion collection canister	X	X		Empty when the canister is full; at least daily Cleaning and disinfection (automatic or manual)		X			
	Disposable canister system				Exchange and disposal of full canister		X			
	**Hose irrigation system**									
	Suction nozzle for hose irrigation	X	X[3]		Wipe cleaning and disinfection		X			
	Silicone attachment piece	X	X[2,4,5,6]		Cleaning and disinfection (automatic or manual)		X			
					Exchange of the Silicone attachment				X	
	Suction nipple	X			Manual cleaning after each patient	X				
			X[2,4,5,6]		Manual or automatic cleaning and disinfection		X			
	Secretion suction hose	X			Rinse the secretion hose with the hose irrigation system after each procedure;	X				
			X[2,4,5,6]		Exchange or disinfection of the hose				X	
	Storage container for hose irrigation system	X	X[2,4,5,6]		Cleaning with a brush; Manual or automatic cleaning and disinfection			X		
	**Ear irrigation / Thermal nystagmus stimulation**									
	Ear irrigation bowl	X	X[2,4,5]		Manual or automatic cleaning and disinfection	X				
	Handle	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Jet connection	X	X[2,4,5,6]		Manual or automatic cleaning and disinfection		X			
	Splash protection	X	X[2,4,5]		Cleaning and disinfection (automatic or manual)		X			
	Hose tip (disposable)				Exchange after each application	X				
	Rinsing attachment	X	X[2,4,5]		Manual or automatic cleaning and disinfection	X				
	Hygiene filter				See operating instructions for hygiene filter				X	
	Rinsing lid with rinsing hose	X	X[2,4,5]		Manual or automatic cleaning and disinfection		X			
	Rinsing bottle	X	X[2,4,5,6]		Cleaning and disinfection; cleaning in the dishwasher with the glass care programme		X			
	**Medication nebulisation / Politzer**									
	Handle for compressed air	X	X		Manual cleaning and disinfection		X			
	Sprayer jet	X			Cleaning after each application	X				
			X[2,4,5,6]		Manual or automatic cleaning and disinfection		X			
	Sprayer head	X	X[2,4,5]		Multiple rinsing of the sprayer head with water			X		
	Hose at sprayer head	X	X		Weekly exchange of the hose or when changing the medication			X		
	Sprayer bottle	X	X[2,4,5,6]		Cleaning in a cleaning and disinfection device; weekly or when changing the medication			X		
	Politzer olive	X	X[2,4,5,6]		Exchange after each application. Cleaning and disinfection	X				
	Politzer connection	X	X[2,4,5,6]		Exchange after each application. Cleaning and disinfection	X				
	**Endoscope management**									
	Plastic quiver	X	X[2,4,5]		Cleaning with a brush; disinfection		X			
	Metal quiver	X	X[2,4,5,6]		Cleaning with a brush; disinfection (automatic or manual)		X			
	Fixation adapter for plastic quiver	X	X[2,4,5]		Manual or automatic cleaning and disinfection		X			
	Protective sleeve (teflon element for metal quiver)	X	X[2,4,5]		Manual or automatic cleaning and disinfection		X			

