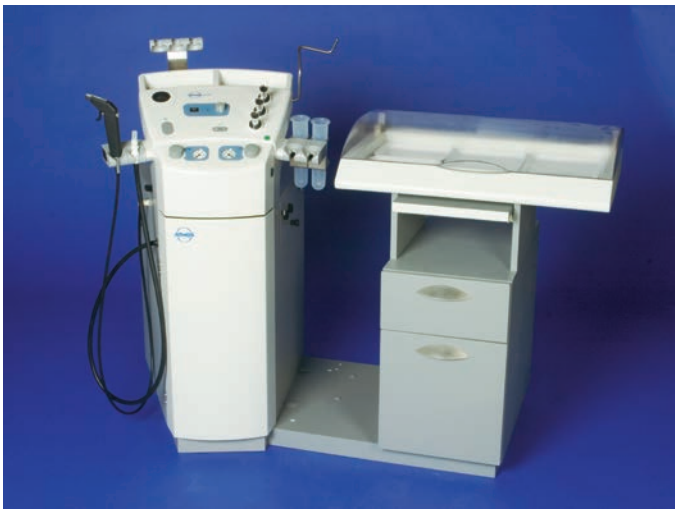
ATMOS
MedizinTechnik

English

Operating Instructions

ATMOS C 21 / ATMOS C 31

ENT Unit



CE 0124

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Content

1.1 Notes on operating instructions

These operating instructions contain important notes on how to operate the ATMOS C 21 / C 31 safely, correctly and effectively. Therefore, they are intended not only for new operating personnel to be instructed in its use, but also for use as a reference manual. They help to avoid risks, and also to reduce repair costs and down-times. Furthermore, reliability and service-life of the equipment will be increased. For these reasons **these operating instructions must always be kept available near the appliance.**

Prior to first use please peruse the chapter 2.0 “For your safety”, in order to be prepared for any possible dangerous situations.

The basic principles are:
Judicious and careful work provides best protection against accidents!

Operational safety and readiness for use depend not only on your capabilities, but also on care and maintenance given to the ATMOS C 21 / C 31. For this reason regular cleaning and service work are a must. Major maintenance and repair work may be carried out only by expert personnel authorised by ATMOS. In case of repairs you should insist that original spare parts only are used. You will then have the warranty that operational safety, readiness for work and the value of your appliance will be preserved.

These operating instructions are valid for the following devices:

ATMOS C 21 Economy Function Column REF 506.7500.0

ATMOS C 31 Economy Function Column REF 506.7510.0

- Please note that these operation instructions apply for all ATMOS C 21 / C 31 models and subsequently feature all options and applications. Therefore, it is possible that this document may contain descriptions not relevant for your specific appliance type.
- The product ATMOS C 21 / C 31 bears CE marking CE 0124 according to the EC Directive of the council for medical products 93/42/EEC and meets the basic requirements of Appendix I of the directive.
- The product ATMOS C 21 / C 31 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 13485.
- ATMOS will supply a service manual containing detailed circuit descriptions and schematics as well as information on adjustment and servicing to service organizations authorized by ATMOS.
- Reprints - also in extracts - only with permission in written form by ATMOS.

Short cuts / symbols contained in this operating instructions

- Indicating a list
  - Subdivision of a list/activity

The recommended sequence must be followed in each case!

☞ Indicating particularly important advice!

↳ Describing the effect of an activity.

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1.2 Intended use

1.2.1 ATMOS C 21

Name: ATMOS C 21

Main functions:

- Suction
- Compressed air system for medication spraying and the Politzer manoeuvre
- Ear irrigation
- Electric power supply for LED light handles and LED headlight
- Light sources
- Storage and heating of endoscopes
- Mirror quick heater
- Instrument deposit and heating

Medical indications / application:

Standard ENT examination and/or therapy

Specification of the main function:

- Suction at 40 l/min / -76 kPa
- Alternatively suction at 55 l/min / -98 kPa
- Compressed air for medication spraying, max. 2 bar
- Compressed air for the Politzer manoeuvre, regulated
- Ear irrigation with 37 °C ± 1 °C, max. 500 ml/min
- Electric power supply for LED, 700 mA
- Light source LED for light guide

Application organ:

Mouth to pharynx, auditory canal to the ear drum and the nasal cavities

Application time:

- ENT unit: Short term use (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: active

Sterility:

The ENT unit is no sterile product.

Single-use product / reprocessing:

The ENT unit is intended for multiple use. The device and parts of the accessories are reusable. For information on reprocessing, cleaning and disinfection, please see the operating instructions.

1.2.2 ATMOS C 31

Name: ATMOS C 31

Main functions:

- Suction
- Compressed air system for medication spraying and the Politzer manoeuvre
- Ear irrigation
- Electric power supply for LED light handles and LED headlight
- Light sources
- Storage and heating of endoscopes
- Mirror quick heater
- Instrument deposit and heating

Medical indications / application:

Standard ENT examination and/or therapy

Specification of the main function:

- Suction at 40 l/min / -76 kPa
- Alternatively suction at 55 l/min / -98 kPa
- Compressed air for medication spraying, max. 2 bar
- Compressed air for the Politzer manoeuvre, regulated
- Ear irrigation with 37 °C ± 1 °C, max. 500 ml/min
- Electric power supply for LED, 700 mA
- Light source LED for light guide

Application organ:

Mouth to pharynx, auditory canal to the ear drum and the nasal cavities

Application time:

- ENT unit: Short term use (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: active

Sterility:

The ENT unit is no sterile product.

Single-use product / reprocessing:

The ENT unit is intended for multiple use. The device and parts of the accessories are reusable. For information on reprocessing, cleaning and disinfection, please see the operating instructions.

1.3 Function

- The ATMOS C 21 / C 31 is operated by activating the main switch (❶, fig. 1, page 8).
- The exact mode of function of the standard equipment and optional functions is described in detail in chapters 4.2 and 4.3.

1.4 Explanation of symbols

ATMOS C 21 / C 31


On / Off switch

ON (power) as to IEC 417/5007 and DIN 30600/16


OFF(power) as to IEC 417/5007 and DIN 30600/16


Follow operating instructions (blue)


Warm water system


Suction system


Compressed-air system


Cleaning with the flow method (hose rinsing)


Light guide connection


No function


Transfer of heat, in general; mirror heater


Short-time operation


Foot switch


Dangerous voltage as to IEC 417/5036, DIN 30600/131


Protective earth (ground) as to IEC 417/5019, DIN 30600/1545

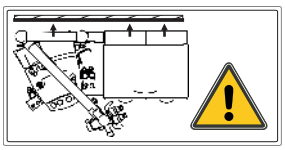

Fuse as to IEC 417/5016, DIN 30600/0186


Type B equipment as to IEC 417/5333


Type BF equipment as to IEC 417/5333

Alternating current


Do not lean against it!


Danger of tilting for units with a microscope!
Screw the unit into the ground or position it near a wall.

Only ATMOS C 31


Water temperature for ear irrigation is too high

Correct water temperature for ear irrigation


Water temperature for ear irrigation is too low

2.0 For your safety

- The ATMOS C 21 / C 31 is produced according to IEC 601 / EN 60601 and listed in the following classes:
  - VDE Class of protection 1
  - Class IIa (EEC 93/42).
- The unit may be connected only to a socket outlet with earthing contact installed according to the rules of the trade.
- The unit should not be positioned directly next to a wall, because of the ventilation openings on the rear side!
- When a microscope is mounted: Screw the unit into the ground or position it near a wall. If the microscope is in an unfavourable position it could tilt the unit backwards.
- The ATMOS C 31 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 installation have to be considered.
- Caution! Mirror and endoscope heaters may generate temperatures above 40° C!
- **Attention with the cold-light source!**
  Because of the high energy of the light there is a large amount of heat emission at the point of the optical system. Avoid too small a distance between the tissue and the field of light emission of the light guide respective of the endoscope, as this may cause coagulation of the patient's tissue. When using the endoscope avoid the direct contact between area of light emission and the tissue.
  Attention, Fire Hazard!
  Never place the area of light emission from the light guide or from the endoscope onto heat-absorbing surfaces (dark pieces of cloth, etc.), because this will cause unacceptable high heating or even ignition of the material. Switch the light off when you do not require the light over a prolonged period of time.
- Care is to be paid in respect to light sources when working with endoscopes. The intensity of the light is very high. Do not look directly into the light outlets! In case of possible light failure remove the endoscope from the working area.
- Always make sure that you do not blind patients with the light source! Watch out that patients do not look directly into the light source! Never look directly into the light source!
  > Damage to the eyes due to the strong glare.
- Exclusively connect ATMOS HL 21 LED and ATMOS LS 21 LED to the connections for ATMOS HL 21 LED and ATMOS LS 21 LED. Unsuitable application parts may result in an electric shock or damage. Cardiac arrhythmia and even death are possible.
- The ATMOS C 21 / 31 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 indicated on the type plate must correspond to the values of the supply network.
- 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 in regular intervals!
- Inspection of compressed air and vacuum display by service technician every 2 years!
- Correct configuration in assembly of country-specific connections:
  - green/yellow: protective conductor (PE)
  - blue: neutral conductor (N)
  - black or brown: phase (L)
- This product is not re-sterilizable. Repeated reuse of components which are marked with a ② is forbidden. In case of repeated reuse these components lose their function and there is a high infection risk.
- The control panel must be well visible to and in reach of the operator.
- Do not place used contaminated instruments on the ENT unit!
- The ambient conditions specified in the "Technical data" (chapter 9.0) must be strictly observed!
- The suction system of the ATMOS C 21 / C 31 is only to be used for the suction of fluids in the medical field. Never remove explosive, inflammable or corrosive gases or fluids.
- Switch off main switch after finishing work in practice and close water supply, if present.
- The ATMOS C 21 / C 31 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 C 21 / C 31 fully complies with the electromagnetic immunity requirements of standard IEC 601-1-2 / EN 60601-1-2 "Electromagnetic compatibility - Medical Electrical Equipment".

2.0 For your safety

- The ATMOS C 21 / C 31 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)".
- The warranty will be rendered invalid in case of damages caused due to the utilization of accessories or consumables which are not approved by ATMOS for use with this unit.
- 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.
- Please pay also attention to the safety information in following chapters.
- 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.
- When connecting several devices on one grounding receptacle, the allowed strain and leakage current have to be observed!
- Never leave the patient unattended at the treatment unit.
- It is not allowed to use flammable substances with the device.

