INSTRUCTIONS FOR USE

OPTIMUS ENT UNIT

Rev. 2.7 – 15/05/2022

www.optomic.com

OPTIMUS ENT UNIT

1. INDICE

2. SAFETY INDICATORS

Warning; The term warning calls attention to a dangerous situation for the patient or the doctor. Failure to observe this notice could lead to injuries for the patient or the doctor.

Caution: The term caution draws attention to certain maintenance or safety measures that must be carried out in order to avoid damage to the device.

NOTE

The paragraph named with the term contain special information for handing the equipment.

Recycling symbol

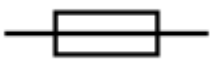
Device type B

Equipotential

Stand by

Manufacturer

Serial Number



Fuse

Electric and electronic device waste

Operation instructions

Alternating current

Certifícate CE

polarity

Brightness, brightness

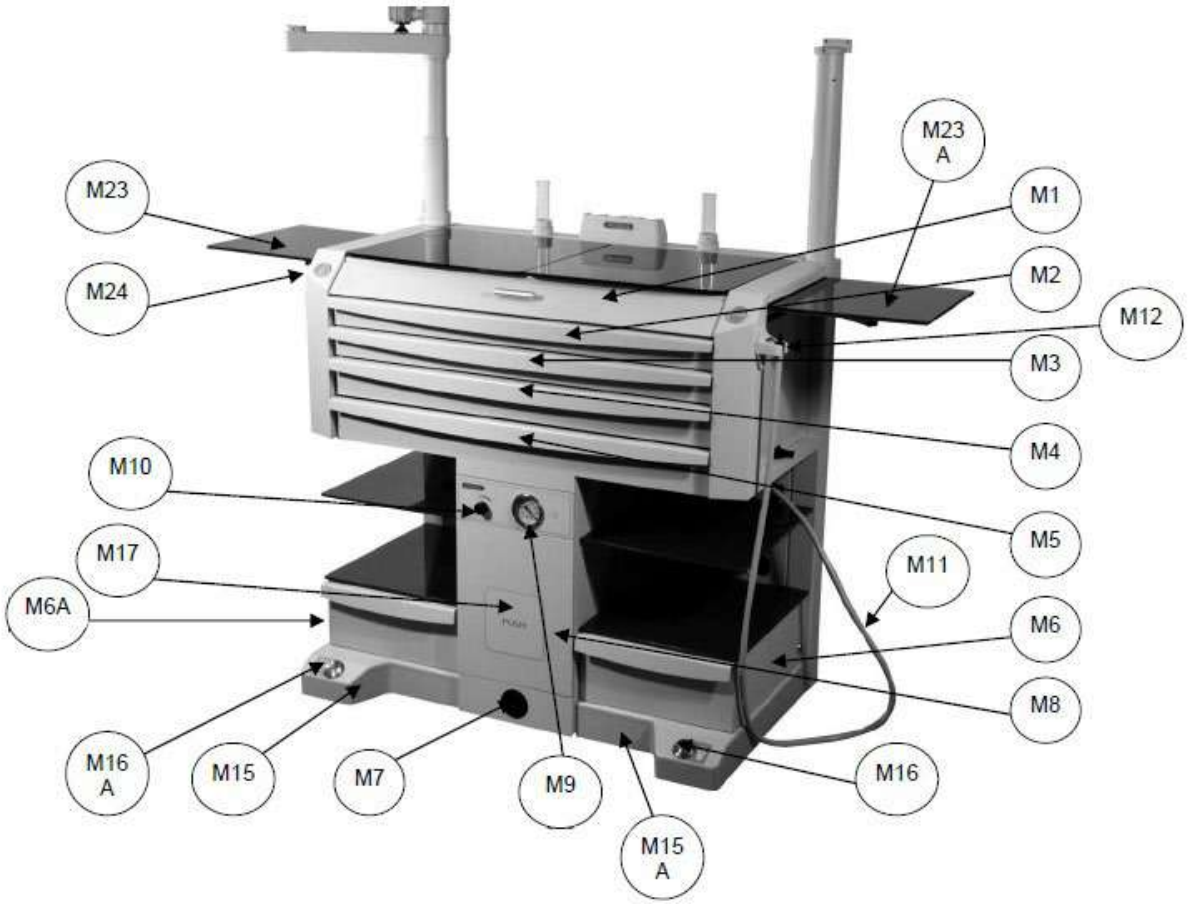
Protective ground

Autotransformer

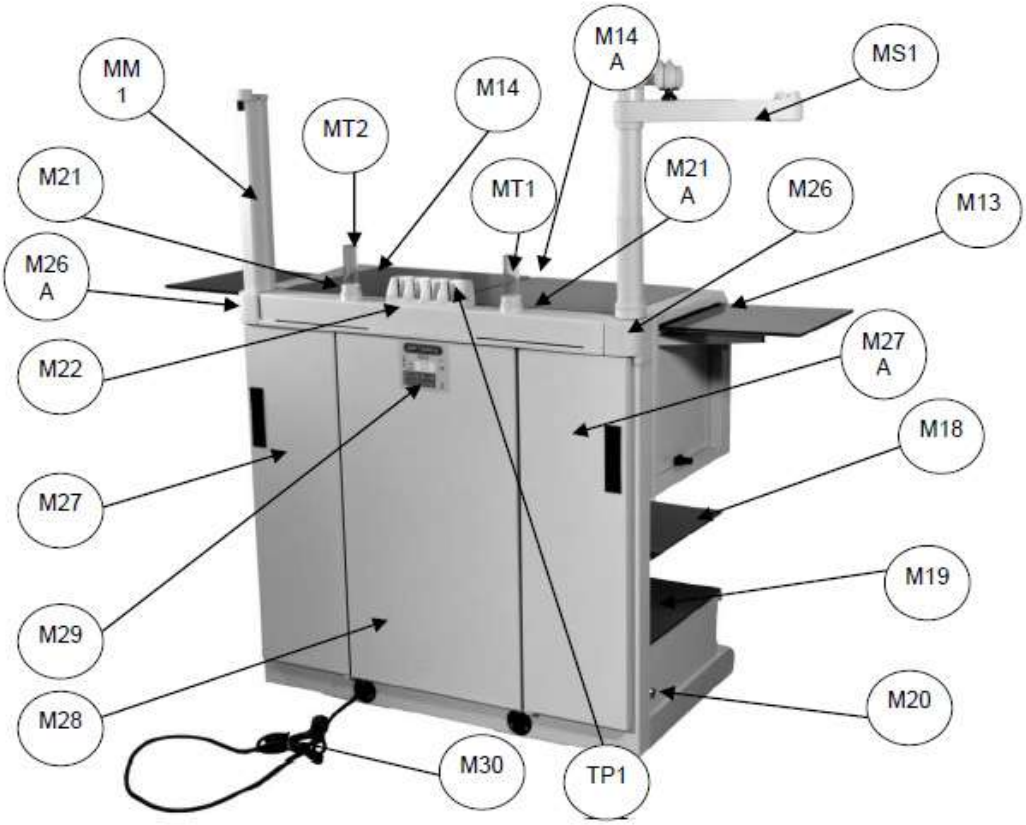
Disconnected

Connected

3. TEAM IMAGE



M1	DRAWER	M13	OPTOMIC LOGO	M27/M27A	SIDE DOORS
M2	DRAWER	M14/M14A	GLASS LID	M28	BACK PLATE
M3	DRAWER	M15/M15A	BASE CASING	M29	PRODUCT IDENTIFICATION
M4	DRAWER	M16/M16A	BIN BUTTON	M30	MAINS CABLE
M5	DRAWER	M17	PUSH	MT1	OPEN PERSPEX TUBE
M6/M6A	DRAWER	M18/M18A	GLASS SHELVES	MT2	CLOSED PERSPEX TUBE
		M19	LOWER GLASS SHELVES	TP1	PLÁSTIC TUBES
M7	HANDLE	M20	DRAWER LOCK	MM1	MICROSCOPE SUPPORT
M8	BIN DRAWER	M21/M21A	STORAGE	MS1	LATERAL MONITOR SUPPORT
M9	GAUGE	M22	PLASTIC TUBES		
M10	PRESSURE CONTROL	M23/M23A	SIDE GLASS		
M11	HOSE	M24	LIGHT		
M12	HOSE SUPPORT	M26/M26A	ACCESSORIES SUPPORT		



M1	**DRAWER**	**M13**	**OPTOMIC LOGO**	**M27/M27A**	**SIDE DOORS**
M2	**DRAWER**	**M14/M14A**	**GLASS LID**	**M28**	**BACK PLATE**
M3	**DRAWER**	**M15/M15A**	**BASE CASING**	**M29**	**PRODUCT IDENTIFICATION**
M4	**DRAWER**	**M16/M16A**	**BIN BUTTON**	**M30**	**MAINS CABLE**
M5	**DRAWER**	**M17**	**PUSH**	**MT1**	**OPEN PERSPEX TUBE**
M6/M6A	**DRAWER**	**M18/M18A**	**GLASS SHELVES**	**MT2**	**CLOSED PERSPEX TUBE**
		M19	**LOWER GLASS SHELVES**	**TP1**	**PLÁSTIC TUBES**
M7	**HANDLE**	**M20**	**DRAWER LOCK**	**MM1**	**MICROSCOPE SUPPORT**
M8	**BIN DRAWER**	**M21/M21A**	**STORAGE**	**MS1**	**LATERAL MONITOR SUPPORT**
M9	**GAUGE**	**M22**	**PLASTIC TUBES**		
M10	**PRESSURE CONTROL**	**M23/M23A**	**SIDE GLASS**		
M11	**HOSE**	**M24**	**LIGHT**		
M12	**HOSE SUPPORT**	**M26/M26A**	**ACCESSORIES SUPPORT**		

4. INTENDED PURPOSE

The family WORKSTATION is a ENT unit with medical functions that are suction

The OPTIMUS unit is intended to be used in a facility in the service of health, and is designed to optimize the space, occupies only 1 / 2m2 of surface and offers in its entirety support areas, drawers and shelves more than 3 m2 .