6.0 Hygiene plan

	What	How			Recommendations	When				Who
	Reusable parts	C Cleaning	D Disinfection	S Sterilisation		After each procedure	Daily	Weekly	Monthly	Qualified and trained staff who are familiar with reprocessing. (Please fill in the responsible person -> use a water-based overhead marker)
	**Instrument management**									
	ENT instruments	X	X[2,4,5]	X	Immerse instruments into solution immediately after use, complete wetting is required, air must be removed from any cavities, after the contact time instruments must be rinsed with water, have to be dried and sterilised afterwards. Please also observe the ATMOS operating instructions for ENT instruments.	X				
	Instrument bowl	X	X[2,4,5]		Manual or automatic cleaning and disinfection		X			
	Instrument bowl with cover	X	X[2,4,5]		Cleaning with a brush; afterwards disinfection Manual or automatic cleaning and disinfection		X			
	**Visualisation**									
	ATMOS® Cam 21 / 31	X	X[3]		Wipe cleaning and wipe disinfection	X				
	ATMOS® Strobo 21 LED	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Flexible scope	X	X[1,7,8]	X[1)]	Immediate pre-cleaning after the procedure	X				
	Rigid scope	X	X[1,7,8]	X[1)]	Immediate pre-cleaning after the procedure	X				
	Laryngoscope	X	X[1,7,8]	X[1)]	Immediate pre-cleaning after the procedure	X				
	Light conductor	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Light source	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Microscope	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Headlight	X	X[3]		Wipe cleaning and wipe disinfection		X			
	**Radiofrequency surgery**									
	ATMOS® RS 221 (surface)	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Ergonomic plastic handles	X	X[1,2,4,5]	X[1)]	Wipe cleaning and wipe disinfection	X				
	Bipolar tweezers	X	X[1,2,4,5]	X[1)]	Immediate pre-cleaning after the procedure cleaning and disinfection (automatic 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 the procedure cleaning and disinfection (automatic 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 the procedure cleaning and disinfection (automatic 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 wipe disinfection		X			
	Roller shutter	X	X[3]		Wipe cleaning and wipe disinfection		X			
	System frame	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Drawers	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Writing surface	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Instrument deposit	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Mirror pre-heater	X	X[3]		Wipe cleaning and wipe disinfection		X			
	Tongue patches and swab dispenser	X	X[3]		Wipe cleaning and wipe disinfection, every day or when refilling		X			
	Waste disposal	X	X[3]		Wipe cleaning and wipe disinfection, every day or when emptying the container		X			
	Instrument tray	X	X[3]		Wipe cleaning and wipe disinfection, daily when replacing with new instruments		X			

Recommended disinfectants

[3)] Surface disinfection
for coated 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 disinfection FD 312 (Dürr Dental)
- Quick disinfection B 30 (Orochemie)

[4)] Instruments - manual disinfection:
- 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)] Instruments - automatic disinfection:
- 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)

[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 - automatic disinfection:
- Korsolex® Basic (Bode Chemie)
- neodisher® MediClean forte (Dr. Weigert)
- Gigasept® FF neu (Schülke & Mayr)
- Endozime® AW Plus (Ruhof)
- ADAPTACLEAN™ (ASP)

Please see the manufacturer's instructions for concentration, contact time, temperature and the compatibility of materials.

Wrong concentration of disinfectants may lead to damage!

Important information

Wipe cleaning and wipe disinfection: All surfaces have to be wiped with a clean (disposable) wipe which is damped with disinfectant solution; the entire surface has to be wiped thoroughly and may not be dried afterwards.

[1)] Please observe the manufacturer's operating instructions.
[2)] Alternative to manual cleaning und disinfection: Wash-Disinfector 78°C / 172°F
[6)] Material dimensionally stable at 134°C

The above stated hygiene requirements are based on the regulations according to the Medical Devices Act, the Medical Devices Operator Ordinance, §18 IfSG and the recommendations of the Robert Koch Institute.
Definition of the required reprocessing steps result from the recommendations of the Robert Koch Institute: „Requirements for the reprocessing of medical products". The medical products were categorised in the risk groups uncritical, semicritical and critical. The reprocessing measures mentioned in this cleaning and disinfection plan are a recommendation of ATMOS MedizinTechnik. Any additional reprocessing measures are at the operator's discretion.
All the recommended disinfectants which are stated herein are listed disinfectants (VAH/RKI) and have been tested on their suitability of use on the ATMOS® S 61 Servant. ATMOS MedizinTechnik cannot be hold liable for any damage caused by wrong concentration of the disinfectants or by the application of any other disinfectants.
Patients with suspicion of a clinical disease or who developed a transmissible spongiform encephalopathy (CJK, vCJK, etc.) have to be treated at facilities which are able to provide for the necessary preventive measures against infection. The reprocessing of the reusable instruments and material may only be performed at facilities which have an externally certified QM Management acc. to DIN EN ISO 13485.
The Medical Devices Act, IfSG, the RKI directives, BGR 250 and TRBA 250 always have to be considered.