3.1 Front view

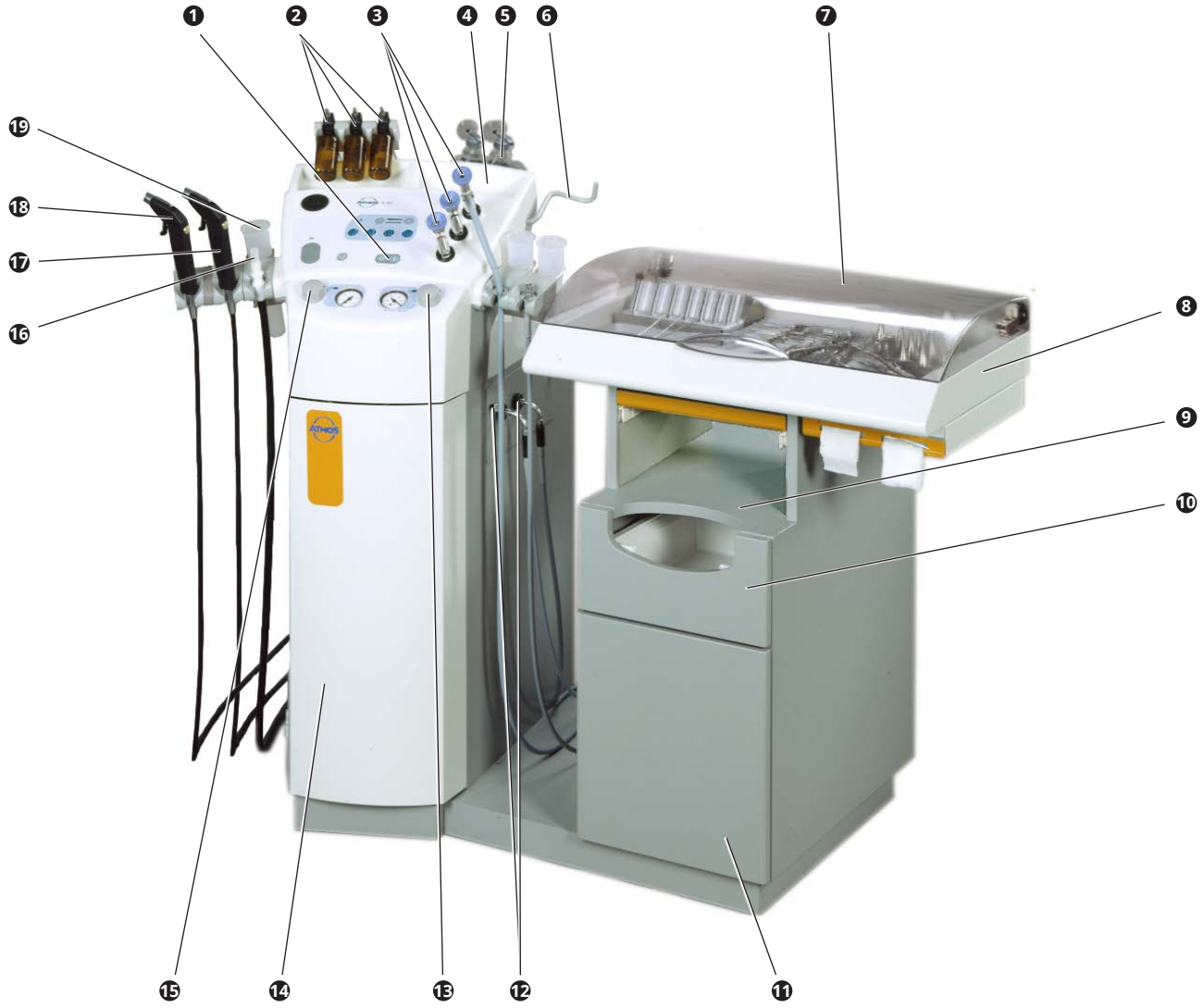


Fig. 1. ATMOS C 21 / C 31 Front view

❶ Main switch
❷ Sprayer (option)
❸ Laryngoscope holder
❹ Surface for medicament bottles etc.
❺ Ear irrigation (option, only ATMOS ® C 21)
❻ Headlamp suspension
❼ Cover for upper instrument deposit
❽ Instrument surface
❾ Free surface
❿ Drawer resp. deposit for used instruments (optional)
⓫ Drawer resp. waste bin (option)
⓬ Connections for light guide
⓭ Vacuum control
⓮ Door for service compartment
⓯ Compressed-air control (option)
⓰ Suction
⓱ Compressed-air handle (option)
⓲ Handle ear irrigation (option, only ATMOS C 31)
⓳ Irrigation canister for hose rinsing (option)

3.1.1 Service compartment

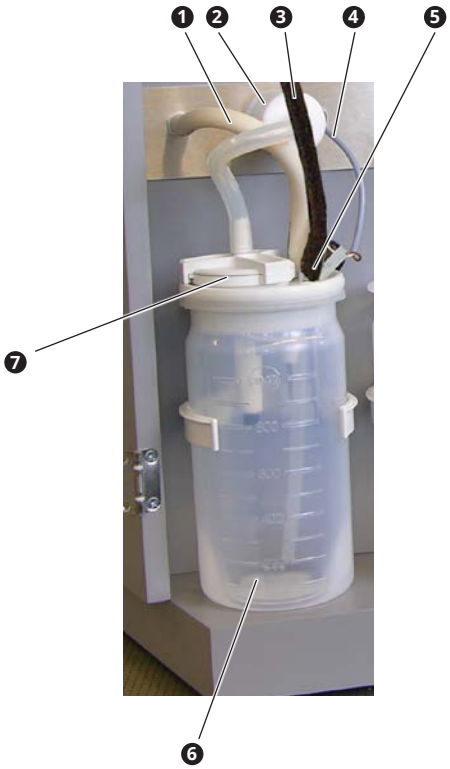
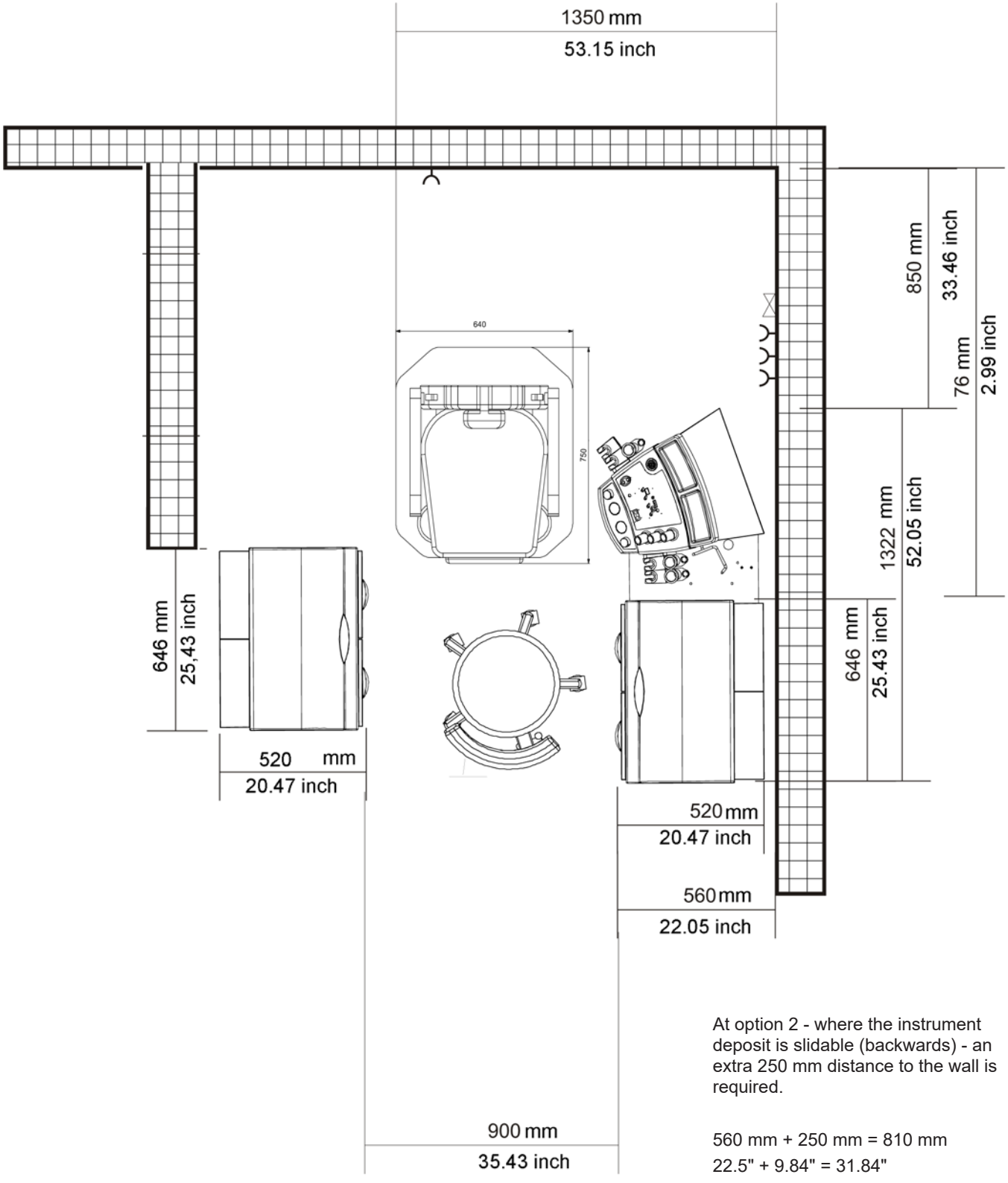


Fig. 2. ATMOS C 21 / C 31 *Service compartment*

❶ Hose for automatic secretion canister evacuation (optional)
❷ Connecting nipple with hose to the vacuum pump
❸ Secretion hose
❹ Connecting electrodes for automatic secretion canister evacuation (optional)
❺ Attachment for secretion hose
❻ Secretion canister
❼ Lid (variant with bacterial filter plate)

3.2 Setting up proposal



At option 2 - where the instrument deposit is slidable (backwards) - an extra 250 mm distance to the wall is required.

560 mm + 250 mm = 810 mm
22.5" + 9.84" = 31.84"

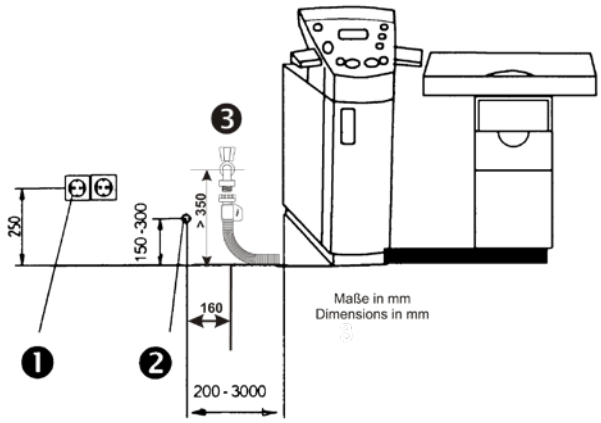


Fig. 3.

❶ Socket outlets with earthing contact

❷ Water drainage G3/4" external thread (optional)

❸ Water supply with water tap G 3/4" external thread (optional)

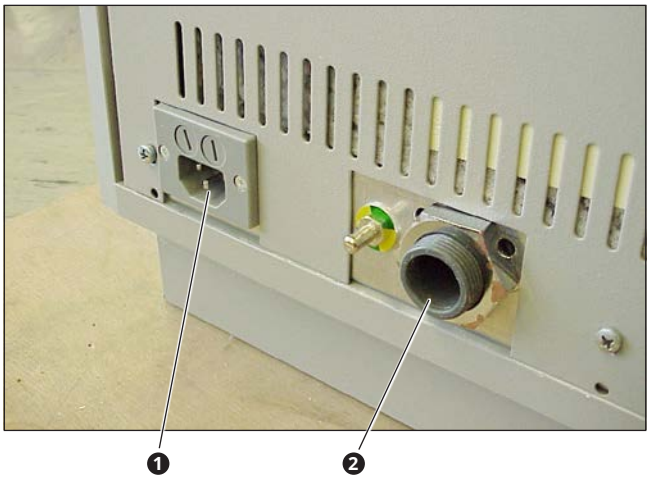


Fig. 4.

❶ Inlet connector for non-heating apparatus

❷ Connection for waste water hose

3.3 Connection to electrical power line

- According to the directions of VDE 0107 and VDE 0100, medically used rooms have to be equipped with a *leakage current protective circuit* (FI protective circuit) with a nominal leakage current of < 0.03 A. Installation must correspond with VDE 0107.
- The ATMOS C 21 / C 31 is connected to a earthing contact socket which is to be mounted near the unit (max. 3 m, preferably on the left side, next to the function column) (see fig. 3).
- The current consumption of the ATMOS C 21 / C 31 is maximum **5 A** .
- For the connection of further electrical devices, please allow for extra plugs (installation of an electrically operated patient chair).