The OPTIMUS unit also allows endoscopy equipment to be installed inside, both cameras and cold light sources manufactured by OPTOMIC, as well as any other brands on the market.
Integra también de manera opcional:

- Suction.
- Compressed air system for medication spraying.
- Irrigation of ears.
- Mirror heater.
- Endoscope heater.
- Fibroscope heater.
- Instrument heater.
- Led light source.

Contraindications:
No contraindications are known which directly related to the product. The suction and pressure must no be use if, in the opinion of a quality physician, such use may present a hazard to the patient.

Undesirable side effects :
There are no know side effects directly relatted to the device.

5. USER QUALIFICATION

The Wortstations must only be used by specialized personnel with the relevant training and qualifications in the specialty of otorhinolaryngology.

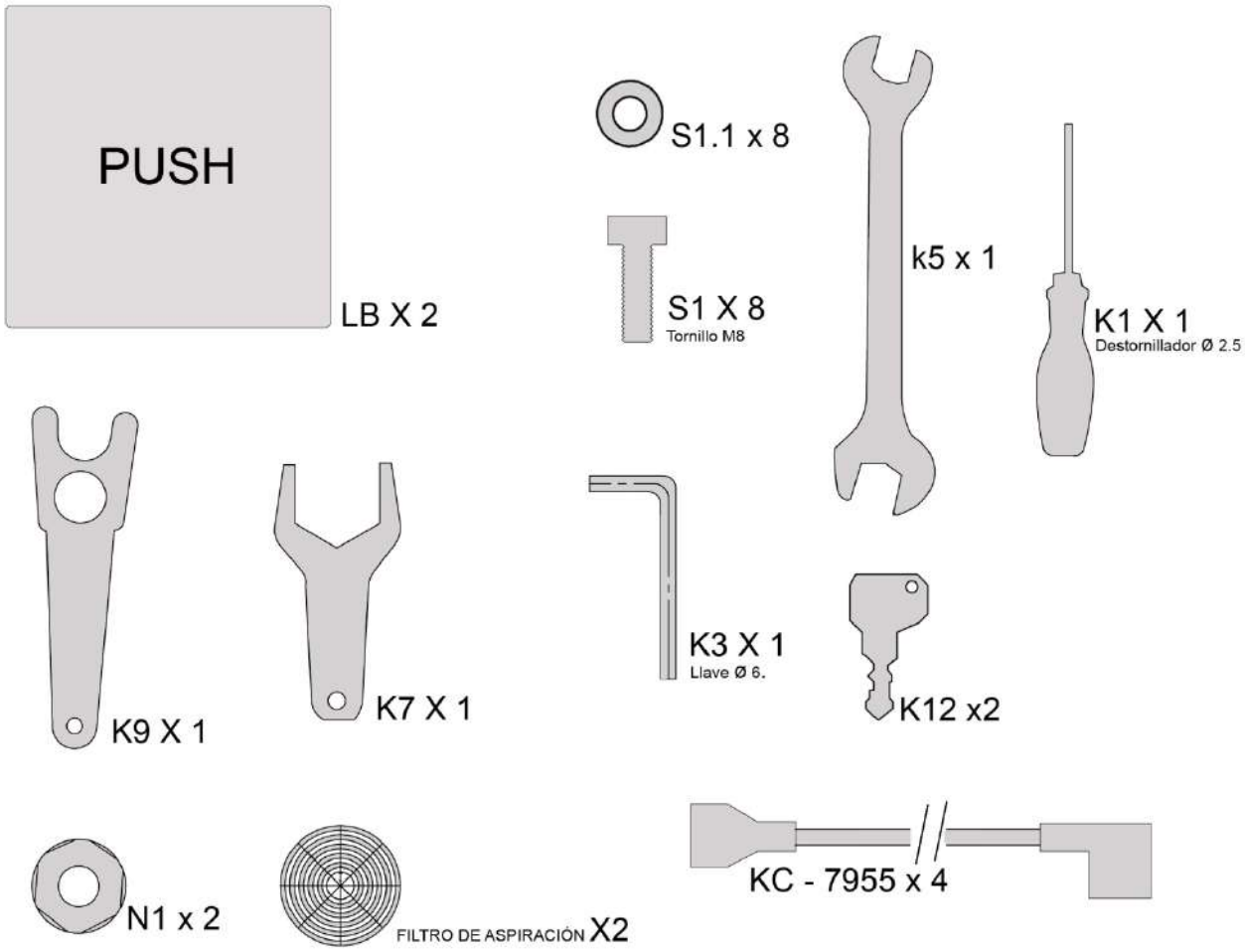
6. WARNING INDICATIONS

Please read these instructions for use as carefully as possible and strictly observe their instructions. The terms of warning, caution and note have special meanings. When they appear in the instructions for use, the text must be read carefully.

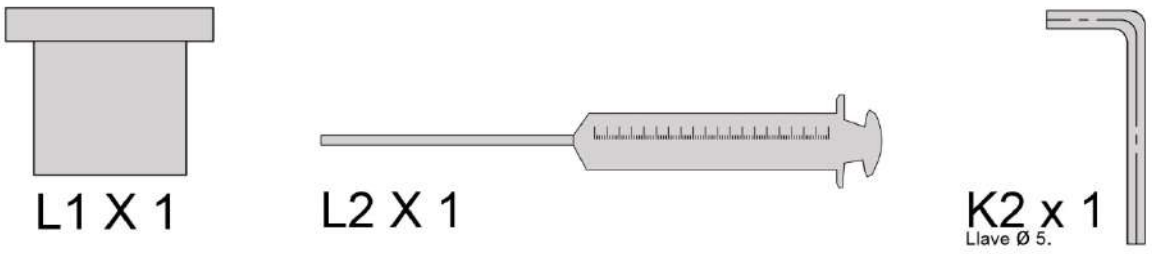
	Read the instructions for use before using the equipment.
	Check before use, operation and cleaning.
	Check the perfect condition of the equipment and accessories used in combination. Damaged equipment or accessories should no longer be used.
	Only the accessories specified in these instructions for use can be used. Follow carefully the instructions for use and the specifications of the medical equipment used in combination.
	The device must not be used in places where there is a danger of explosion.
	The equipment must not be used with hazardous gases or in conjunction with equipment that generates dangerous gases
	To avoid the risk of electric shock, this equipment must be connected to a power supply network with protective earth.
	Portable and mobile RF equipment can affect the proper functioning of the equipment. In the hypothetical case of the occurrence of electromagnetic interference, you can eliminate them by modifying the orientation or location of the equipment, reducing the distance between equipment or connecting the different devices to the independent electrical circuits.
	The use of the power cable other than the one supplied, with the exception of those sold by OPTOMIC, may cause an increase in emissions or a decrease in the immunity of the equipment.
	Safety related parts will be replaced only by original parts.
	Observer of the instructions for use for cleaning and maintenance of the equipment.
NOTE	Equipment damage resulting from improper handling of the equipment will not be recognized as a warranty right.
	This equipment contains electronic components that can be harmful to the environment if they are not managed safely, so once the useful life of the required equipment is finished, follow the relevant national and local regulations. Regarding the management of electrical and electronic waste or the product may be returned to Optomic. to manage the recycling of hazardous components. 
	Any serious incident related to the product must be communicated with the manufacturer and the competent authority of the member state in which the user and / or patient is established.

7. UNPACKING AND LIST OF CONTENTS

TOOLS AND COMPONENTS FOR THE OPTIMUS ENT UNIT



LUBRICATION OF THE PUMP



8. SET UP

8.1. UNPACKING

The ENT unit is supplied with its own transport packaging and fixings.

1. Cut the strapping. (Fig. 1)
2. Remove the lid **T1**. (Fig. 2 and 3)
3. Locate the front panel **T2**, which forms the ramp. (Fig. 4)
4. Remove the front panel by unscrewing the side and front screws. (Fig. 4)
5. Place the ramp, front panel **T2**, in front of the pallet.(Fig. 5)
6. Unscrew the side panels **T3** and remove. (Fig. 6)
7. Optional: The transport handles **T4** are located on the sides. Remove the screws that attach them to the wood, and remove the shafts **T5** that are located inside the pallet. (Fig. 7, 8 and 33). (See corresponding section).
8. Remove the back.
9. Optional: Remove the cardboard box which contains the accessories. (Fig. 9)
10. Remove the plastic with a cutter, taking care not to damage the unit. (Fig. 10)
11. Remove the two cardboard boxes which contain the two bottom drawers. (Fig. 11)
12. Remove the protective side packaging **T11**. (Fig. 12)
13. Remove the 3 8x20 screws **T6** and the 3 8x90 screws **T7** (Fig. 13 and 14)
14. Place the 2 8x20 screws **T8 to** to lift the unit a few millimetres and free the wood **T9**. (Fig. 15)
15. Remove the wood **T9**. (Fig. 16)
16. Roll the unit down the ramp. (Fig. 17)
17. Place the unit in the desired location.
18. If the equipment must be transported to a different level, use the transport handles (see corresponding section).