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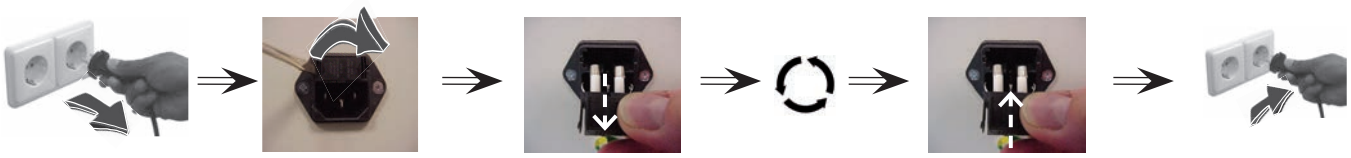
7.0 Maintenance and servicing

- The ATMOS® S 61 Servant ENT workstation is equipped with maintenance-free pumps for suction and compressed air. Nevertheless, to ensure correct functioning of the unit over a long period of time simple maintenance work which can either be done by the user himself, or, if desired, by service technicians, is necessary from time to time.
  - To guarantee correct function of the automatic rinsing and suction mechanism, switch off the ENT unit prior to change the secretion canister.
  - There is a service compartment (lower part of the function column) which contains the parts needed for the maintenance procedures. The possible maintenance procedures are described in the following sections.

- Maintenance, repairs and period tests may only be carried out by persons who have the appropriate technical knowledge and are familiar with the product. To carry out these measures the person must have the necessary test devices and original spare parts.
  ATMOS recommends: work should be carried out by an authorized ATMOS service partner. This ensures that repairs and testing are carried out professionally, original spare parts are used and warranty claims remain unaffected.
  - At least every 12 months a repeat test of the electrical safety should be performed according to IEC 62353. ATMOS recommends an inspection according to the manufacturers specifications.
  - With integrated Variotherm: Carry out an inspection according to the manufacturers specifications every 12 months (Germany: safety check according to §6 Medical Device Operator Ordinance).

7.1 Replacing the fuse

The fuses are at the back of the unit.



7.2 Replacing the bacterial filter

- To this please attend the articles 4.7 and 5.2.4 in this operating instruction!
- Set vacuum regulator to `maximum´ (right stop).
- As soon as the vacuum gauge shows a vacuum value >-0.3 bar while the suction hose is open, the filter has to be replaced.
- Please only use original ATMOS bacterial filters. The device may never be operated without DDS bacterial filter / over-suction stop.

To guarantee full function of the automatic secretion canister draining system, fill level electrodes always have to be clean and free from sediments!

If there is no drastic vacuum at the handle after assembly of the secretion canister, check whether the bacterial filter is in the right position.

7.3 Changing tube cassette of tube pump

The tube cassette is in the unit`s pump room.
It may only be replaced by authorized personnel!

8.0 Trouble shooting

Description	Possible cause	Procedure
Electric power supply		
no function, main switch is active, control light does not light up	> no voltage on power plug	check house fuse, possibly it burnt through
	> cable/plug defect	exchange cable/plug
Suction		
low or no suction rate, but vacuum gauge indicates vacuum	> suction hose clogged	clean suction hose
	> active over-suck protection	check oversuction protection
	> filter moistened/blocked	replace filter
low or no suction rate, vacuum gauge indicates few or no vacuum	> system leaky	check all joints, new assembly of the system
	> suction hose snapped off	remove breaks, pass hose a different way
	> vacuum adjustment is open	set regulator to higher/maximum vacuum
	> secretion in suction pump	inform ATMOS costumer service
suction pump does not switch on or off	> draggled/defect light barrier in suction hose holder	clean both light barriers openings in the suction hose holder, if necessary inform ATMOS® Service
no suction, but force pump is operating	> positions of handles have been mixed up	insert handles in the right holder
Compressed air		
compressed air pump does not switch on or off	> draggled/defect light barrier in compressed air holder	clean both light barrier openings in the suction hose holder, if necessary inform ATMOS® Service
no compressed air, but force pump is operating	> positions of handles have been mixed up	insert handles in the right holder
no adequate pressure build-up	> joints leaky	check joints, if necessary inform ATMOS® Service
sprayer does not spray	> sprayer blocked	clean sprayer, clean ventilation borehole in sprayer head
Mirror quick heating		
heater does not switch on	> switch/control defect	exchange switch/control by ATMOS® Service
insufficient or no heater power	> single or all three heater coils defect, no glow	change heater coil
Automatic secretion canister draining		
canister will not be drained when filled above the sensor limit	> sensor does not detect fill level	spring-clean canister
pump does not activate when suction hose is returned	> pump defect	inform ATMOS® Service
effluent pump does not activate after switching off the draining pump	> pump defect	inform ATMOS® Service
effluent pump does not switch off	> effluent pipe blocked	remove blockage
	> electrodes in the effluent canister are dragged and thereby hot-wired	clean effluent canister or let electrodes be cleaned
Sewage pump does not start-up.	Device is fed with demineralised water via water connection	Please use drinking water