3.4 Water supply / Water drainage (option)

Water supply:

Prerequisites:

- There must be existing water pipes with a G 1/2" (internal thread). For connecting a corresponding water or ball valve with a G 3/8" hose connection.
- This (water tap) ball valve must be installed in such a way that it can be turned off without any problem.
- The water which is provided by the household connection must at least meet the WHO guidelines or the country-specific guidelines for drinking water.
- 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.
- Required pressure in domestic water system: > 2 bar, but < 5 bar.
- There are country-specific regulations for the installation to be considered when the unit is connected to the public water supply.
- There is no special calcification safety device integrated in the water system.
  Such a system is to be connected when the respective drinking water is of hardness grade 3 (14 - 21°d resp. 2.5 - 3.8 mol/m³ = hard water) but especially with hardness grade 4 (from 21°d resp. from 3.8 mol/m³ = very hard water). You may receive information on the hardness grade of your water from the water supply office.

Water drainage (option):

Prerequisites:

- Permanently installed connection fitting with G3/4" external thread.
- To adapt the 3/4” draining hose to standard HT 40 a connection adapter 510.2130.0 can be ordered (510.2129.0 for HT 50).
- Connect waste water hose with unit (❷, fig. 4) and the G3/4" connection fitting (insert pertaining seals!).

An anti-syphon trap is not required!

3.5 Independent water supply (only ATMOS C 31)

If the system is not connected to a water supply, we recommend you to fill the storage canister for the ear irrigation system with 2.0 litres of tap water or hygienically safe drinking water.

For information on the maintenance and cleaning of the water supply, see chapter 5.1.5 in the operating instructions.

Fig. 5. Connections light package 2-channels version 1

❶, ❷ Connections for light guide

❸, ❹ Connections for ATMOS HL 21 LED and ATMOS LS 21 LED

3.6 Starting up

3.6.1 Connection to electrical power line

- Join the inlet connector for non-heating apparatus (❶, fig. 4) with the earth socket outlet using the power cable supplied.

3.6.2 Waste water connection (with optional automatic secretion canister evacuation)

- Connect the waste water connector (❷, fig. 4) to the water drain (❷, fig. 3).

3.6.3 Connection of suction hose

- Thread the suction hose through the hole on the side into the service compartment and insert it onto the secretion hose connector (❺, fig. 2).

☞ The transport locking screws on the unit's baseplate must be removed by skilled staff prior to starting up! To do this, the rear panel must be opened and the two front screws must be unscrewed. The pump unit is removed from the rear locking device by pulling it forwards.

3.6.4 Connection of the light guide and light source

The unit has different connections depending on the configuration:

Light package LED economy:

- 2 connections for ATMOS HL 21 LED and ATMOS LS 21 LED

Light package 2-channel with 2 or 4 channels:

Version 1 (fig. 5):

- 2 connections for light guide
- 2 connections for ATMOS HL 21 LED and ATMOS LS 21 LED

Version 2:

- 2 or 4 connections for light guide

Version 3:

- 2 or 4 connections for ATMOS HL 21 LED and ATMOS LS 21 LED

⚠ Exclusively connect ATMOS HL 21 LED and ATMOS LS 21 LED to the connections for ATMOS HL 21 LED and ATMOS LS 21 LED. **Unsuitable application parts may result in an electric shock or damage.** Cardiac arrhythmia and even death are possible.

- Connect the light guide or light source.

☞ If you require several adapter sleeves (e.g. Olympus, Pentax, Wolf, etc.), they may be interchanged as necessary (see chapter 8.2).

☞ So that the fibre-optic cables do not rest on the floor, they may be threaded through behind the handle support.

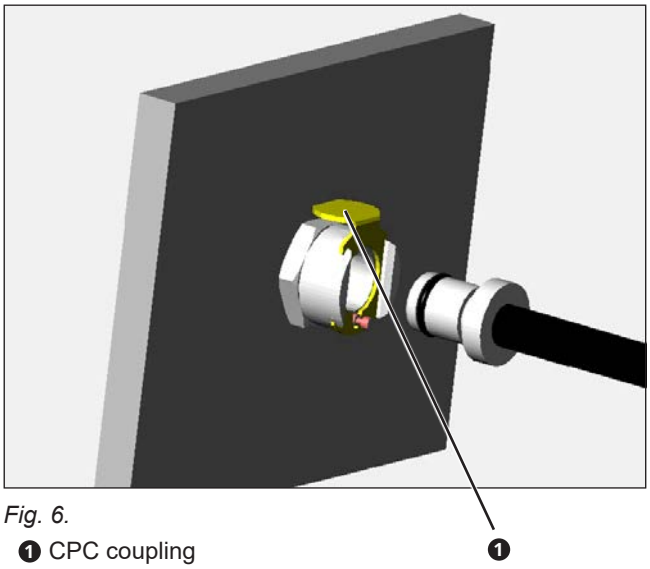


Fig. 6.
❶ CPC coupling

3.6.5 Connection of the compressed air hose (option)

Connection of the function hose for compressed air at the side of the column.

- Compressed-air hose is connected by means of plug connections; make sure that the plug attachment is engaged. The hose is disconnected by pressing the release slide (❶, fig. 6) at the plug connector and by pulling out the plug attachment.

☞ Push the handles into the handle support as indicated by the symbols.
The photoelectric barriers will operate the wrong units if the handles are transposed!

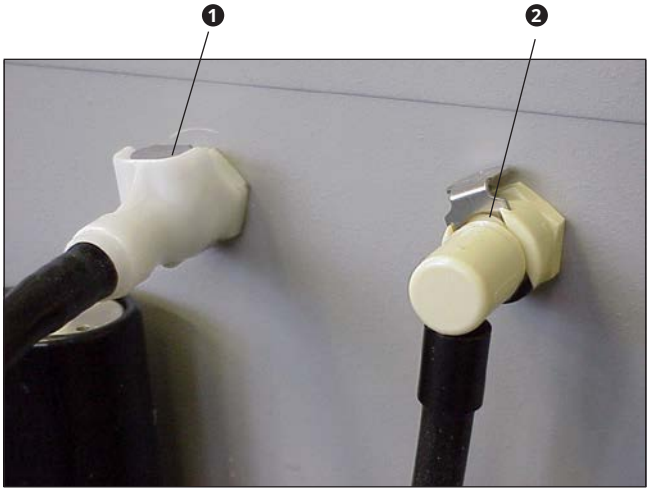


Fig. 7. Connecting the hose for ear irrigation
❶ Connection for the ear irrigation hose
❷ Connection for the compressed-air hose

3.6.6 Connection of the hose for ear irrigation (option, only ATMOS C 31)

The hose for the warm water system is screwed on the CPC coupling.

☞ Different socket nipples; swapping of the hoses is not possible!

3.6.7 Connection of the water system (option, only ATMOS C 31)

Connect the aqua stop valve to the water tap (house connection). Open the water tap. If the main switch is activated and a water consuming device (basin rinsing or hose rinsing system) is used, the water supply is opened by an automatic opening of the magnetic valve in the aqua stop system.

↳ Thus, there is no pressure inside the water supply hose if no water consuming device is activated.

4.1 ATMOS C 21 / C 31 - Basic unit

The ENT unit ATMOS C 21 / C 31 offers optimum instrument handling whilst at the same time providing an optimum arrangement of all functions that an ENT specialist requires for his daily work in the practice.

The instrument deposit area:

At the top of the functional column there is an area designed to take medicine bottles (❹, Fig. 1, page 8), hence the instrument deposit area is also very suitable instruments.

There is also the facility for protective storage of less frequently used instruments and consumables in the drawers (❿ and ⓫, fig. 1).

☞ Most of the unit's surfaces are coated with a special textured lacquer that fulfils the requirements for workplace hygiene. However, as the lacquer is not resistant to all medicines and disinfectants it is imperative to wipe up splashes immediately.

4.2 Basic functions

4.2.1 Main switch

- The ATMOS C 21 / C 31 is switched ON and OFF by means of the main switch (❶, fig. 1, page 8).

4.2.2 Maximum loads

- Persons must not lean on the ATMOS C 21 / C 31 (danger of tilting).
- Maximum load of the instrument surface: 15 kg.
- Maximum load of the writing and working surface: 10 kg.
- Maximum load of the second deposit surface (optional): 7.5 kg.

Fig. 8. Maximum load

4.2.3 How to open the covering

- Open the unit covering up to the stop.

4.2.4 Suction system

⚠ The hose attachment must be exchanged after each patient.

☞ Prior to each application, proper function of the display instruments and control valves must be checked!

- Purpose of the suction system:
  - Suction of fluids and secretions; collecting the secretion in the secretion canister.
- Automatic activation of the suction mode by taking out the suction attachment.
- Control of the suction performance via the rotary knob for vacuum control (❷ , fig. 9).

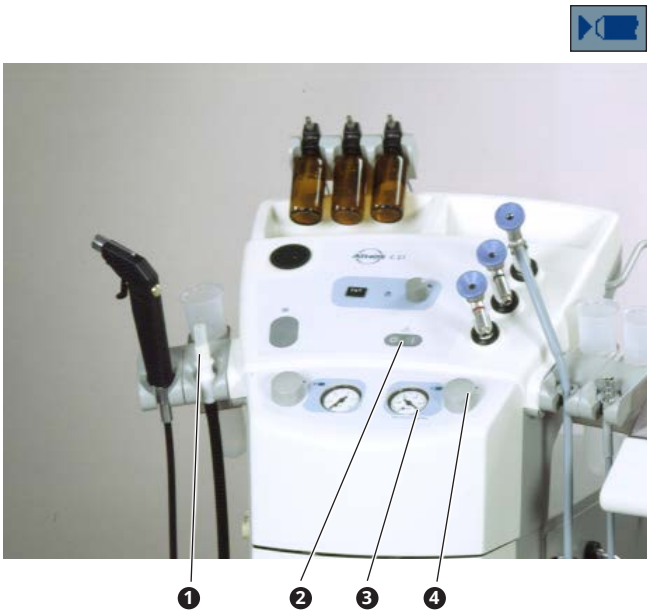


Fig. 9. Suction

❶ Suction attachment
❷ ON switch
❸ Vacuum gauge
❹ Vacuum control

Fig. 10.

❶ Secretion hose
❷ Bacterial filter plate

Fig. 11 Disposable secretion canister systems

- Indication of set vacuum at vacuum gauge (❸, fig. 9) (keep suction attachment closed by hand).
- Secretion is collected in 1.25 l canister with mechanical overflow safety and water-repellent bacterial filter.

  ↳ Prevents ingress of secretion into the pump.

☞ Secretion canister to be emptied when half full at the latest, see chapter 4.2.4.1!

☞ The suction system may be operated only with inserted bacterial filter. In case the filter is blocked it has to be exchanged (see chapter 6.1) !
For hygienic reasons, the bacterial filter should be exchanged **daily**.

☞ The suction hose must never come into direct contact with the application site. **Always** use a suction catheter, suction tip, or medical suction set!

☞ Change the suction catheter after every patient and clean the suction hose, e.g. with the aid of the optional hose rinsing system (aspirate rinsing fluid or disinfectant solution)!

- All commercially available models of suction cannulae (Adson, Walter, Frazier, Fergusson, Plester, Yankauer, Torrington) may be attached to the silicone attachment.

4.2.4.1 Emptying the secretion canister

- Detach all hose connections carefully on the lid system and take secretion canister out carefully to prevent spills and contamination of the area. Dispose of secretions properly.
- Grip lid system firmly, open lid of filter housing by turning in anti-clockwise direction. With bacterial filter plate or integrated bacterial filter: Remove filter and dispose it of.
- Rinse all parts thoroughly under running water. A detergent or cleaning agent may also be used if required.
- After cleaning a new filter must be inserted (with bacterial filter plate: smooth side down). See chapter 6.1.