	IMPORTANT: This manoeuvre should be carried out by at least 2 people. <u>One person should not attempt to unload the unit from the pallet</u>, even by wheeling it off**.**

	<u>IMPORTANT</u>: Given its weight, the unit should be moved with **great care** and always by people who are experienced at moving heavy loads. Ensure that legs and feet are protected at all times and check constantly that no objects, animals or children are in the way.

Fig. 1

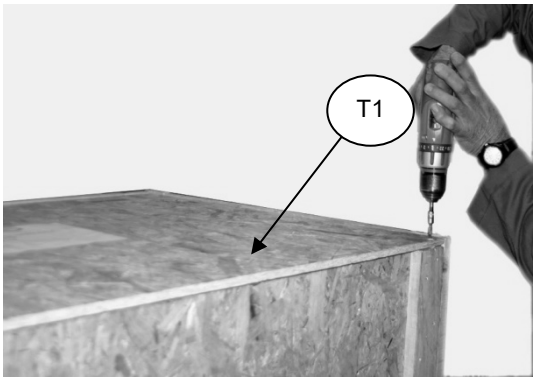


Fig. 2

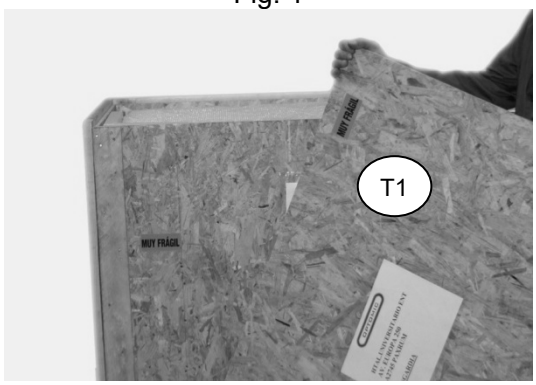


Fig.3

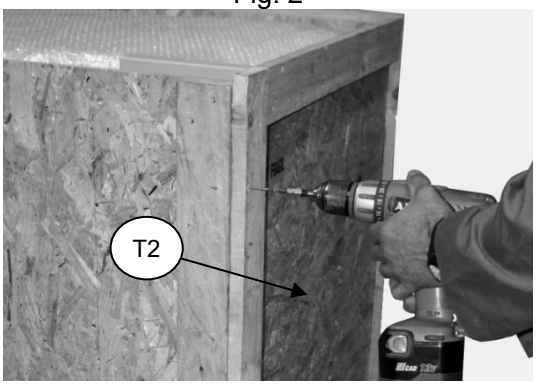


Fig. 4

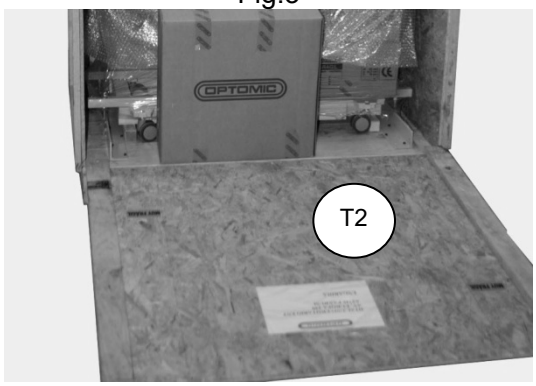


Fig.5

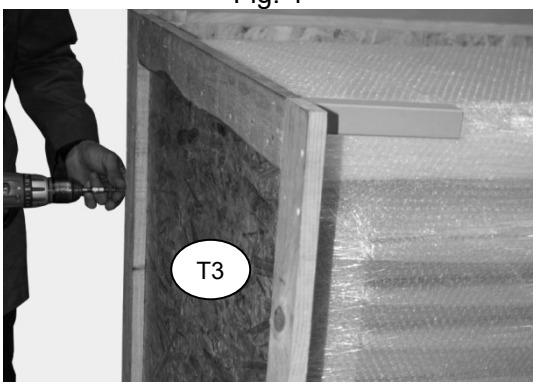


Fig. 6

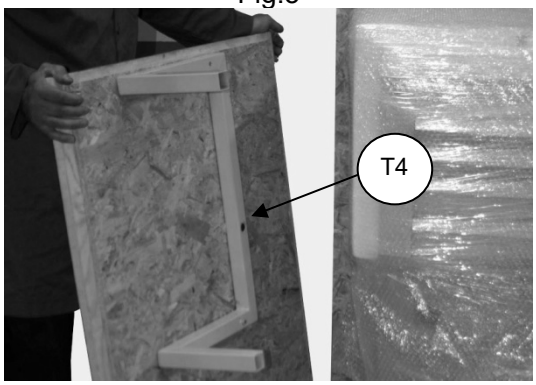


Fig.7

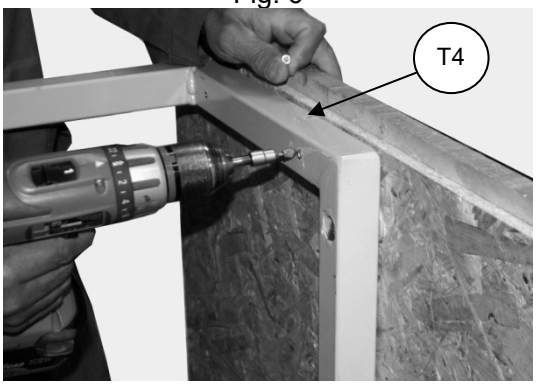


Fig. 8

Fig.9


Fig. 10

Fig.11

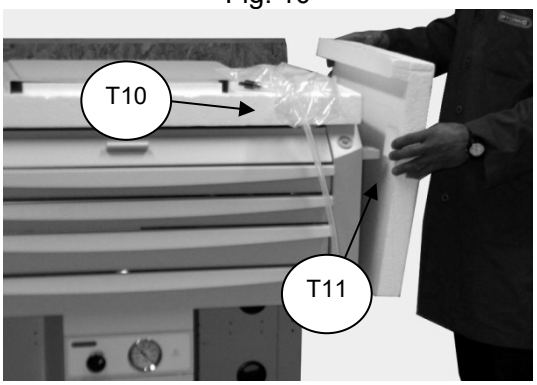


Fig. 12

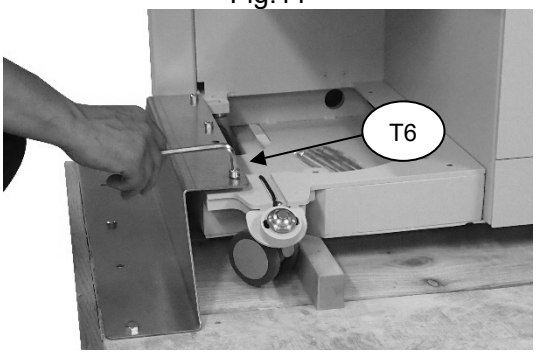


Fig.13

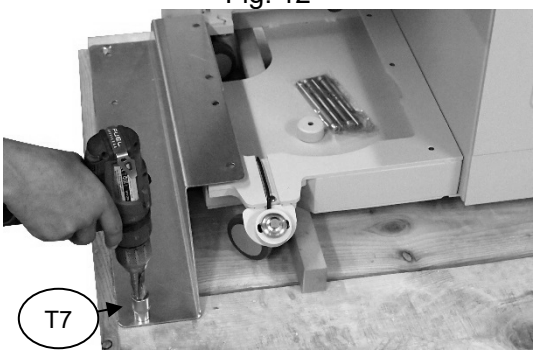


Fig. 14

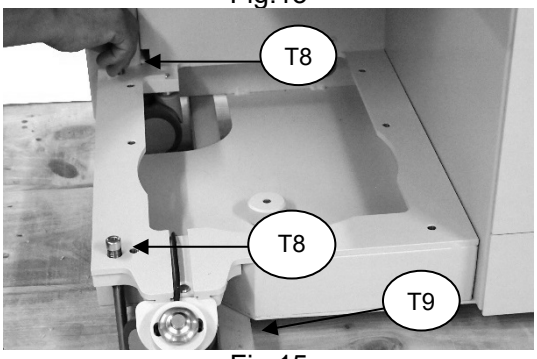


Fig.15

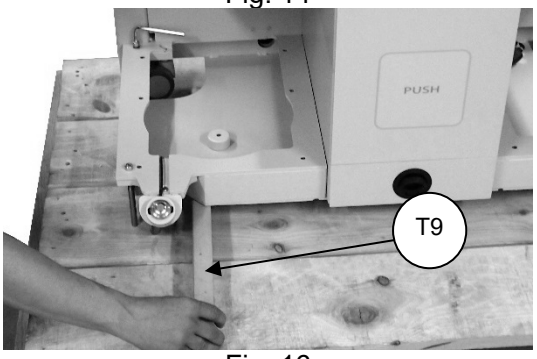


Fig. 16

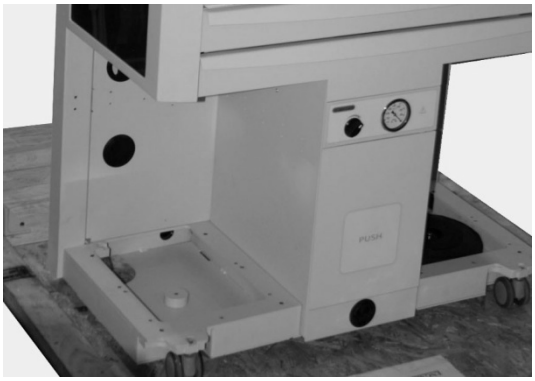


Fig.17

8.1. OPTIONAL: TRANSPORT HANDLES

⚠	***IMPORTANT: This manoeuvre must be carried out by at least 2 people.***

In the event that the unit has to be transported over an uneven area or up a staircase, the carrying handles (optional) should be used and the weight of the unit reduced by removing the drawers and other elements.
Total weight of the unit - 191,5 Kg
Weight without drawers and other elements - 85 Kg