8.0 Trouble shooting

Description	Possible cause	Procedure
Automatic filling of the hose rinsing container		
container overflows	> charging valve does not close	inform ATMOS® Service
	> sensor doesn`t detect fill level	sensor defect - inform service
container does not get filled	> water supply broken	assure water supply
	> safety switch in the container is not activated	place hose rinsing container correctly in the holder
		spring-clean container
LED-power supply		
LED-light source does not light	> switch to position 0	depending on used jack, set switch in position I or II
	> plug/cable/LED-light source defect	replace defective part by ATMOS® Service
Nystagmus binoculars connection		
nystagmus binoculars do not light	> switch to position 0	set switch to position I
	> plug/cable/bulb defect	replace defective part by ATMOS® Service
Heating system		
no heating	> temperature sensor, control or heating element defective	inform ATMOS® Service
Variotherm/Hygrotherm		
> please note advices in the separate operating instruction		

9.0 Accessories and consumables

9.1 Accessories

Accessories for ear irrigation / Thermal nystagmus stimulation	
Ear irrigation bowl Water collection bowl for connection to the suction system	**505.0353.0**
Ear irrigation bowl with separate suction channel For the independent use of the ear irrigation bowl. Clipboard (REF 530.0010.0) is required.	**530.2070.0**
Jet connection for water irrigation handle 80 mm	**508.0427.0**
Jet connection for water irrigation handle 110 mm	**508.0429.0**
Hose tips, 30 pieces flexible hose tips, to be slipped on jet connection for exact guiding of the water jet	**502.0844.0**
Splash protection to be slipped on jet connection	**501.0331.0**
Accessories for nystagmus stimulation	
Connection for nystagmus binoculars	**530.4015.0**
Nystagmus binoculars (connection for nystagmus binoculars is required)	**530.4016.0**
Accessories for compressed air module	
Sprayer bottle	**000.0577.0**
Sprayer, straight	**506.5225.0**
Sprayer with rotatable nozzle (360° rotation)	**506.5120.0**
Sprayer for powdery medications	**505.0253.0**
Spare nozzle for straight sprayer	**505.0280.0**
Spare nozzle for rotatable sprayer (360° rotation)	**000.0219.0**
Spare hose for sprayer bottle, after change of medication (pack of 10)	**530.5229.0**
Accessories for light module economy	
Lithium-ionic rechargeable battery for the mobile use For ATMOS® LED light source respectively LED headlight with power and eco mode, charging indication and holding clip.	**507.4510.0**
Universal battery quick charging power pack (100-240 V) including multinationaladapter	**011.1199.0**
Instrument management	
Instrument tray, melamine, 190 x 150 mm	**000.0746.0**
Instrument tray, anodised-aluminium, 184 x 142 mm	**508.0058.0**
Instrument tray, stainless steel, 180 x 140 mm	**508.0058.2**

9.2 Consumables

Consumables for disposable secretion container systems	
Receptal® 1,0 l bag, not autoclavable	**312.0463.0**
Receptal® 1,0 l external container	**312.0464.0**
Disposable suction hose, not autoclavable (10 pcs.)	**006.0058.0**
Consumables for suction equipment	

Bacterial filter for secretion canister Pack of 10, prevents bacterial contamination of the ambient air caused by bacteria in the secretion canister respectively the suction aggregate. (No bad odour and no bacterial contamination). Weekly exchange is required.	**340.0054.0**
ATMOS® Special cleanser for suction ways 100 ml concentrate to be added into the water storage container. For efficient hose cleaning, protects against residues and bad odour.	**008.0005.0**

10.0 Technical specifications (full config.)

Please note the technical specifications of the single devices/modules in separate operating instructions!