See also suction accessories (chapter 8.2).

4.2.4.2 Application with disposable secretion canister systems

Assemble the disposable canister system:

Insert the disposable bag into the canister. Seal properly on all sides. Check again for tightness, otherwise there will be no build up of vacuum. Connect the vacuum hose.

☞ Please observe the operating instructions of the disposable secretion canister system.

☞ Please observe the valid hygiene and waste disposal measures.

☞ Only the recommended ATMOS disposable secretion canisters with integrated filter may be used!

Fig. 12. Light package LED economy:

❶ Switch for selecting the light source

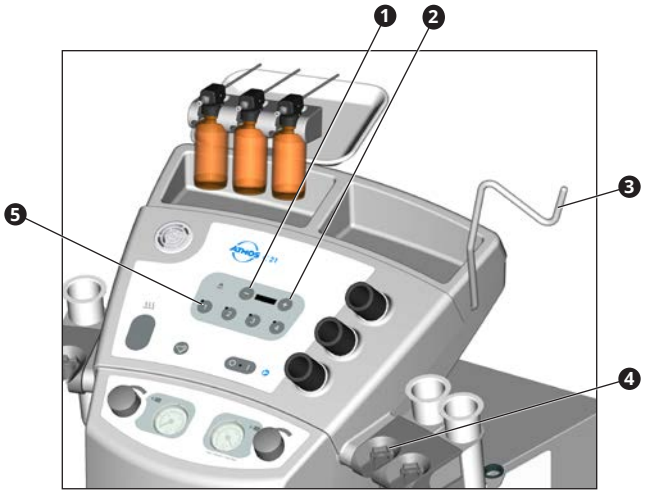


Fig. 13. Light package 2-channel with 2 or 4 channels:

❶ Reduce brightness

❷ Increase brightness

❸ Headlamp suspension

❹ Holder for the light guide

❺ Selection of the light channel

Fig. 14. Mirror quick heater

❶ Heating coil

❷ Push-button

4.2.5 Light sources

☞ Do not look directly into the light outlets.

☞ Because of the high energy of the light there is a large amount of heat emission at the point of the optical system.

☞ Switch the light off when you do not require the light over a prolonged period of time.

Light package LED economy:

- Select the light source with the switch ❶ (fig. 12).

Light package 2-channel with 2 or 4 channels:

Switch on

- Remove the light guide from the holder (❹, fig 13) or the headlight from the headlamp suspension (❸, fig 13).

☞ You can manually switch on the light source with the buttons 1 to 4 (❺, fig. 13) .

Intensity control

- Switch on the light source.
- Press the button ❶ (fig.13), to reduce the brightness or press ❷, to increase the brightness.

☞ When the device is switched off the last adjustment will be kept.

4.2.6 Mirror quick-heater

- Switch on the mirror quick-heater with key switch (❷, fig. 14). The mirror quick-heater heats up for 10 seconds and then switches off automatically.
- Supply voltage of the heating coils: 6 V / 15 A.
- Hold the mirror to be heated over the burning heating coil (❶, fig. 14) located beneath the safety cover.

☞ Prior to use of the mirror, always check its temperature (with hand etc.)!

☞ Automatic switching to avoid overheating!

☞ Safety cover, sleeve and heating element might be very hot. Do not touch directly after heating-up (hot)!

- Changing the heating coil, see chapter 6.4.

Fig. 15. Service compartment

1. Hose for automatic secretion canister evacuation (optional)
2. Connecting nipple with hose to the vacuum pump
3. Secretion hose
4. Connecting electrodes for automatic secretion canister evacuation (optional)
5. Attachment for secretion hose
6. Secretion canister

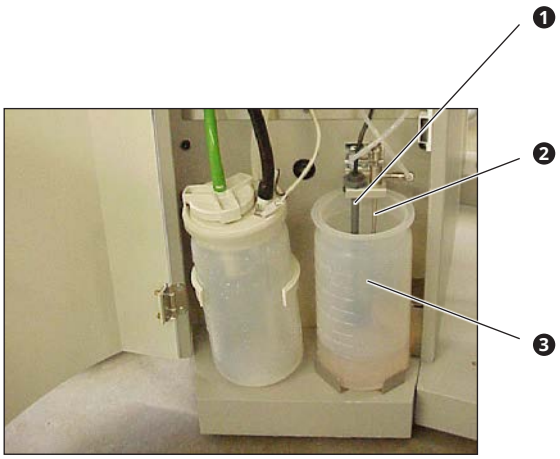


Fig. 16.

1. Float switch
2. Pipe for the hose rinsing system
3. Hose rinsing canister

4.3 Options

4.3.1 Secretion canister evacuation, fully-automatic (option)

- Purpose:
  - Prevents interruption of work in practice.
  - Secretion is not held in canister over a longer period of time.
  - Prevents contact of staff with secretion.
- Activated automatically when:
  - Reaching the upper filling limit (electrodes).
  - Returning suction attachment to holder.

☞ The tube cassette of the tube pump is a wear part and must be replaced at regular intervals (see chapter 6.3)!

☞ Pay attention to cleaning described in chapter 5.0!

4.3.2 Hose rinsing system (option)

After use, the suction system must be rinsed by means of the hose rinsing system.

- Insert the silicone suction attachment onto the white attachment of the hose rinsing (front of the unit) and clean the hose system by rinsing the hose for a few seconds.

  ↳ This procedure will prevent the hoses and suction cannula from clogging up.

The canister for the rinsing fluid of the hose rinsing is located in the service compartment at the front of the unit. For optimum cleaning, add the ATMOS special cleanser (Art. No. 080.0006.0) to the rinsing liquid. Optionally the canister can be automatically filled up with fresh water. Water supply is then controlled by a level switch. A safety switch beside the canister in the canister support prevents overflowing, in case the canister overflows or is not available.

☞ The suction attachment of the hose rinsing system may be contaminated. Therefore, it must be cleaned and disinfected daily!

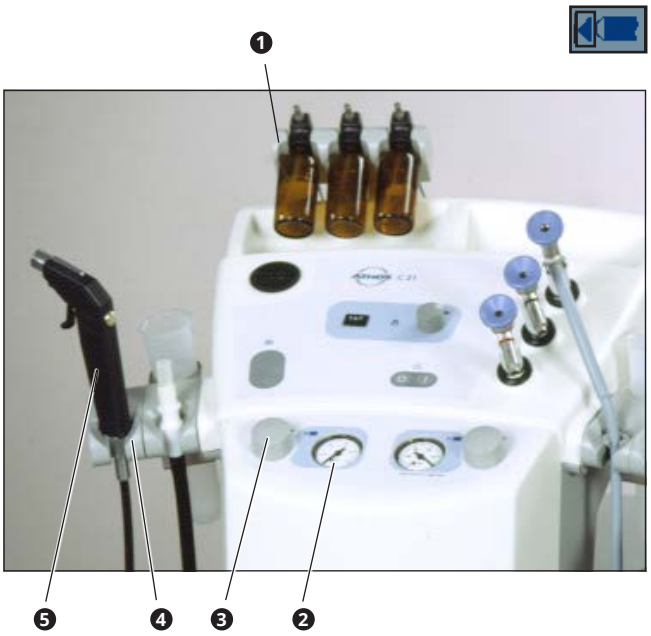


Fig. 17. Compressed-air system

❶ Sprayer suspension
❷ Compressed-air display
❸ Compressed-air control
❹ Support for automatic photoelectric barrier control
❺ Compressed-air handle

4.3.3 Compressed-air system (option)

☞ Prior to each application, proper function of the display instruments and control valves must be checked!

Purpose of compressed-air system:

a) Medicaments can be applied to the nasopharynx:

- The pump for the compressed-air system switches on after the compressed-air handle has been removed from its holder.
- Handle is mounted on a sprayer. The top of the compressed-air handle locks in place in the ring of the sprayer bottle.
- Available sprayers:
  - with straight spraying tube for normal liquid medicaments
  - with twin tube and adjustable angular jet for oily medicaments.

☞ If a sprayer is used with medication the instructions of the medication manufacturers have to be observed.

☞ Do not use the sprayer for the storage of medication!

☞ Caution to be paid to avoid injury when introducing sprayer jet!

Please note, in case the ventilation opening is blocked or the sprayer head is immersed in fluids (e.g. blood, secretion, etc.) a negative pressure could occur and the fluid could flow back into the bottle.

In this case the medicine sprayer, sprayer head, flexible nozzle as well as the hose piece for the medicine sprayer must be reprocessed as described in chapter 5.0 cleaning.

- Pull the release lever.

  ↳ The medicament sprayer is supplied with air and the medicament in the sprayer bottle is atomized.
- The amount of compressed air is adjusted with the control knob (❸, fig 17) in conjunction with the compressed air gauge (❷, fig 17).
- After use, the medicament sprayer is again inserted in its holder, the bar is pressed, the handle is removed from the sprayer and again inserted in its support.

  ↳ Compressed-air system is again switched off.

☞ For hygienic reasons, the spraying tubes are to be exchanged following each application or with each patient.

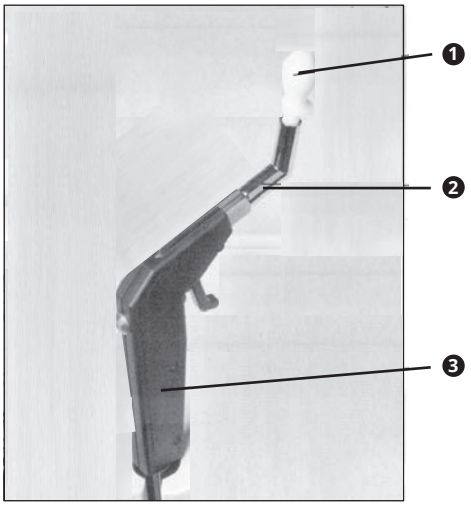


Fig. 18. Compressed-air handle with Politzer adapter

1. Politzer olive
2. Adapter for Politzer olive
3. Compressed-air handle

Fig. 19. Removal of the irrigation bottle

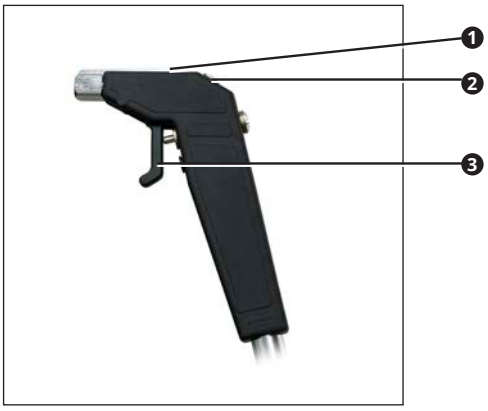


Fig. 20. Compressed-air handle

1. Release button
2. Air valve
3. Adjusting lever

b) Politzer manoeuvres with Politzer olives or Eustachian catheter can be carried out.

- The pump for the compressed-air system switches on after the compressed-air handle has been removed from its holder.
- The adapter (2, fig. 18) supplied for this purpose is locked into the compressed-air handle.
- Politzer olive (1, fig. 18) is inserted in the adapter.

☞ The pressure for the insufflation of the Eustachian tube can be controlled by means of the manometer and the compressed-air regulator. Select an insufflation pressure adapted to the condition of the tympanic membrane. If the tympanic membranes are already pre-damaged even low pressure values might lead to injuries ! Maximum pressure must not exceed 0.2 bar!