1. Remove the five upper drawers **M1**, **M2**, **M3**, **M4** and **M5**. To remove the drawers: Open the drawer, raise the plastic catch on the left hand drawer guide and lower the plastic catch on the right hand guide, and remove the drawer (Fig. 20 and 21).
2. Remove the side glass **M23** and **M23A** removing first the captive screws in the hinges (Fig. 22)
3. Carefully remove the hinge axes, as the side extensions **M23** are free (Fig. 23)
4. Take out the glass extensions (Fig. 24)
5. Remove the central drawer **M8**:
    - Open the central drawer **M8** using the handle **M7** (Fig. 30).
    - Remove the suction hose connections of the bottle **PATIENT** (Fig. 31)
    - Remove the drawer (Fig. 32, 33 and 34)
6. Remove at the back the two doors which cover the cables **M27** and **M27A**, by opening them and unscrewing the grounding cable (Fig. 25, 26 and 27) and removing the latch (Fig. 28 and 29).
7. Screw the four square yellow pipes **T9** to the unit with two screws for each pipe. They are the same pipes that were removed when the unit was unpacked (Fig. 17 and 18)
8. Screw the shafts **T5** (Fig. 41) onto the transport handles **T4** (Fig. 7 and 35).
9. Insert the transport handles shafts **T4** in the pipes **T9** (Fig. 36).
10. Screw the transport handles **T4** to the pipes **T9** to properly attach them. (Fig. 37).
11. Lift the unit by the transport handles to negotiate the stairs. (Fig. 38).

Fig.20

Fig. 21

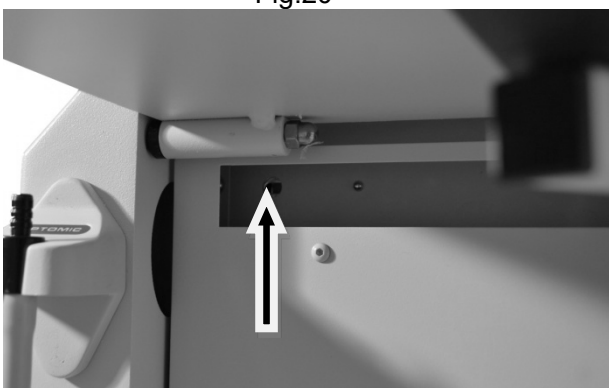


Fig.22

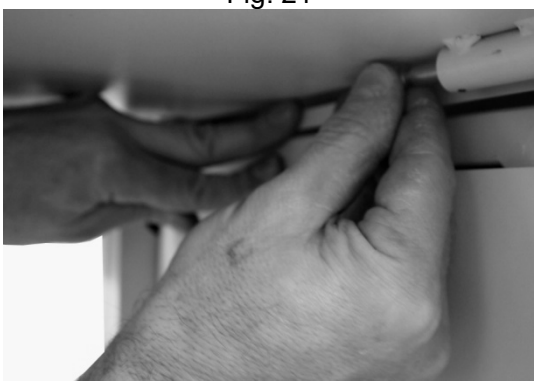


Fig. 23

Fig.24

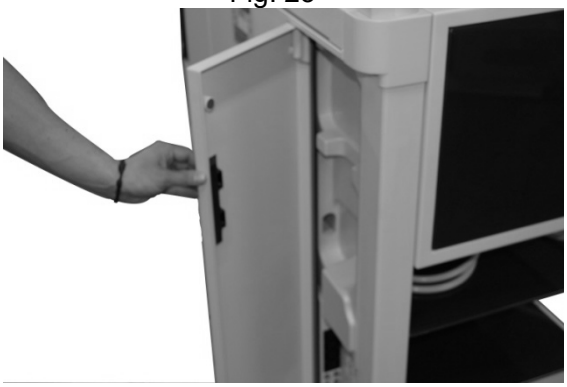


Fig. 25

Fig.26

Fig. 27

Fig.28

Fig. 29

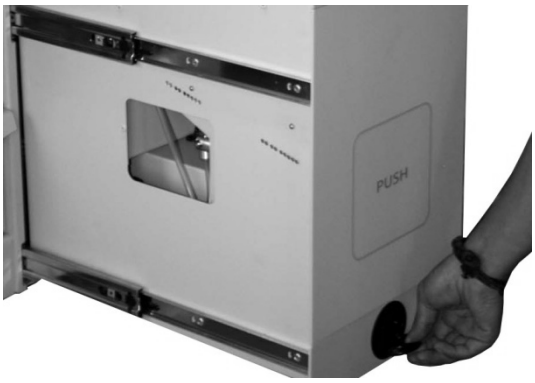


Fig.30

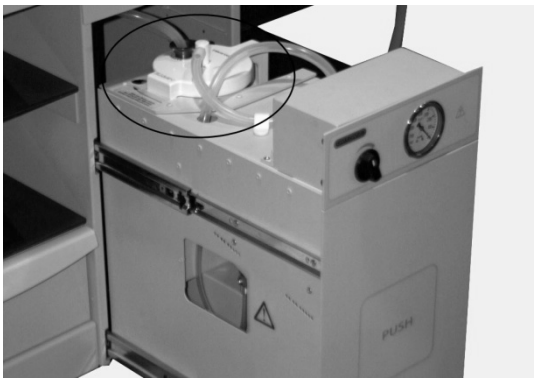


Fig. 31

Fig.32

Fig. 33

Fig.34

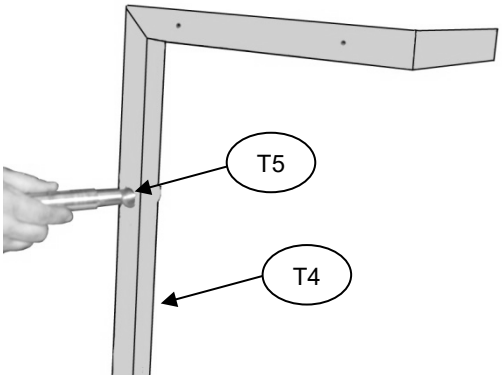


Fig. 35

Fig. 36

Fig.37


Fig. 38

After positioning the unit in the desired location, follow the previous steps in reverse order:

- Remove the transport handles.
- Remove the pipes.
- Insert the upper drawers, match up the guides and push the drawers all the way in. Tap gently to ensure the guides slot into place correctly. **NOTE**: if you notice some resistance, give them little pushes.

NOTE	When you find resistance, with small pushes you will overcome the entry of the guides, so we will very easily introduce the drawers completely.

- Insert the central drawer, and connect the hose **M11** to the bottle, match up the guides and push the drawer **M8** all the way in.
- Fit the side doors **M27**.
- Fit the side glass extensions **M23**.

8.2. INSTALATION

1. Remove the plastic housing **M15** from the top. (Fig. 39)
2. Remove the polystyrene **T10**. (Fig. 40 and 13)
3. Take the box which contains the side shelves (Fig. 41)
4. Remove the side shelves carefully. (Fig. 42)
5. Remove the keys and screws.
6. Fit the side shelves **M18** and **M18A**. (Fig. 43 and 44)
7. Fit the plastic housing **M15** and **M15A**. (Fig. 45 and 46)
8. Attach the plastic housings **M15** with the nuts **N1** and the key **K7** (Fig.47)
9. Remove the drawers **M6** and **M6A** from the cardboard boxes. (Fig. 45 and 10)
10. The drawers **M6** and **M6A** contain power cables for equipment on shelves **CB 1** and the drawers' key. (Fig. 49)
11. Remove the drawers from the drawer frame by raising the catch on one drawer guide and lowering the other. (Fig. 50 and 51)
12. Place the drawer frame **M6** on top of the plastic housing **M15** and the **M6A** on the **M15A** and screw on. (Fig. 52)
13. Insert the drawers, match up the guides and push the drawer all the way in. (Fig. 53 and 54).