voltages	230 V~ ± 10 %; 50/60 Hz extra voltage: 100 V~ ± 10 %; 50/60 Hz 115 V~ ± 10 %; 60 Hz 127 V~ ± 10 %; 60 Hz
current input (max.)	max. 8,5 A (230 V~) max. 19 A (100 V~) max. 16,5 A (115 V~) max. 15 A (127 V~)
Input	max. 2300VA
fuses	2 x T 10 A (f. 230 V~); 1 x T 20 A (f. 100 V~,-127 V~)
other safety lugs	on the control board
suction system standard 45 l/min Freeflow	-91 kPa (-910 mbar oder 682,5 mmHg) *@NN optional infinitely variable secretion canister DDS 1,0 l
suction system professional 55 l/min Freeflow	-95 kPa (-950 mbar oder 712 mmHg) *@NN optional infinitely variable secretion canister DDS 1,0l
compressed-air system	20 l / min freeflow mind. 220 kPa, optional infinitely variable sprayer for liquid, oily and powdery materials
ear rinsing professional	37 ° C +/- 0,5 water temperature flow max. 450 ml/min, variable
thermal nystagmus stimulation	3 adjustable temperatures from 20 – 47 ° C at water intake temperature between 8 and 18 °C; timer 1 – 99 sec., nystagmograph-distriggering, flow max. 450 ml/min, adjustable on handle
instrument heating	Temperature ca. 37 °C of Instruments approx.
light system Economy	LED-current supply 700 mA regulated
nystagmus binoculars port	max. 4 V, 2 W
operating time	continous duty
protective earth conductor resistance	max. 0,1 Ω
earth leakage current	max. 0,5 mA
enclosure leakage current	max. 0,1 mA (only option Mirror quick heater)
ambient conditionsTransport/storage operation	 -10...+50°C 30...95 % humidity without condensing, air pressure 500...1060 hPa +10...+35°C 30...95 % humidity without condensing, air pressure 700...1060 hPa
dimensions HxWxD	88,5 x 41,2 x 54,0 cm
weight (basic unit)	10 - 40 kg
Period tests	Repeat test of the electrical safety every 12 months. Recommended: inspection according to the manufacturers specifications.
protection class (EN 60601-1)	I
degree of protection	application parts type B
protection category	IP X0
classification acc. to Annex IX EEC directions 93/42/EEC	II a
CE marking	CE 0124
rules applied	EN 60 601-1; EN 60 601-1-2; EN ISO 10079-1
UMDNS-Code	10-585 ENT-treatment unit
GMDN-Code	11585
reference-no.	530.0000.0 (230 V~); 530.0001.0 (100 V~); 530.0002.0 (115 V~); 530.0003.0 (127 V~)

Technical specifications unaffected since: 29.04.2015

11.0 Disposal

- The ATMOS® S 61 Servant does not contain any hazardous goods.
- The material PUR of the housing can be recycled completely.
- The component parts of the ATMOS® S 61 Servant ENT workstation must be disposed off correctly and the materials have to be separated carefully.

12.0 Notes on EMC

- Medical electrical equipment is subject to special precautions with regard to EMC and must be installed acc. to following EMC notes.
- Portable and mobile HF communication facilities can influence medical electrical equipment.
- The use of other accessories, other converters and cables than stated may lead to an increased emission or a reduced interference immunity of the equipment or system.

12.1 Guidelines and Manufacturer´s Declaration - Emissions

The ATMOS® S 61 Servant workstation is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS® S 61 Servant workstation should ensure that it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment - Guidance
RF Emissions CISPR 11	Group 1	The ATMOS® S 61 Servant workstation uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class B	The ATMOS® S 61 Servant workstation is suitable for use in all establishments, including domestic, and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonics IEC 61000-3-2	Class A	
Flicker IEC 61000-3-3	Inapplicable	

12.2 Guidelines and Manufacturer´s Declaration - Immunity for ATMOS® S 61 Servant workstation

The ATMOS® S 61 Servant workstation is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS® S 61 Servant workstation should ensure that it is used in such an environment.

Immunity Test	IEC 60601- Test Level	Compliance Level	Electromagnetic Environment - Guidance
ESD IEC 61000-4-2	± 6 kV Contact ± 8 kV Air	± 6 kV Contact ± 8 kV Air	Floors should be wood, concrete, or ceramis tile. If floors are synthetic, the relative humidity should be at least 30%.
EFT IEC 61000-4-4	± 2 kV Mains ± 1 kV I/Os	± 2 kV Mains	Mains power quality should be that of a typical commercial or hospital environment.
Surges IEC 61000-4-5	± 1 kV symmetric ± 2 kV symmetric	± 1 kV symmetric	Mains power quality should be that of a typical commercial or hospital environment.
Power Frequency 50/60 Hz Magnetic field IEC 61000-4-8	3 A/m	nicht anwendbar	Power frequency magnetic fields should be that of a typical commercial or hospital environment.