- Activating, adjusting and regulating the compressed air and switching off the compressed-air system as described above.
- Scope of delivery:
  - Compressed-air system with pump, regulating valve, manometer, handle and handle holder with photoelectric barrier control;
  - 3 medicament sprayers (2 single tube, 1 twin tube sprayers for viscous medicaments);
  - Politzer adapter;
  - Politzer olive (for children);
  - Politzer olive (universal size).
- Accessories, see chapter 8.2.

c) For ear irrigation

⚠ Prior to each ear irrigation perform a visual check to see if the patient's eardrum is perforated. Do not irrigate the ear if it is perforated or inflamed! Otherwise the inflammation can spread.

Preparation

- Fill both irrigation bottles with microbiologically safe drinking water. Ideally the drinking water is at room temperature.
- Position the reprocessed irrigation lid with irrigation hose.
- Attach the splash protection and hose tip.
- Place both irrigation bottles in the heated quiver for warming.

Irrigate ear

- Attach the compressed air handle to an irrigation bottle.
- Remove the compressed air handle with the irrigation bottle from the heated quiver.
- Check the water temperature with the back of your hand. Cold water causes dizziness for patients.
- Position the ear irrigation nozzle.
- Close the air valve with your thumb.
- Press the release lever to irrigate the ear.

Conclude

- Release the lever.
- Remove your thumb from the air valve.
- Place the irrigation bottle in the heated quiver.
- Press the release button and remove the compressed air handle from the irrigation bottle.
- Hang the compressed air handle in the holder.

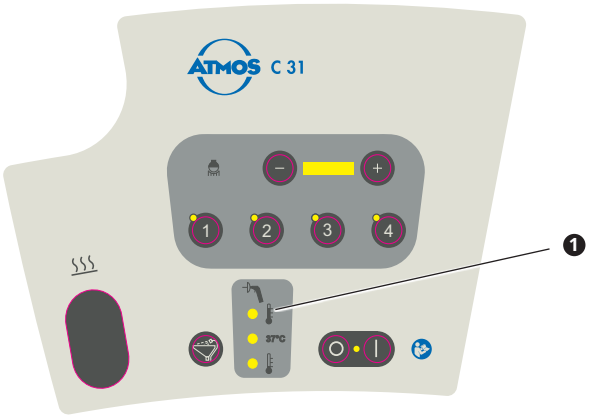


Fig. 21.

❶ Water temperature display

Fig. 22.

❶ Irrigation handle
❷ Connection for irrigation handle
❸ Storage canister for ear irrigation 37°C
❹ Irrigation hose

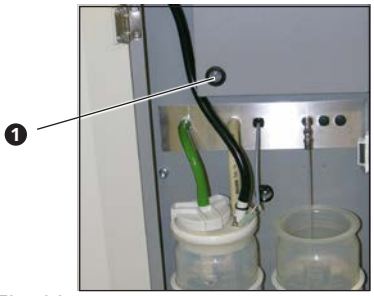


Fig. 23.

Fig. 24. Ear irrigation bowl

4.3.4 Ear irrigation system (option, only ATMOS C 31)

- The ear irrigation system is supplied with water from a heated storage canister (37°C) 4.5 l (❸, fig. 22). This canister can easily be filled, cleaned or disinfected. The pump only switches on automatically when required. Water pressure and flow quantity may be regulated with the release lever on the irrigation handle. With the switch ❶, fig 23, the ear irrigation system can be switched on and off.

☞ Do not switch on the ENT unit until water has been filled in the storage canister of the ear irrigation system.

- Fill the storage canister,e.g. using a measuring cup (000.0583.0), with microbiologically safe drinking water (min. 2 l, max. 4,5 l, drinking water quality) and close the lid.

☞ The water must not be contaminated and its temperature must not exceed 37°C as it cannot be cooled down. If there is no drinking water available, you may also fill the storage canister with an isotonic saline solution. Alternatively, you may achieve drinking water quality by filtering or boiling the water resp. by adding disinfectants.

☞ This system may not be used if the auditory canal is injured as there could be a risk of infection if the irrigation liquid is contaminated.

- The temperature display indicates the water temperature. It takes approx. 15 min. until 2 litres of cold tap water are heated up to 37°C. Observe the temperature display and check water temperature prior to every application. As soon as the middle lamp illuminates the water has reached the desired temperature.
- Take the water handle from the support and spray off the water until it is free of air bubbles and the level of the pump noise becomes less (repeat this procedure every time the pump noise gets louder, e.g. after long periods during which it has not been used or after the water level has dropped below the suction limit).
- Change the jet connection daily. Only use disinfected jet connections, in order to prevent spreading germs. Use the hose tip, REF 502.0844.0, to avoid damages to the eardrum. Exchange the hose tip after every patient.

4.3.5 Tulip-shaped ear rinsing bowl

- Purpose: To collect the water during ear irrigation.
- The tulip-shaped bowl is attached to the suction attachment of the suction system.
- We provide a special support for the ear irrigation bowl., as an accessory.

Fig. 25. Mirror preheater

❶ Headlamp suspension

❷ Mirror rack

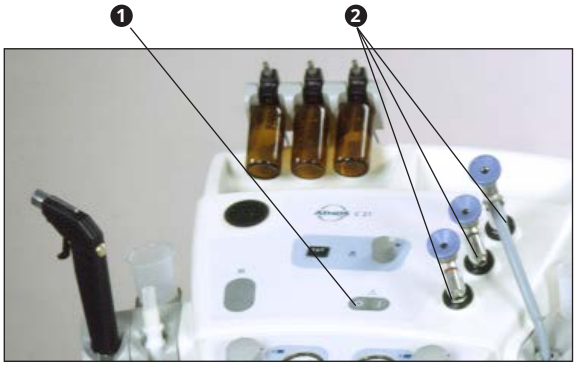


Fig. 26. Endoscope heating

❶ Main switch

❷ Sleeves of the endoscope heater

Fig. 27. Tongue patches and swab dispenser

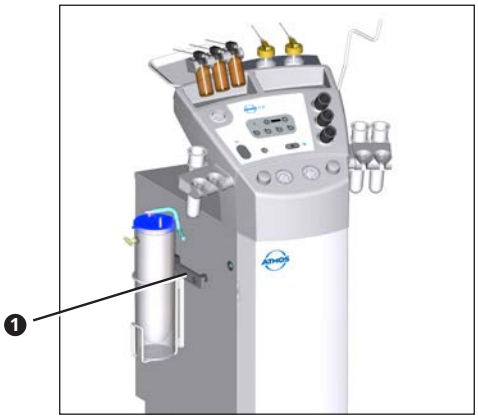


Fig. 28. Standard rail

4.3.6 Mirror preheater (option)

- Mirror preheater is switched on when the main switch (❶, fig. 1, page 8) is activated.
  - ↳ The rack (❷, fig. 25) containing the mirrors is heated up to about 45 °C.

☞ ENT unit should be switched on about 20 minutes before starting work, to ensure preheating in good time!

☞ Attention, high temperatures!

☞ Prior to use of the mirror, always check its temperature (e.g. with the back of the hand)!

4.3.7 Headlamp suspension (option)

- For storing the headlamp (❶, fig 25).

4.3.8 Endoscope heating (option)

- Endoscope heating is switched on when the main switch (❶, fig. 26) is activated.
  - ↳ Endoscopes are warmed to approx. 40 °C.

☞ ENT unit should be switched on about 20 minutes before starting work, to ensure preheating in good time!

☞ The metal quivers of the endoscope holder are to be used solely for holding the endoscopes, these **first having been cleaned and disinfected.**

☞ The metal quivers must regularly be removed and cleaned.
Do not fill in any liquids.

4.3.9 Tongue patches and swab dispenser (option)

- The tongue patches and swab dispenser hygienically stores tongue patches and swabs.
- The whole dispenser may be pulled out at the front for filling or refilling (fig. 27).

4.3.10 Waste bin (option)

- The door of the waste bin (⓫, fig. 1, page 8) is fitted with a "kick box" locking device. The waste bin automatically opens a little by lightly touching the door with the hand or foot.
- The kick box locks automatically on closing.

4.3.11 Holder for standard rail (option)

- Purpose: For adding disposable secretion canister systems.
- The standard rail holder (❶, fig. 28) may be used for one 2 or 3 l canister.
- Maximum load: 5 kg.

5.0 Cleaning and care

5.1 General information on cleaning and disinfection

☞ Set main switch of the ATMOS C 21 / C 31 to OFF prior to cleaning and disinfection!

☞ The described action relating to cleaning and disinfection resp. sterilisation do not substitute the relevant instructions which must be adhered to prior to operation!

- For disinfection, you may use all listed surface and instrument disinfectants.

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

- **Do not *use***
  - Disinfectants which contain organic or inorganic acids or bases as they could cause corrosion damage.
  - 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 surfaces of the ATMOS C 21 / C 31 are resistant against all listed surface disinfectants.
- Wipe the unit surface with a cloth moistened with a cleaning or disinfecting solution.
- Wipe dry the device surface, the surface edges may not be wet for a longer period.

5.1.2 Cleaning "application parts"

- "Application parts" comprise:
  All single components or assemblies which come into contact with the patient and might get contaminated:
  - Secretion canister,
  - Secretion hose,
  - Nozzles of medicament sprayers,
  - Politzer olives and adapters.
- All application parts can be disinfected using the recommended instrument disinfecting solution (see chapter 5.2).

☞ All application parts which are exposed to direct contact with the patient during treatment are to be exchanged or cleaned immediately for hygienic reasons.

5.1.3 Secretion canister (without autom. secretion canister evacuation), bacterial filter and suction hose

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

- Secretion canister with lid system and bacterial filter:
  - Detach all hose connections carefully on the lid system and take secretion canister out carefully to prevent spills and contamination of the area. Dispose of secretions properly.
  - Grip lid system firmly, open lid of filter housing by turning in anti-clockwise direction.
  - With bacterial filter plate or integrated bacterial filter: Remove filter and dispose it of.
  - With external bacterial filter: To open the bacterial filter cover please turn it. Remove filter and dispose it of.
  - After cleaning a new filter must be inserted (with bacterial filter plate: smooth side down). See chapter 6.1.
  - The bacterial filter is a disposable and must be disposed of. The bacterial filter must be exchanged at least once a day.
- Suction system and hose attachment:
  - After every use, rinse out the suction system by drawing in a small amount of irrigating fluid (e.g. Special cleanser for suction systems 080.0006.0, dosage: 10 ml to 1 l water).

  ↳ Keeps the suction 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.

☞ Replace the filter.

5.1.4 Secretion canister and electrodes (automatic evacuation of secretion canister)

- The secretion canister should be removed and cleaned once every week.
  - During the cleaning of the canister the cover has to be pulled off and rinsed thoroughly under running water. Use the disinfectants mentioned in chapter 5.2 for disinfection. Before the canister is assembled again, the electrodes in the cover should be cleaned using a wet cloth.

☞ Mistake in polarity not possible!

5.1.5 Storage canister for ear irrigation system (option, only ATMOS C 31)

☞ Before cleaning the storage canister, switch off the unit otherwise the canister could get too hot, if there is no liquid inside.

- Empty the storage canister and the hose system every evening via the irrigation handle. The remaining fluid can, for example, be removed with the suction system.

☞ To avoid a contamination of the storage canister please use a disinfected suction attachment.

- A measuring of the total number of germs must be performed at regular intervals. If there is a considerable increase in germs between storage canister and irrigation handle a biofilm removing procedure and a special disinfection of the hose system must be effected by an ATMOS service technician.