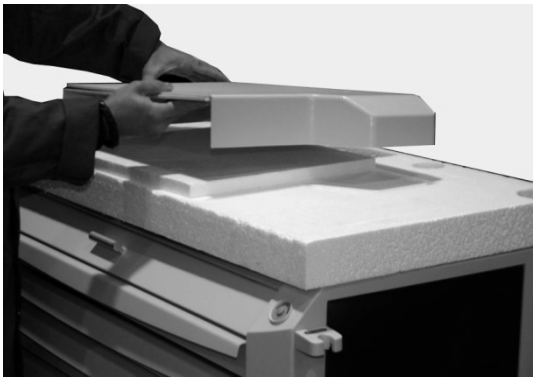


Fig.39

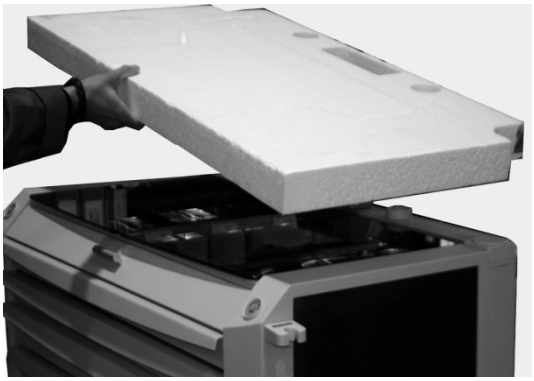


Fig. 40

Fig.41

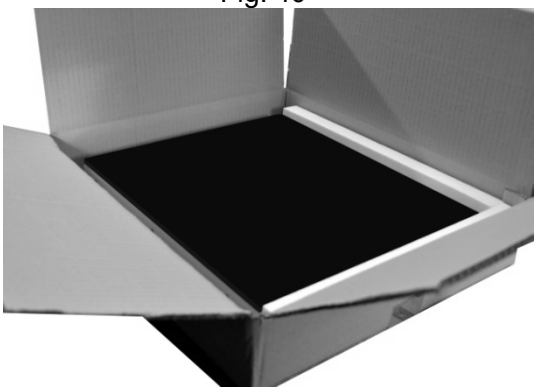


Fig. 42

Fig.43

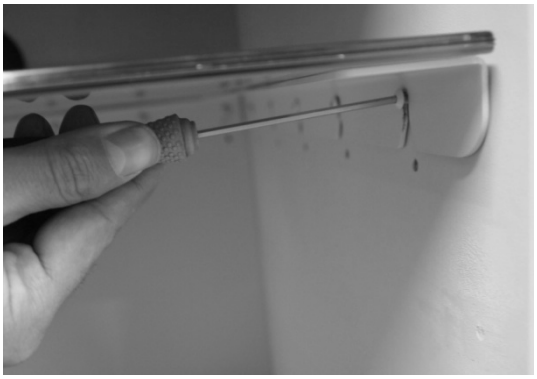


Fig. 44

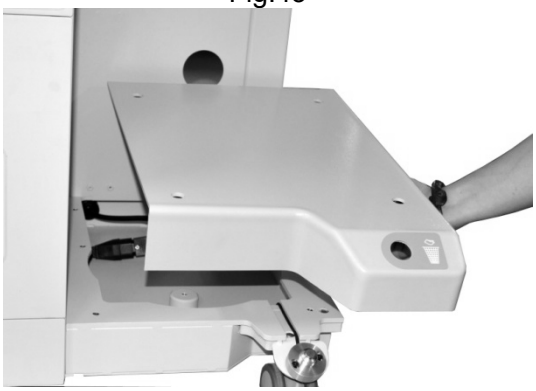


Fig.45

Fig. 46

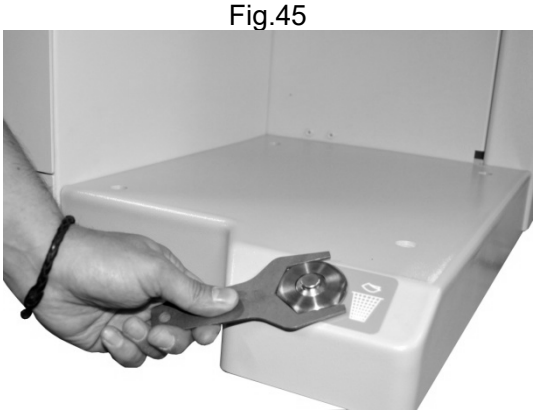


Fig. 47

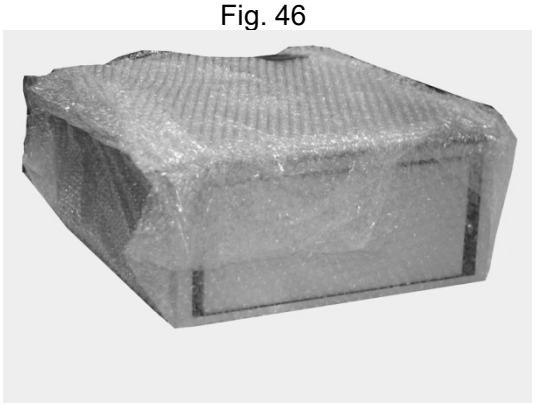


Fig.48

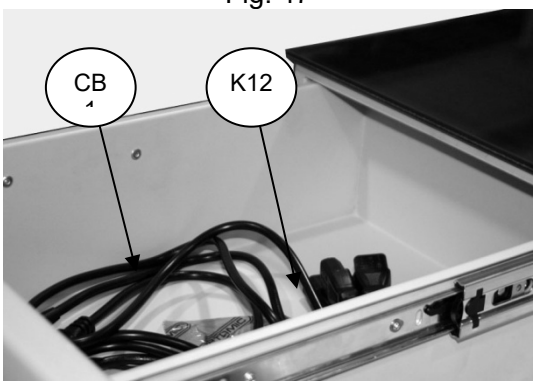


Fig. 49

Fig.50

Fig. 51

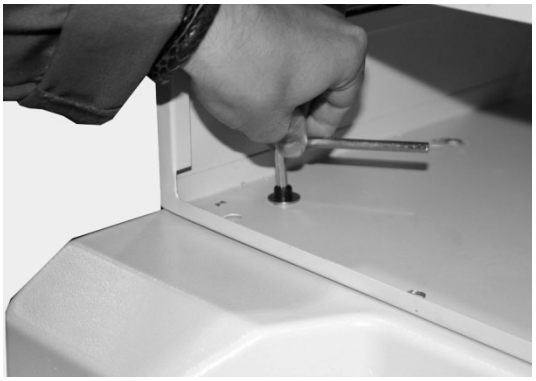


Fig.52

Fig.53

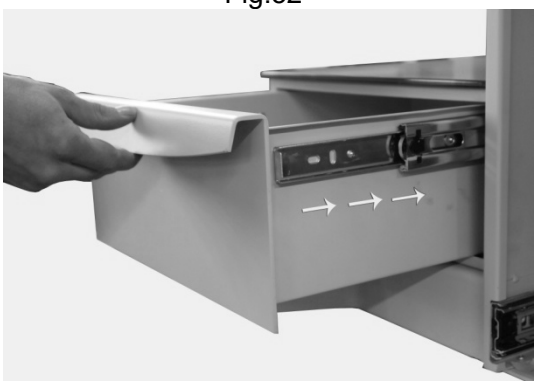


Fig.54

8.3. CHANGE OF POSITION OF THE SUCTION HOSE HOLDER

Changing the position of the suction hose holder from left to right or vice versa:

1. Pull the suction hose holder **M12** out. (Fig. 77). It is fastened magnetically.
2. Disconnect the connector. (Fig. 78)
3. Go to the other side of the unit and remove the Optomic cover plate **M13** in the same way by disconnecting the connector. (Fig. 79 and 80). It is also fastened magnetically.
4. Reconnect the suction hose holder **M12** in its new position.
5. Go to the other side of the unit and fasten the Optomic cover plate **M13** with its connector.

Fig. 77

Fig. 78

Fig. 79

Fig. 80

8.1. INTEGRATED ENDOSCOPY TROLLEY

The unit's four shelves **M18, M18A, M19** and **M19A** can be used to house endoscopy equipment and other devices, thus providing, in conjunction with the monitor support, an excellent space saving alternative to the conventional endoscopy trolley.

Fig. 75

9. FUNCTIONING OF THE UNIT

9.1. MOBILE AND AUTONOMOUS

The unit is easily moveable and completely autonomous.

9.2. ON/OFF UNIT OPERATION

Before connection verify the following:

⚠	The voltage of the mains is the same as that indicated in the identification label **M29**.
	The grounding of the mains is in working order and connects perfectly with the equipment.

To start up the unit connect its cable **M30** (Schuko cable, European use, others upon request) to the mains (Fig.56). To switch it on and off press the thermomagnetic switch to ON(I,) or OFF (o,) (Fig.55). It is above the right shelf.

NOTE	the thermomagnetic switch acts as a way of sectioning the mains supply.

Fig.55

Fig. 56

9.3. GLASS

- Upper glass panels: Lift up the glass panels **M14** and **M14A** to access the surgical instrument storage. (Fig. 57)
- Side glass panels: Lift up the glass side panels **M23** and **M23A** to obtain two work surfaces. (Fig.58)
- The other glass panels are used to support various devices: **M18, M18A, M19** and **M19A**. (Fig. 59)

Fig.57

Fig. 58

Fig.59

9.4. DRAWERS

The unit is equipped with six fully removable drawers:
All of the drawers can be removed in the same way. Consult the Installation section to see how.

- Four upper drawers **M1**, **M2**, **M3** and **M4** to store medical instruments with optional stainless steel trays and adjustable divisions. One of them is a larger size to enable the storage of bulky items such as boxes for gloves, swabs, dressings, medicines, bottles with liquids and other materials. (Fig. 60)
- The fifth drawer **M5** contains a tray and has a fold-down front that enables access to the tray. When the drawer is fully extended, it can be used as a work surface on which to place items, write, etc. In the centre of the drawer, there is a stainless steel tray for depositing used medical instruments. (Fig. 61)
- A lower central drawer where the waste bin **M8** and suction pump are located.(Fig. 62)
- And finally, at the bottom, two large side drawers **M6** for bulky and heavy items. They have lock and key **M20** for security. (Fig. 63)

Fig.60

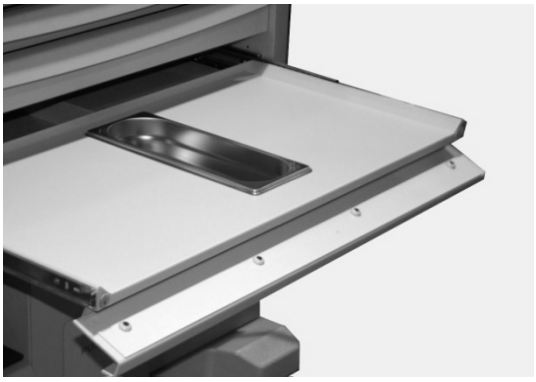


Fig. 61

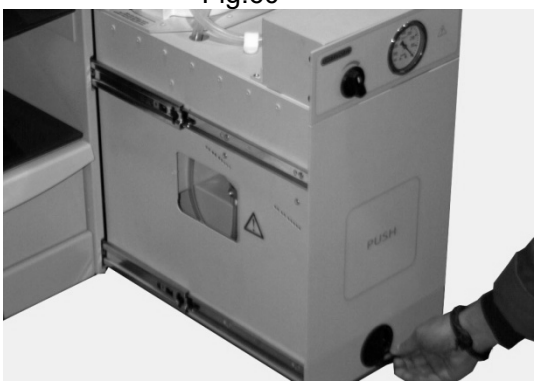


Fig.62

Fig. 63

9.1. AUTOMATIC WASTE BIN

The bin **M8** can be opened automatically by means of the two buttons **M16** and **M16A** at the bottom of the unit. (Fig. 64)
The drawer can be closed by pushing with the foot on the label **M17**. (Fig. 65)
The bin has electromagnetic activation.