12.0 Notes on EMC

Immunity Test	IEC 60601- Test Level	Compliance Level	Electromagnetic Environment - Guidance
Voltage Dips / Dropout IEC 61000-4-11	< 5 % U_T (> 95 % Dip of the U_T) for 0.5 Cycle 40 % U_T (60% Dip of the U_T) for 5 Cycles 70% U_T (30 % Dip of the U_T) for 25 Cycles < 5 % U_T (>95 % Dip of the U_T) for 5 s	< 5 % U_T (> 95 % Dip of the U_T) for 0.5 Cycle 40 % U_T (60% Dip of the U_T) for 5 Cycles 70% U_T (30 % Dip of the U_T) for 25 Cycles < 5 % U_T (>95 % Dip of the U_T) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the ATMOS® S 61 Servant workstation demands continued function even in case of interruptions of the energy supply, it is recommended to supply the ATMOS® S 61 Servant workstation from an uninterruptible current supply or a battery.
NOTE U_T is the mains alternating current prior to application of the test levels.			

12.3 Guidelines and Manufacturer´s Declaration - Immunity

The ATMOS® S 61 Servant workstation is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS® S 61 Servant workstation should ensure that it is used in such an environment.

Immunity Test	IEC 60601- Test Level	Compliance Level	Electromagnetic Environment - Guidance
Conducted RF IEC 61000-4-6	3 V_{eff} 150 kHz bis 80 MHz	3 V	Portable and mobile communications equipment should be separated from the RS 221 incl. the cables by no less than the distances calculated/listed below. **Recommended distances:** d = 1,167 * √(P) d = 1,167 * √(P) d = 2,33 * √(P) where „P“ is the max. power in watts (W) and D is the recommended separation distance in meters (m). Field strengths from fixed transmitters, as determined by an electromagnetic site (*a*) survey, should be less than the compliance level (*b*). Interference may occur in the vicinity of equipment containing following symbol 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz bis 2,5 GHz	3 V/m	

NOTE 1 With 80 MHz and 800 MHz the higher frequency range applies. NOTE 2 These guidelines might not be applicable in any case. The propagation of electromagnetic sizes is influenced by absorptions and reflections of buildings, objects and people.
a The field strength of stationary transmitters, such as base stations of cellular phones and mobile terrain radio equipment, amateur radio transmitters, cbm broadcast and TV stations cannot be predestined exactly. To determine the electromagnetic environment in regard to stationary transmitters, a study of the location is to be considered. If the measured field strength at the location where the ATMOS® S 61 Servant workstation is used exceeds the above compliance level, the ATMOS® S 61 Servant workstation is to be observed to verify the intended use. If abnormal performance characteristics are noted, additional measures might be necessary, e. g. a changed arrangement or another location for the device. b Within the frequency range of 150 kHz to 80 MHz the field strength is to be below 3 V/m.

12.4 Recommended separations between portable and mobile RF Communications equipment and the ATMOS® S 61 Servant workstation

Recommended separations between portable and mobile RF Communications equipment and the ATMOS® S 61 Servant workstation			
The ATMOS® S 61 Servant workstation is intended for use in electromagnetic environment in which radiated disturbances are controlled. The customer or user of the ATMOS® S 61 Servant workstation can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF Communications equipment and the ATMOS® S 61 Servant workstation as recommended below, according to the maximum output power of the communications equipment.			
	Separation distance, depending on transmit-frequency m		
Nominal output of the transmitter **W**	**150 kHz bis 80 MHz** **d = 1,167 * √(P)**	**80 MHz bis 800 MHz** **d = 1,167 * √(P)**	**800 MHz bis 2,5 GHz** **d = 2,33 * √(P)**
0,01	0,1167	0,1167	0,233
0,1	0,37	0,37	0,74
1,0	1,167	1,167	2,33
10	3,7	3,7	7,37
100	11,67	11,67	23,3
For transmitters for which the maximum nominal output is not indicated in the above table, the recommended separation distance *d* in meters (m) can be determined using the equation belonging to the respective column whereas *P* is the maximum nominal output of the transmitter in watts (W) acc. to manufacturer´s specification. NOTE 1 With 80 MHz and 800 MHz the higher frequency range applies. NOTE 2 These guidelines might not be applicable in any case. The propagation of electromagnetic sizes is influenced by absorptions and reflections of buildings, objects and people.			

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