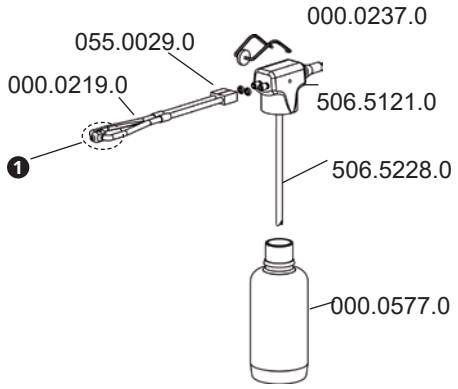


Fig. 29. Medicament sprayer 506.5120.0

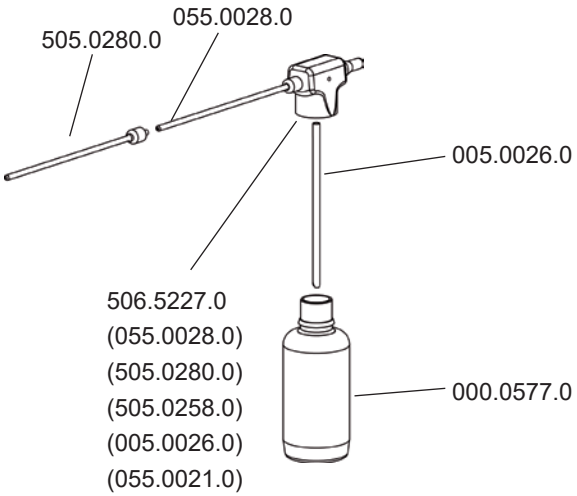


Fig. 30. Medicament sprayer 506.5225.0

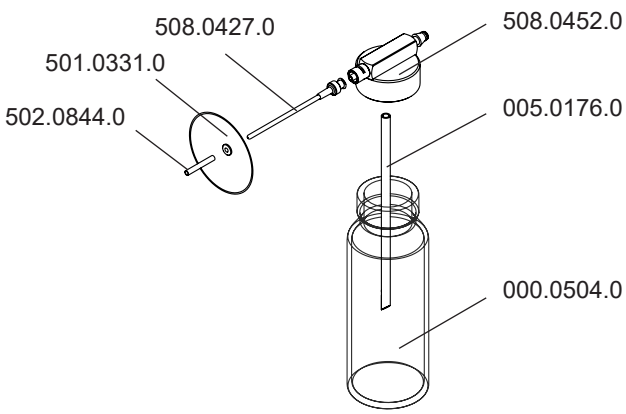


Fig 31 Irrigation bottle 508.0451.0

5.1.6 Medicament sprayers

⚠
- The sprayer tube must be exchanged after each patient.
- Dismount the medicament sprayer (fig. 29, 506.5120.0; fig. 30, 506.5225.0) and thoroughly rinse all parts under running water. A detergent or cleaning agent may also be used if required.
  - Use water to thoroughly rinse all residues of these substances.

☞ Make sure that the air opening is not closed!

☞ Observe when mounting the twin tube nozzle, that the marking (0,X or milling area, ❶, Fig. 29) on the nozzle shows upwards!

5.1.7 Instrument trays

- Before disinfection, thoroughly rinse the trays under running water. A detergent or cleaning agent (surface disinfectant) may also be used if required.
  - Use water to thoroughly rinse all residues of these substances.

Melamine and anodized aluminium trays cannot be sterilised.

5.1.8 Irrigation bottles and accessories

- Exchange the nozzle after every patient.
- Disassemble the irrigation bottle, irrigation lid, irrigation hose, splash protection and nozzle.
- Thoroughly rinse all other parts under running water. You may use a washing up liquid (detergent) or cleanser. The irrigation bottles can be washed in the dishwasher with the glass programme.
- Disinfect all parts either by machine or manually with a recommended instrument disinfectant.

5.1.9 Endoscope quivers

- The metal quivers of the endoscope holder are to be used solely for holding the endoscopes, **these first having been cleaned and disinfected**. The quivers are to be cleaned daily and subsequently disinfected. For doing this, the stopper at the lower end should be taken off.

5.1.10 Ear irrigation 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® 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® aktiv (Application concentrate)	Soduim 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 (neu) (Application concentrate)	succindialdehyde dimethoxytetrahydrofurane anionic and non-ionic surfactants, perfumes, methylisothiazolinone	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

5.3 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-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)	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
Bacillocid® rasant End of product 2014	glutaral benzyl-C12-18-alkyldimethyl-ammonium chlorides didecyldimethylammonium chloride	10 g 6 g 6 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®	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 proionale, linalool	13 g	Dürr Dental, Bietigheim-Bissingen

When using disinfectants containing aldehyde and amine at the same object colour changes may occur.

5.0 Cleaning and care

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 (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)	Manufacturer
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) (Application concentrate)	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, Norderstedt

6.0 Maintenance and Service

- The ATMOS C 21 / C 31 are 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 ensure correct functioning of the automatic irrigation and suction mechanism, switch off the ENT unit prior to changing 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 chapters.
- 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 manufacturer‘s specifications.

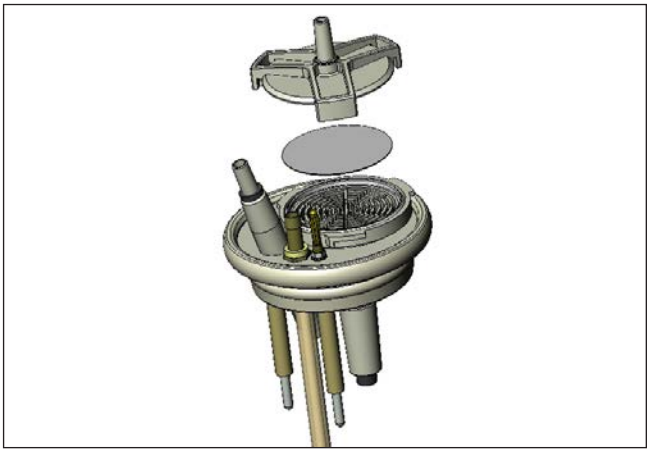


Fig. 32. Lid with bacterial filter plate

Fig. 33. Lid with integrated bacterial filter

Fig. 34. External bacterial filter

Changing the bacterial filter

Exchange daily or when blocked.

Check the bacterial filter

- Set the vacuum regulator (⓭, fig. 1, page 8) 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.

Changing the bacterial filter

Please do only use original ATMOS bacterial filters. The device may never be operated without DDS bacterial filter / oversuction stop.

Bacterial filter plate / integrated bacterial filter:

- Detach all hose connections carefully on the lid system and take secretion canister out carefully to prevent spills and contamination of the area. Dispose of secretions properly.
- Grip lid system firmly, open lid of filter housing by turning in anti-clockwise direction and remove filter. Dispose of filter and thoroughly rinse all parts under running water. A detergent or cleaning agent may also be used if required.
- After cleaning a new bacterial filter must be inserted. With bacterial filter plates: smooth side down.

External bacterial filter:

- To open the bacterial filter cover please turn it.
- Dispose of the bacterial filter.
- Insert a new bacterial filter and close cover.

☞ Make sure to clean the electrodes of the automatic secretion canister evacuation!

☞ Mistake in polarity not possible!

☞ If no vacuum is achieved after switching on again the suction system, check free movement of the float!

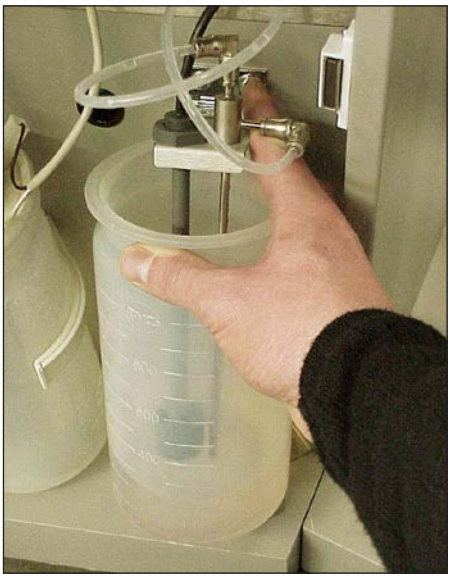


Fig. 35. Changing the rinsing container

6.2 Changing the rinsing canister

☞ Prior to removing the rinsing canister, switch off the treatment unit by the main switch.

- Slide the rinsing canister to the very top and pivot it outwards with the level switch. The canister must be pivoted over the edge of the canister support.
- The canister can then be slanted downwards and removed.
- To insert pivot the level switch upwards. Slide the canister upwards as far as it will go, pivot over the edge of the canister support and insert it downwards into the insert (see fig. 39).

Fig. 36.

❶ Hose to the secretion canister
❷ Release lever
❸ Tube cassette
❹ Drainage hose
❺ Connecting nipple to the rear wall

6.3 Changing the tube box of the tube pump

☞ The tube cassette is located in the unit's pump compartment. It may only be replaced by qualified staff!

- The tube box (❸, fig. 36) must be exchanged regularly (approx. once a year) to prevent leakage.
- Switch off the main switch.
- Clean and disinfect the hose system to avoid splashing of the secretions.
- Loosen the two tube connections.
- Remove the tube box from the drive axle by depressing the release lever.
- Attach the new tube cassette to the drive axle and arrest it in the bayonet holder by lifting the release lever. Pull the tube cassette slightly to check for secure locking.
- Add the two connecting tubes again acc. to fig. 36.

☞ Pump head and cassette holder to be disinfected by means of spray disinfectant!

☞ Take care to ensure that the hoses are not kinked when installing it (shorten them, if necessary)!

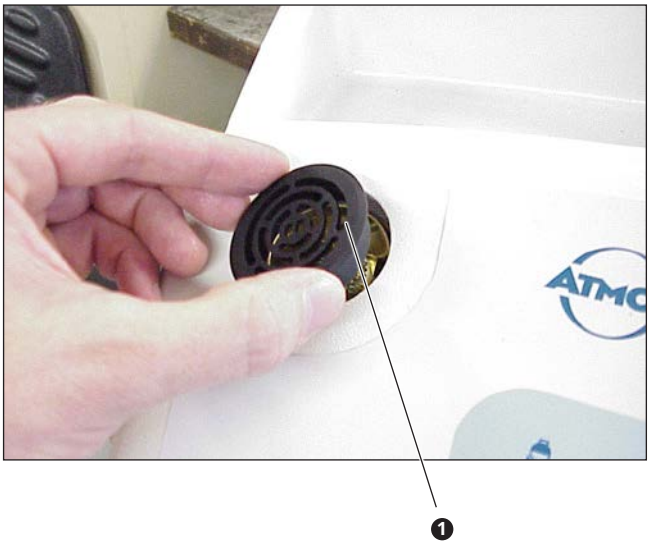


Fig. 37. Mirror quick heater

❶ Grid

6.4 Changing the heating coil of the mirror quick-heater

☞ Grid and sleeve might get very hot. Allow them to cool down before changing the heating coil!

- Switch off the main switch of the ENT unit (❶, fig. 1, page 8).
- Remove grid (❶, fig. 37).
- Remove the heating coil (❶, fig. 38) from the plug connections.
- Insert a new heating coil and make sure that the three heating helices come into contact only with their ends.
- Fix the grid again and set main switch to ON.