Fig.64

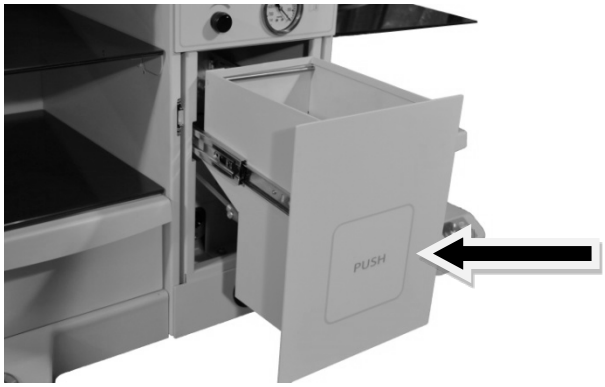


Fig. 65

9.2. BOTTLE

secretion bottle is located behind the waste bin. (Fig. 66)

⚠	Before using the secretion vessel for the first time, remove the wrapper from it.

In the OPTIMUS unit you can mount different vessels for secretions, these contained in the table of technical specifications of this manual.

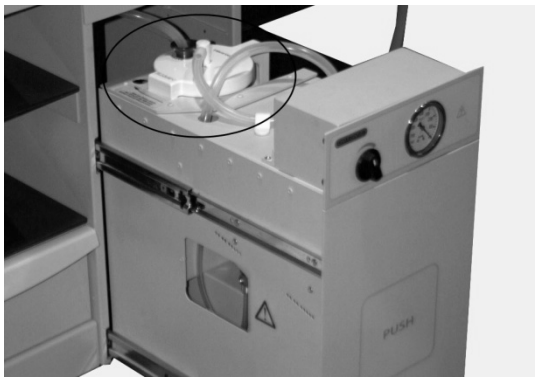


Fig. 66

Connected vessel secretions:

- Connect "patient" end to its corresponding flexible connection also marked with the text "patient".
- Connect “vacumm” end to its corresponding flexible connection also marked with the text “vacumm”.

9.3. CONECTIVIDAD FUNCIONAMIENTO

The OPTIMUS ENT unit features internal electrical socket strips to power the external devices with mains voltage and 12v low voltage with a total maximum power of 1725W. To access them, open the rear doors (Fig. 67).
At the top of each strip there are 4 IEC-C13 connections of mains voltage **d1**. Under these, there are 4 banana connections **d2** to connect equipment to the equipotential (see accessories). (Fig. 68)

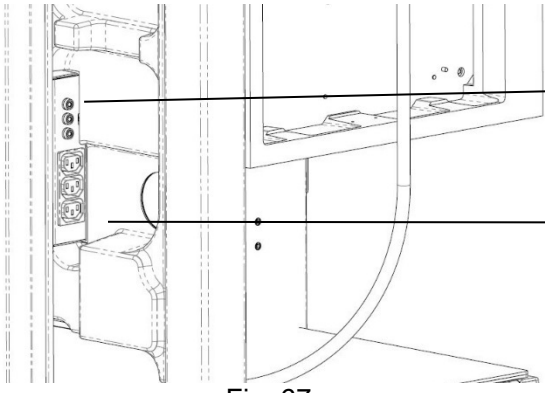


Fig. 67

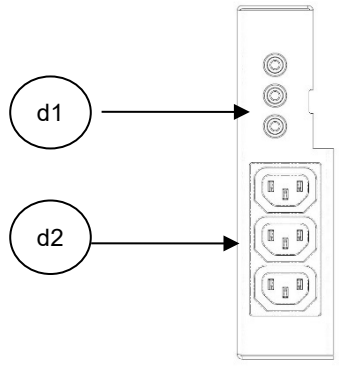


Fig. 68

3.7.1 Connectivity 230V (110v under request)

To connect endoscopy equipment or other devices to the unit (230V~ or 110v under request), attach the short cable **CB1**, No. KC-7955 (OPTOMIC code) (Fig. 69), to the appropriate device and then pass it through the cable pass while placing on the shelf the device. (Fig. 70)
Plug the cable into the socket, ensuring that the doors can be closed.

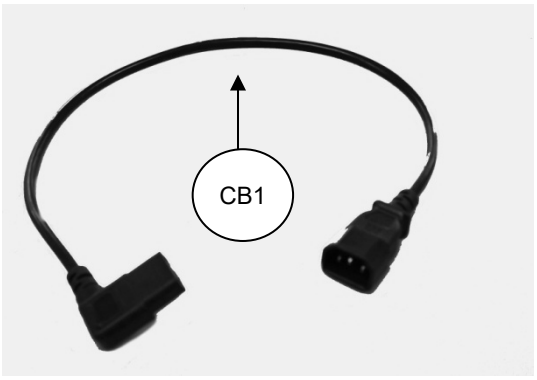


Fig. 69

Fig. 70

3.7.1 Connectivity 12 V ⎓

To connect the low voltage peripheral devices (12v), such as an OP-TV6 or a monitor, connect cable **CB2** No 80171098/96 (OPTOMIC code) (see accessories) (Fig. 71) to the corresponding device and to the socket strip (Fig. 72).

9.4. SUCTION

The OPTIMUS ENT unit features an independent and powerful suction system with a storage capacity of 1.5 litres.
Suction power is measured with the vacuum gauge **M9** and it can be regulated using the vacuum limitation control **M10**. This regulation will be done by the specialist, who will be able to achieve less vacuum turning the control anticlockwise and more suction turning it clockwise.

NOTE	the vacuum gauge values serve merely as guidance.

	the suction control is very important for patient safety reasons. This the specialist who regulates it will be responsible of its use.

The aspirator is inserted into the suction hose **M11**, which is placed in a holder on the side **M12**. The holder contains a sensor that starts the pump when the hose is removed and stops suction when the hose is replaced. (Fig. 73 and 74).
After 5 minutes of use suction will stop for safety reasons. To switch it on again hook and unhook the hose from its support.

Fig. 73

Fig. 74

⚠	***CAUTION: IF THE SUCTION IS INSUFFICIENT, PLEASE REFER TO THE TWELVE "FAULTS" SECTION OF THIS MANUAL FOR TROUBLESHOOTING.***

9.5. RIGID AND FLEXIBLE ENDOSCOPE HOLDERS

They are located at the back of the unit.
The central support **M22** with the four plastic sheaths **TP1** can be washed and disinfected. They hold rigid endoscopes, and enable them to be placed, after cleaning and sterilization, in a ready-to-use position and kept close to hand for the various procedures.
Two supports to each side of these **M26** and **M26A**, provide housing for a closed perspex tube **MT1**, which can be filled with sterilizing liquid, and another perspex tube **MT2** (open), to hold the nasopharyngoscope.

⚠	**due to the convenience of having a support for the fiberscope with sterilizing liquid, it is easy to forget it and this may damage the plastic parts of the flexible endoscope. For this reason we recommend the use of an alarm to indicate maximum time of sterilization**

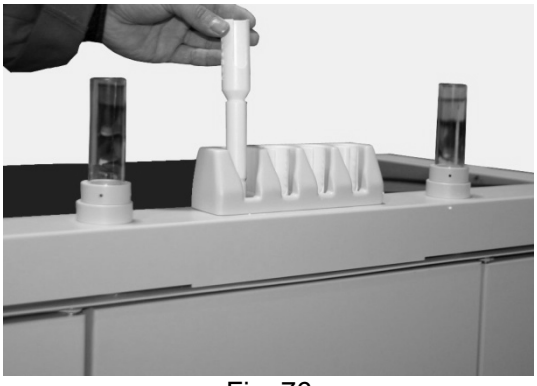


Fig. 76

10. MAINTENANCE

10.1. WASHING THE BOTTLE

1. Pull the drawer **M8** out completely, using the handle **M7**, leaving in view the secretion bottle and its tubes. (Fig. 81 and 82)
2. Remove the connections of the tube **VACUUM** to the bottle. (Fig. 83)
3. Remove the connections of the tube **PATIENT** to the bottle. NOTE: if the connector is strongly fastened due to suction, use the key **K9** to lever it out. (Fig. 84)
4. Place the tube PATIENT in its provisional housing to clean the bottle. (Fig. 85)
5. Remove he bottle for cleaning (Fig.86).
6. To replace the bottle follow above steps in reverse order.
7.