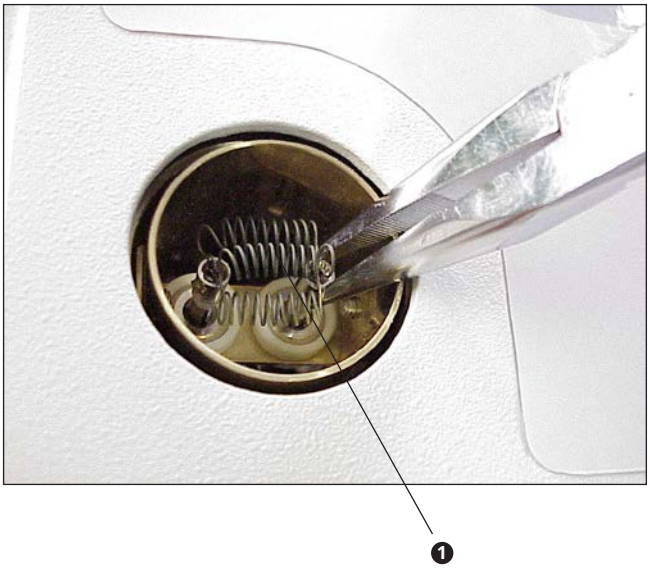


Fig. 38. Removing the heating coil

7.1 Electrical protection

- The supply line voltage reaches the individual components via the main switch (❶, fig. 1, page 8). The power supply is secured by means of melting fuses on the rear of the unit (fig. 39).

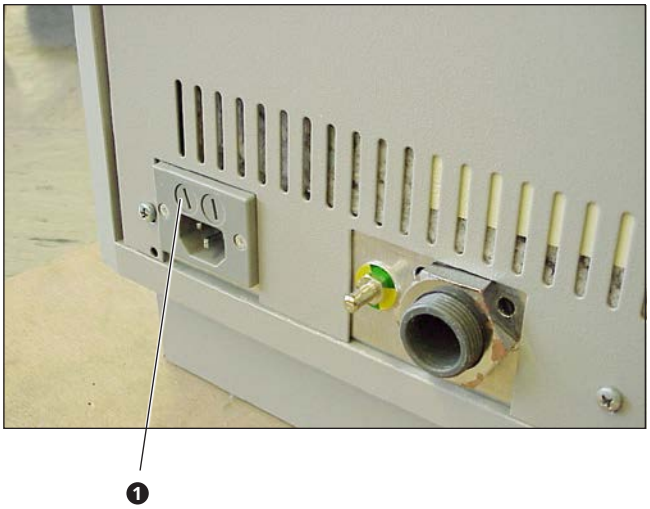


Fig. 39. Fuse support

The following trouble-checks for any problems you may have with the unit are listed according to the respective functions.

☞ If nevertheless the errors cannot be resolved, please inform the service staff. Do not start any attempts to repair the unit yourself!

☞ Pay also attention to corresponding chapters in separate operating instructions!

7.2 Power supply

Error indication	Possible cause	Remedy
Main switch is activated, no voltage at the unit, no function, pilot lamps do not light up	• No voltage to power plug • Blown fuse	• Check fuse in building, connect other units (lamp) to the socket, if necessary • Replace fuse on the rear of the unit
	• Power plug or cable is defective	• Check power plug or cable and replace, if necessary

7.3 Mirror heating

Error indication	Possible cause	Remedy
Mirror is not warmed up with the mirror preheater	• No voltage	• Check voltage by connecting other consuming devices
	• Heating coil is defective	• Replace heating coil (section 6.4)
	• Switch or control unit defect	• Call service to exchange the switch or control unit
Mirror preheater remains cold	• Heating plate body in the mirror preheater plate is defective	• Have heating plate body replaced by a service technician
	• No voltage	• Check voltage by connecting other consuming devices

7.4 Suction system

Error indication	Possible cause	Remedy
Weak suction or no suction at all	• Suction hose is clogged	• Rinse the suction hose with water (hose can also be removed)
	• Float of overflow safety closes the suction opening	• Check filling level in the secretion canister
	• Lid of secretion canister is not closed tightly	• Check that lid of the secretion canister is closed properly
	• Bacterial filter is clogged	• Replace the bacterial filter
	• Hose connections are leaking	• Seal up or replace connections
	• Connecting hoses in the secretion canister compartment are broken	• Check hose connections, remove kinks
	• Secretion penetrated the suction pump	• Have suction pump cleaned by a service technician
No suction, but vacuum gauge indicates -0.7 bar	• Suction hose is clogged	• Rinse the suction hose with water (hose can also be removed)
	• Float of overflow safety closes the suction opening	• Check filling level in the secretion canister
	• Bacterial filter is clogged	• Replace the bacterial filter
	• Connecting hoses in the secretion canister compartment are broken	• Check hose connections, remove kinks
	• Overflow safety is closed	• Hang up suction attachment, open regulating valve and tap the secretion canister; the floats of the overflow safety must drop back in their resting position
No suction and suction motor does not start	• Photoelectric barrier / electronics defective or photoelectric barrier is polluted	• Clean photoelectric barrier
		• Have photoelectric barrier checked by a service technician
No suction; suction motor fails to start although compressed-air pump starts	• Compressed-air handle and suction hose in handle support transposed	• Position handles corresponding to switching function

7.5 Light sources

Error indication	Possible cause	Remedy
No light	• No voltage	• Check mains voltage and fuses
	• Light guide was swapped so that another light channel was activated.	• Position light guide correctly

7.6 Compressed-air system

Error indication	Possible cause	Remedy
Compressor does not start	• No voltage	• Check voltage
	• Electrical defect	• Have the unit checked by a service technician
Compressor does not start but the suction motor does	• Compressed air handle and suction hose were swapped in the handle support	• Position handles corresponding to switching function
Pressure of compressed air is too low < 2.3 bar	• Hose connections are leaking	• Check hose connections
		• Have hose connections inside the unit checked by a service technician
Compressed air does not switch off	• Photoelectric barrier is polluted or defective	• Clean photoelectric barrier
		• Have photoelectric barrier replaced by a service technician
Sprayer does not work	• Sprayer is clogged	• Clean sprayer (section 5.1.6)

7.7 Automatic secretion canister evacuation

Error indication	Possible cause	Remedy
Secretion is no longer sucked off	• Electrode is contaminated	• Switch off unit and clean electrode
	• Tube pump defective	• Replace tube cassette

7.8 Endoscope support

Error indication	Possible cause	Remedy
Endoscope supports are no longer heated	• Overtemperature protection switch was activated	• Have the switch / control / sensor exchanged by your service technician.
	• Control is defective	
	• Temperature sensor is defective	

7.9 Automatic hose rinsing

Error indication	Possible cause	Remedy
Rinsing canister is overflowing	• Float switch is blocked	• Clean float hose (re-establishment of free movement of float)
	• Float switch is defective	• Inform the service technician

8.0 Consumables, Accessories, Spare Parts

8.1 Consumables

Consumables for suction system

Bacterial filter plates (25 pcs) 320.0065.0
DDS bacterial filter,10 pcs, 50 pcs, 100 pcs 340.0054.0
Special cleanser for suction systems, 2 bottles a 500 ml 080.0006.0

Consumables for automatic secretion canister evacuation

Tube cassette for tube pump 069.0126.0

Consumables for disposable secretion canister

Receptal® external canister 2 l 443.0256.0
Receptal® suction bag 2 l with integrted overflow valve filter, 50 pcs. 443.0257.0
Receptal® external canister 1.5 l 310.0221.0
Receptal® suction bag 1.5 l with integrted overflow valve filter, 50 pcs. 310.0222.2
Receptal® external canister 1 l 312.0465.0
Serres® suction bag1 l, without gellant and with bacterial filter, 36 Stück 312.0466.0
Serres® suction bag1 l, with gellant and with bacterial filter, 32 Stück 312.0467.0
Hose (green) 006.0010.0

Consumables for ear irrigation

Hose tips, 30 pcs 502.0844.0
Splash protection to be slipped on jet connection 501.0331.0

Further consumables

Tongue patches, packet with 6 pcs 505.0525.0
Cotton roll 505.0526.0
Waste bags, 50 pcs 505.0515.0
Paper for instrument intermediate-deposit, 250 sheets 508.0538.0

8.2 Accessories and Spare Parts

Suction

Spare parts

Secretion canister 1.25 l 000.0544.0
Bacterial filter cover 320.0012.0
Sealing ring for bacterial filter 320.0016.0
Secretion canister lid 320.0011.0
Sealing ring for secretion canister lid 320.0013.0
Sleeve of overflow safety 320.0010.0
Float 320.0015.0
Suction hose, silicone, black, intern. diam. 8mm, extern. diam. 12mm, per meter 006.0025.0

Mirror quick heater

Spare parts

Heating coil 508.0053.0

8.0 Consumables, Accessories, Spare Parts

Compressed air

Accessories

Holder for ear speculae / Politzer olives 508.0545.0
Politzer olives, Teflon, universal size 000.0241.0
Politzer olives, Teflon, for children 000.0241.1
Sprayer attachment, straight 505.0280.0
Twin tube with nozzle 000.0219.0
Sprayer complete for oily medicaments 506.5120.0
Sprayer complete, straight 506.5225.0

Spare parts

Compressed-air handle II 506.6202.0
Glass for sprayer 000.0577.0
Attachment for Politzer olives 505.0284.0
Twin tube nozzle 000.0219.0
O-Ring 055.0029.0
Spring clip with roll 000.0237.0
Sprayer head 506.5121.0
Hose, Rilsan 005.0026.0
Medicament glass 000.0577.0
External tube, straight, complete 505.0280.0
O-Ring 055.0028.0
Sprayer head II 506.5227.0

See also illustrations on page 21!

Optics / Light

Accessories ..... *Article-No.*
Fibre optic cable, length: 1.8 m, 90° Storz angular connection 508.0664.0
Headlamp CLAR 73, fibre optic cable 2.3 m, Storz, with angular connection 502.0515.0
Headlamp, light model, fibre optic cable, straight connection 502.0515.5
Headlamp acc. to Binner, Wolf, fibre optic cable 502.0516.0
Teflon element for endoscopes, diameter 2.8 mm - 4 mm 508.0777.5
Tank for flexible endoscopes (ATMOS, Olympus) 508.0790.0
Tank for flexible endoscopes (Storz) 508.0792.0
Adapter for light conductor with ATMOS/Storz connection 530.6100.0
Adapter for light conductor with Olympus connection 530.6101.0
Adapter for light conductor with Pentax connection 530.6102.0
Adapter for light conductor with Wolf connection 530.6103.0

8.0 Consumables, Accessories, Spare Parts

Further Accessories and Spare Parts

Instrument tray set, melamine, consisting of 2 large and 2 small trays 506.7031.0
Instrument tray set, aluminium-anodized, consisting of 2 large and 2 small trays, holder for ear speculae / Politzer olives 506.7032.0
Instrument tray set, stainless steel, consisting of 2 large and 2 small trays, holder for ear speculae / Politzer olives 506.7033.0
Ear irrigation bowl 505.0353.0
Plastic quiver for disinfecting solution, to be mounted to cable holder 506.7015.0
Instrument intermediate-deposit with paper in large aluminium resp. stainless steel tray 508.0533.0
Connecting cable for potential balance (5 m) 008.0596.0
Instrument tray, aluminium-anodized, 184 x 142 mm 508.0058.0
Instrument tray, aluminium-anodized, 284 x 184 mm 505.0516.0
Instrument tray, stainless steel, 180 x 140 mm 508.0058.2
Instrument tray, stainless steel, 280 x 180 mm 505.0516.2
Instrument tray, melamine, 190 x 150 mm 000.0746.0
Instrument tray, melamine, 300 x 190 mm 000.0747.0
Serrated instrument holder, big 508.0566.0
Serrated instrument holder, small 508.0567.0
Holder for ear speculae / Politzer olives, for aluminium resp. stainless steel tray 508.0545.0

9.0 Technical data

Voltage	230 V~ ± 10 %; 50/60 Hz Special voltage (optional): 115 V~ ± 10 %; 50/60 Hz 127 V~ ± 10 %; 50/60 Hz
Current consumption	**ATMOS C 21** Max. 2.6 A (230 V~) Max. 5.2 A (115/127 V~) **ATMOS C 31** Max. 5.0 A (230 V~) Max. 10.0 A (115/127 V~)
Power consumption	**ATMOS C 21** Max. 600 W **ATMOS C 31** Max. 1150 VA
Fuses	**ATMOS C 21** T 3.15 A / 250 V (for 230 V~, 50/60 Hz) T 6.3 A / 250 V (for 110 V~, 127 V~, 50/60 Hz) **ATMOS C 31** T 6.3 A / 250 V (for 230 V~, 50/60 Hz) T 12 A / 250 V (for 110 V~, 127 V~, 50/60 Hz)
Suction system 40 l	Freeflow: 40 l/min ± 10% Vacuum: 90 % from ambient pressure (variable) Secretion canister, 1,25 l TPX
Suction system 55 l (optional)	Freeflow: 55 l/min ± 10% Vacuum: 97 % from ambient pressure (variable) Secretion canister, 1,25 l TPX
Compressed-air system	Freeflow: 21 l/min ± 10 % Pressure 2200 hPa (variable)
Cold light source for light guide connection	Illuminance: min. 195 kLux (in 5 cm distance of a 4.7 mm high-performance light guide) In 10 steps from 10-100 % variable Colour temperature: 5.500 K ± 10 %
Power supply for ATMOS LS21 LED and ATMOS HL 21 LED	Electricity: 700 mA ± 5 % In 10 steps from 10-100% variable
Compressed air-ear irrigation system	Temperature: 37°C ± 2°C Filling quantity: 2 x 250 ml
Ear irrigation system	Temperature: 37 °C ± 2 °C Flow: ca. 450 ml/min Filling quantity: 5.0 l
Endoscope heating	Temperature: ca. 40 °C
Operation time	Continuous operation
Protective earth conductor resistance	Max. 0,1 Ω
Earth leakage current	Max. 0.5 mA
Enclosure leakage current	Max. 0.1 mA
Patient leakage current	Max. 0.1 mA

9.0 Technical data

Ambient conditions **Transport / storage**	Temperature: -10...+50°C Air humidity: 30 - 95 % without condensation Air pressure: 500 - 1060 hPa
Ambient conditions **Operation**	Temperature: +10...+35°C Air humidity: 30 - 95 % without condensation Air pressure: 700 - 1060 hPa
Maximum operational altitude	2000 - 3000 m (NN)
Contamination level	2
Dimensions (H x W x D)	Column: 94.0 x 47.0 x 53.5 cm Basic cabinet base: 94.0 x 132.5 x 60.0 cm Double cabinet base: 94.0 x 132.3 x 60.0 cm
Weight	Column ATMOS C 21: max. 46,0 kg ColumnATMOS C 31: max. 70,0 kg Cabinet base: 32.0 - 82.0 kg, (depending on configuration)
Period tests	Repeat test of the electrical safety every 12 months. Recommended: inspection according to the manufacturer‘s specifications.
Protection class (EN 60601-1)	I
Degree of protection	Application parts type BF 
Protection category	IPX0
Classification acc. to Annex IX EC Directive 93/42/EEC	Class IIa acc. to rule 11
CE marking	CE 0124
GMDN code	11585
UMDNS code	11-585
Canadian Classification **Device group** **PNC** **Risk Class** **Description**	 General & Plastic Surgery 79QBU 2 ASPIRATOR, SURGICAL

Issue of the Technical Data: 14.03.2017

10.0 Disposal

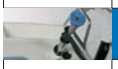
- The ATMOS C 21 / C 31 does not contain any hazardous goods.
- The material of the housing can be recycled completely.
- The component parts of the ATMOS C 21 / C 31 must be disposed off correctly and the materials are to be separated carefully.
- The electronics circuit boards must be fed into the appropriate recycling process.

Cleaning and disinfection plan
ATMOS® C 21 / ATMOS® C 31

MedizinTechnik

	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									
	Housing for external bacterial filter	X	X[2)4)5)]		Manual or automatic cleaning and disinfection		X			
	Bacterial filter cover	X	X[2)4)5)]		Manual or automatic cleaning and disinfection		X			
	Bacterial filter plate with blue marking / bacterial filter				Disposable. Exchange daily or when blocked		X			
	Lid / sealing rings	X	X[2)4)5)]		Manual or automatic cleaning and disinfection		X			
	Gasket	X	X[2)4)5)]		Manual or automatic cleaning and disinfection		X			
	Sleeve of overflow safety	X	X[2)4)5)]		Manual or automatic cleaning and disinfection		X			
	Float, closed side must up	X	X		Manual or automatic cleaning and disinfection		X			
	Secretion collection jar	X	X[2)4)5)]		Empty when the jar is full; at least daily; manual or automatic cleaning and disinfection		X			
	Disposable jar system				Exchange and disposal of full jar		X			
	Hose rinsing system									
	Suction nozzle for hose rinsing	X	X[3)]		Wipe cleaning and disinfection		X			
	Silicone attachment piece	X	X[2)4)5)6)]		Manual or automatic cleaning and disinfection		X			
					Exchange of Silicone attachment				X	
	Suction nipple with suction hose (reusable)	X			Manual cleaning and disinfection after each patient; rinse with hose disinfectant	X				
		X	X[2)4)5)6)]		Manual or automatic cleaning and disinfection		X			
	Secretion suction hose (disposable)	X			Rinse the secretion hose with the hose irrigation system after each procedure	X				
			X[2)4)5)6)]		Exchange or disinfection monthly				X	
	Storage container for hose rinsing system	X	X[2)4)5)6)]		Cleaning with a brush; Manual or automatic cleaning and disinfection		X			
	Ear irrigation									
	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)]		Manual or automatic cleaning and disinfection		X			
	Hose tip (disposable)				Exchange after each application	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)]		Manual or automatic cleaning and disinfection; cleaning in the dishwasher with the glass care programme		X			
	Ear irrigation system (ATMOS® C 31)	X	X[3)]		Empty, dry, wipe, disinfect		X			
			X		Rinse weekly with Bilpron (REF 510.2049.0)			X		
	Medication nebulisation / Politzer									
	Handle for compressed air	X	X[3)]		Manual cleaning and disinfection		X			
	Sprayer jet	X			Clean after every procedure	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 and disinfection (manual or automatic) weekly or when changing the medication			X		
	Politzer olive	X	X[2)4)5)6)]		Exchange after each application; afterwards cleaning and disinfection	X				
	Politzer connection	X	X[2)4)5)6)]		Exchange after each application; afterwards cleaning and disinfection	X				

11.0 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 responsable person -> use a water-based overhead marker)
	**Endoscope management**									
	Plastic quiver	X	X[2)4)5)]		Cleaning with a brush; disinfect afterwards		X			
	Metal quiver	X	X[2)4)5)6)]		Cleaning with a brush; disinfect afterwards (manual or automatic)		X			
	Protective sleeve (teflon element for metal quiver)	X	X[2)4)5)]		Manual or automatic cleaning and disinfection		X			
	**Instrument management**									
	ENT instruments	X	X[2)4)5)]	X	Immerse instruments into solution immediately after use, fully wetting is required, air must be removed from any cavities, after the contact time instruments must be rinsed with water, has to be dried and sterilised afterwards. Please also observe the ATMOS operating instructions for ENT instruments.	X				
	Instrument bowl with cover	X	X[4)]		Cleaning with a brush; disinfect afterwards (manual)		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			
	**Radio frequency surgery**									
	ATMOS® RS 221 (surface)	X	X[3)]		Wipe cleaning and wipe disinfection		X			
	Ergonomic 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 or dispose of in wet disposal tray; use of enzymatic detergents, cleaning and disinfection (manual or automatic)	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 or dispose of in wet disposal tray; use of enzymatic detergents, cleaning and disinfection (manual or automatic)	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 or dispose of in wet disposal tray; use of enzymatic detergents, cleaning and disinfection (manual or automatic)	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			
	Drawers	X	X[3)]		Wipe cleaning and wipe disinfection		X			
	Writing leaf	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 or 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)

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

[4)] Instruments - manual disinfection:
- Korsolex® basic (Bode Chemie)
- Korsolex® plus (Bode Chemie)
- Korsolex® extra (Bode Chemie)
  neodisher® Septo MED (Dr. Weigert)
- neodisher® Septo 3000 (Dr. Weigert)
- 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)

Wrong concentration of disinfectants may lead to damage!

[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)

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® C 21 / ATMOS® C 31. ATMOS MedizinTechnik cannot be held 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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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 C 21 / C 31 is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS C 21 / C 31 should ensure that it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment - Guidance
RF Emissions CISPR 11	Group 1	The ATMOS C 21 / C 31 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 according to CISPR 11	Class B	The ATMOS C 21 / C 31 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 B	
Flicker IEC 61000-3-3	Corresponds	

The device may not be used directly next to other devices or piled up with other devices. If operation next to or piled with other devices is necessary, please watch the device to check its intended operation in this arrangement.

Guidelines and Manufacturer´s Declaration - Immunity

The ATMOS C 21 / C 31 is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS C 21 / C 31 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 ceramics 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 Inapplicable	Mains power quality should be that of a typical commercial or hospital environment.
Surges IEC 61000-4-5	1 kV Differential 1 kV Common	2 kV Differential 1 kV Common	Mains power quality should be that of a typical commercial or hospital environment.
Magnetic field at power frequency 50/60 Hz acc. to IEC 61000-4-8	3 A/m	Inapplicable	Power frequency magnetic fields should be that of a typical commercial or hospital environment.

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 Cycles 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 Cycles 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 C 21 / C 31 demands continued function even in case of interruptions of the energy supply, it is recommended to supply the ATMOS C 21 / C 31 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 C 21 / C 31 is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS C 21 / C 31 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 to 80 MHz	3 V	Portable and mobile communications equipment should be separated from the ATMOS C 21 / C 31 incl. the cables by no less than the distances calculated/listed below. Recommended distances: d = (3.5 / V1) * √(P) d = (3.5 / E1) * √(P) 80-800 MHz d = (7 / E1) * √(P) 0.8-2.5 GHz 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 to 2.5 GHz	3 V/m	

NOTE 1 By 80 MHz and 800 MHz the higher frequency range applies.

NOTE 2

These guidelines might not be applicable in any case. The emanation of electromagnetic waves is affected by absorption and reflection 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 C 21 / C 31 is used exceeds the above compliance level, the ATMOS C 21 / C 31 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 ATMOS C 21 / C 31.

b

Within the frequency range of 150 kHz to 80 MHz the field strength should be below 3 V/m.

12.4 Recommended separations between portable and mobile RF Communications equipment and the ATMOS C 21 / C 31

The ATMOS C 21 / C 31 is intended for use in electromagnetic environment in which radiated disturbances are controlled. The customer or user of the ATMOS C 21 / C 31 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF Communications equipment and the ATMOS C 21 / C 31 as recommended below, according to the maximum output power of the communications equipment.

	Safety distance, depending on transmit-frequency m		
Nominal output of the transmitter W	**150 kHz to 80 MHz** **d =** [3.5 / 3] √**P**	**80 MHz to 800 MHz** **d =** [3.5 / 3] √**P**	**800 MHz to 2.5 GHz** **d =** [7.0 / 3] √**P**
0.01	0.12	0.12	0.24
0.1	0.37	0.37	0.74
1	1.2	1.2	2.4
10	3.69	3.69	7.38
100	11.66	11.66	23.32

For transmitters for which the maximum nominal output is not indicated in the above table, the recommended safety 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 By 80 MHz and 800 MHz the higher frequency range applies.

NOTE 2

These guidelines might not be applicable in any case. The emanation of electromagnetic waves is affected by absorption and reflection of buildings, objects and people.

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