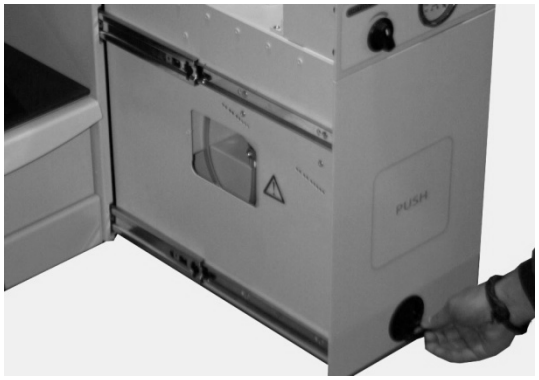


Fig. 81

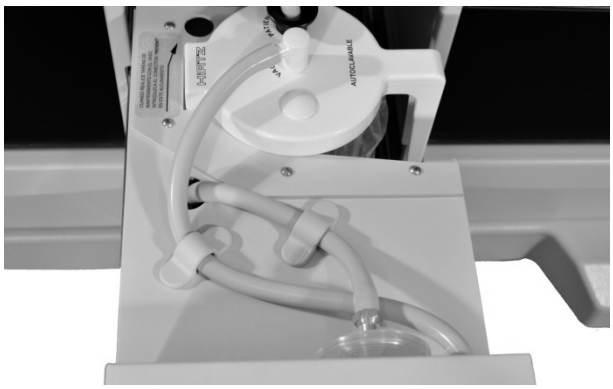


Fig. 82

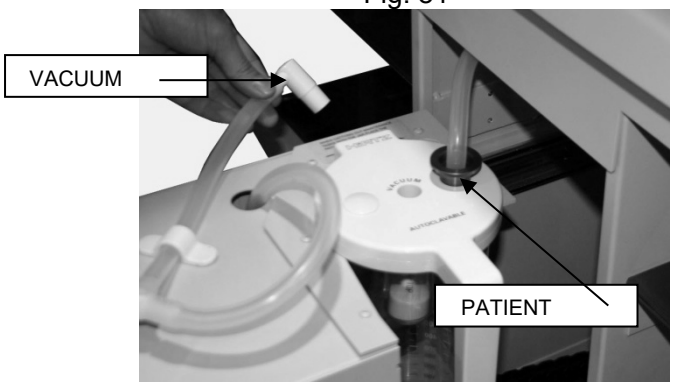


Fig. 83

Fig. 84

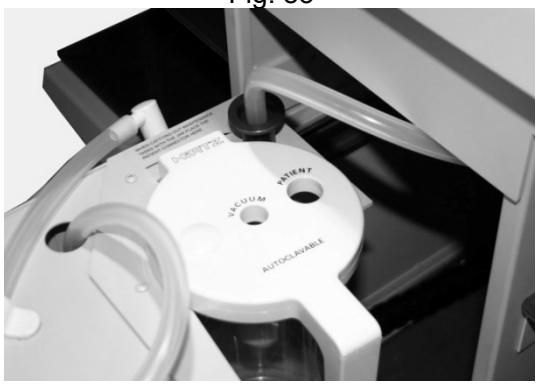


Fig. 85

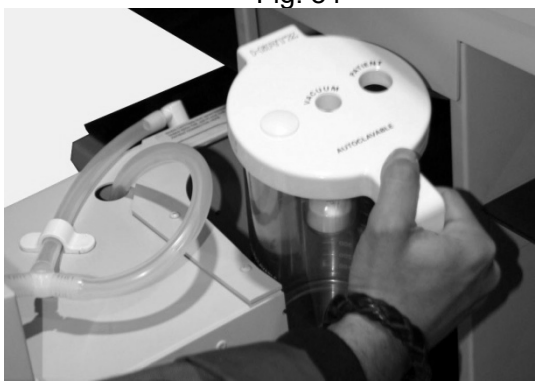


Fig. 86

10.2. CHANGING THE BIN BAG

1. Open the bin **M8** by pressing either of the lower buttons **M16** and **M16A**. (Fig. 87)
2. Remove the bag by lifting out the metal rim. (Fig. 88)
3. Detach the bag from the rim. (Fig. 89)
4. Attach a new bag to the rim and place it in the bin.
5. To leave the bag well positioned, place the hose in the hole in the bin and vacuum. (Fig. 89.a)

Fig. 87

Fig. 88

Fig. 89

Fig. 89.a

10.3. REPLACEMENT OF SECRETION SUCTION CIRCUIT AND BACTERIOLOGICAL FILTER

After using the suction, the channels must be cleaned, suctioning around 100 cm3 of water with disinfectant solution. Periodically it is advisable to replace all the silicone parts of the secretion suction circuit of the suction system, as well as the filter.

1. Remove the suction hose **M11** from its holder **M12**. (Fig. 90)
2. Locate the hose output above the right or left glass shelf, which is fixed by a magnetic bracket, and remove it. (Fig. 91 and 92)
3. Open the central drawer **M8** and pull it out completely. (Fig. 93) (if it is more convenient, it can be completely removed)
4. Follow the path of the tube, locate the pieces that hold the tube in place on the right hand side and unscrew the pieces. (Fig. 94 and 95)
5. Remove the whole tube. (Fig. 96)
6. Remove the remaining tubes from their connectors **VACUUM** and **PATIENT**, as well as their magnetic brackets and filter. (Fig. 97-103)
7. Fit the new tube, passing it first through the ring inside the central drawer and placing the threaded part that attaches them (Fig.95). Connect the tube to all of its connectors (previously sterilized, they admit autoclave) and secure it in the same way that it was removed.
8. Figures 101-103 show how to remove and replace the bacteriological filter, Ref. 2200-55.

NOTE	The bacteriological filter should be replaced periodically, never exceeding 10 hours of use (not life). A weekly visual inspection is recommended.
	The filter instantly blocks any liquid that comes into contact with it. It is a protective measure. The filter should be replaced to prevent excessive moisture or water droplets from partially blocking it and causing the pump to have less suction power.

⚠	The bacteriological filter Ref. 67639056 (box of 4 units), must be renewed periodically and should never exceed 10 hours of use, although a weekly visual check is recommended. The suction tubes, ref. 67639049, should be changed periodically as the user sees fit and depending on use.

Fig. 90


Fig. 91

Fig. 92

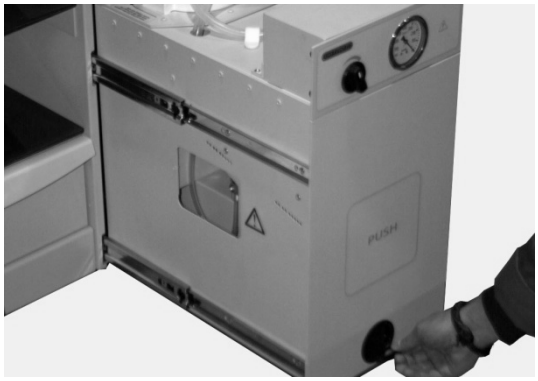


Fig. 93

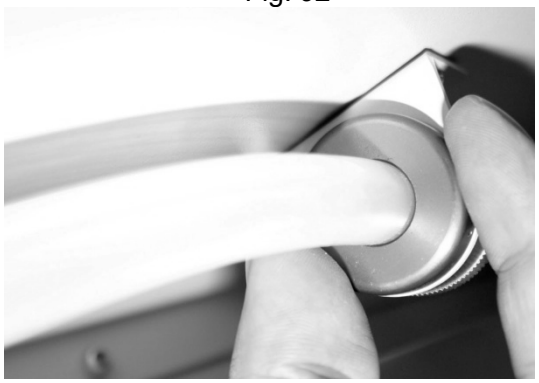


Fig. 94

Fig. 95

Fig. 96

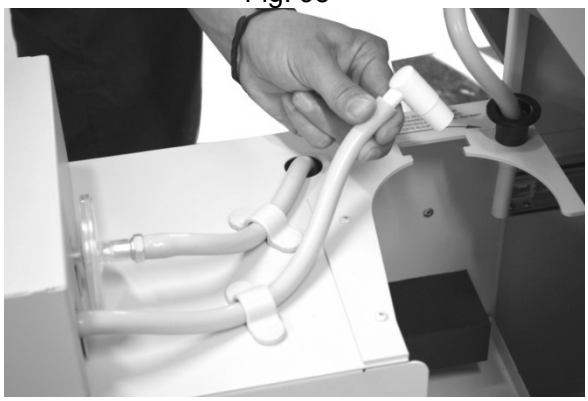


Fig. 97

Fig. 98

Fig. 99

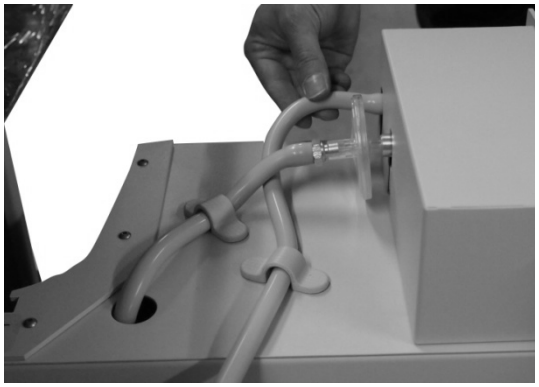


Fig. 100

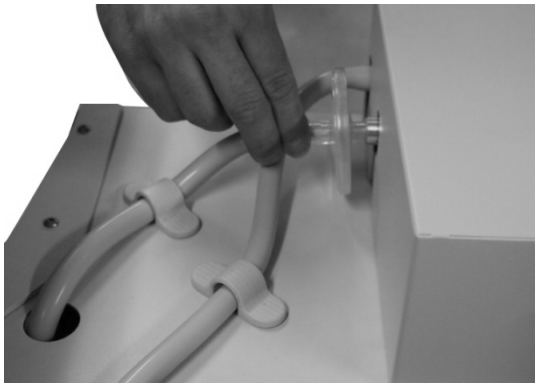


Fig. 101

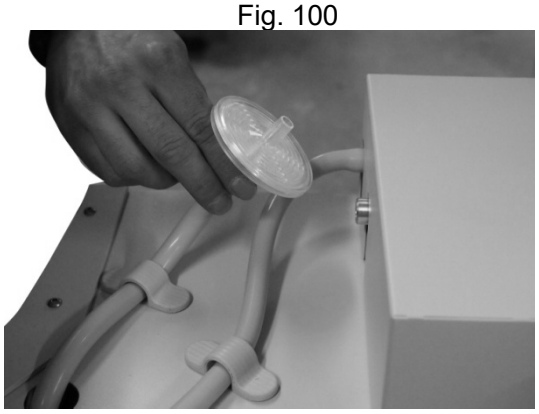


Fig. 102

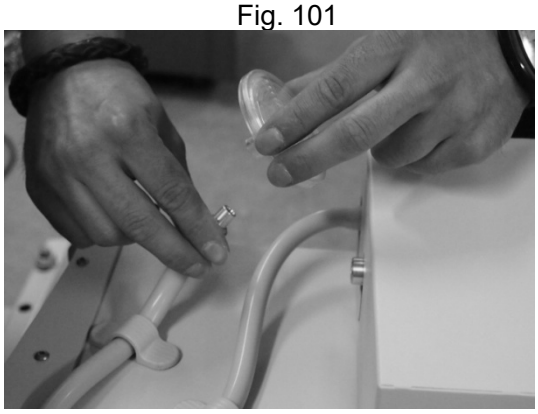


Fig. 103

10.4. VACUUM PUMP MAINTENANCE

The suction pump OPTOMIC integrates in its ENT units, of the German brand BUSCH GmbH, has a suction close to the absolute thanks to its sophisticated system of lubricated blades, which allow it to reach -2 of the atmospheric vacuum.
In normal use*, the oil must be changed after 500-1.500 working hours, but it is advisable to check its level periodically in case it needs a top-up.

NOTE	*Normal use means that suction is always activated through a "Suction Terminal".

OIL LEVEL CONTROL:

1. Pressing the buttons **M16** or **M16A**, open the bin **M8** (Fig.104).
2. Looking under the bin with the help of a torch, check the level of the oil (Fig. 105).
3. If above step is difficult to carry out, proceed to pull out the bin by removing the silicone tension belts (Fig. 106-107) and then unblock the guides as shown (Fig 108-110).
4. This way the oil level can be checked comfortably.

OIL REFILL:

1. Remove the bin as shown (Fig.106,107 and 108)
2. Remove the protecting lid of the pump (Fig 111 and 112) with the Allen screwdriver **K1**
3. You can see the upper threaded cap **C1** of the vacuum pump (Fig.113)
4. Loosen and remove the oil cap **C1** (Fig.114) with the Allen key **K2**
5. Top-up with oil ISO-VG-32 or ISO-VG-22 (it is supplied in 60cc **L1**) with the syringe **L2** to the MAX mark (Fig.110)
6. Replace the upper cap (Fig.114)
7. Then follow the steps 1 and 2 in reverse order.

OIL CHANGE:
When the use time limit is over, or if you see the oil has changed colour or is not clear but rather milky, proceed to change all the oil as follows:

1. Remove the bin as explained earlier (Fig106,107 and 108)
2. Remove the protective lid of the pump (Fig111 and 112) with the Allen screwdriver K1
3. Under the pump place a small container or cloth for the used oil (Fig.116)
4. Remove the lower cap C2 (Fig 115) with the Allen key K2
5. Loosen and remove the oil cap C1 (Fig.114) with the same key.
6. Wait a few minutes until all the used oil has come out.
7. Remove the container or cloth with the used oil
8. Replace the lower oil cap C2.
9. With the syringe insert 60cc of oil (Fig.115)
10. Replace the upper cap (Fig.114)
11. Repeat above steps 1 and 2 in reverse order

Fig. 104

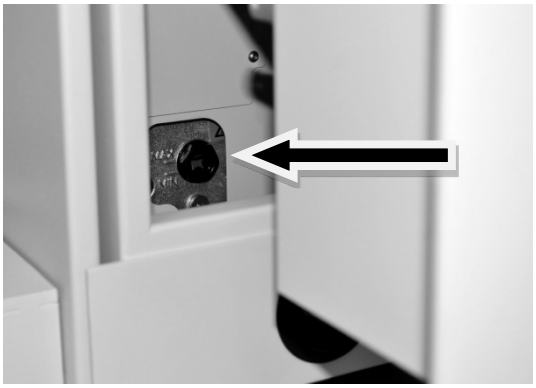


Fig. 105

Fig. 106

Fig. 107

Fig. 108

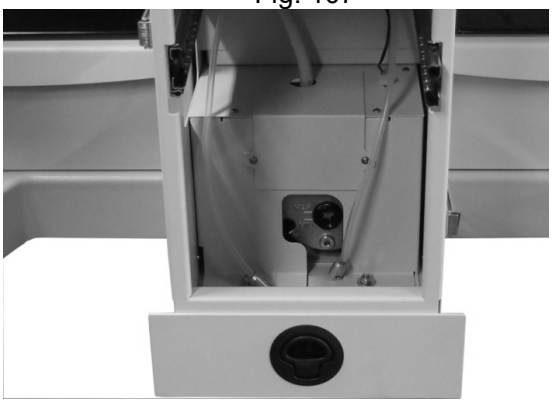


Fig. 109

Fig. 110

Fig. 111

Fig. 112

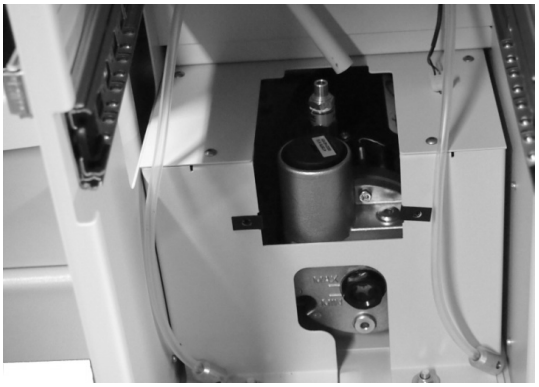


Fig. 113

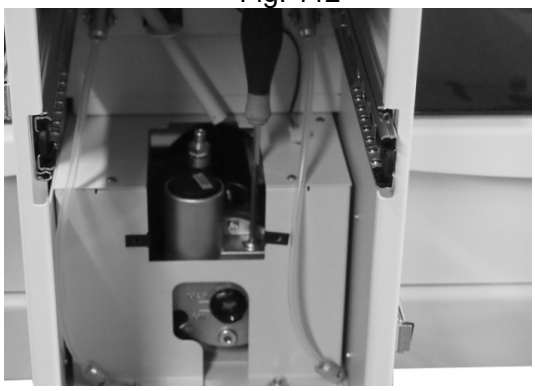


Fig. 114

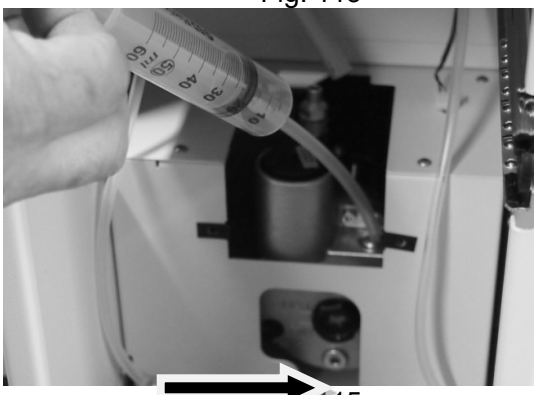


Fig. 115

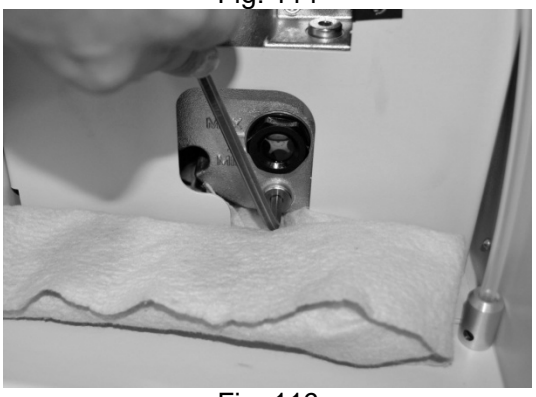


Fig. 116

10.5. CLEANING AND EXTERNAL SURFACES

To perform any cleaning or maintenance work disconnect the equipment from its power supply.

During the preparation and application of solutions, strictly observe the chemical manufacturer's indications regarding the concentration and the application time.

Disinfectant liquids are compounds that violently attack materials and over time cause them to lose their physical properties, so the use of these liquids should be limited as much as possible.

For cleaning and disinfection of the external surfaces of the equipment, use a clean cloth, just moistened with a disinfectant solution (contamination according to the instructions of the substance manufacturer).

DESINFECTANTE	FABRICANTE
Dismozon plus	Bode Chemie, Hamburg
Green & Clean SK	Metasys, Rum (Austria)
Sani- Cloth active	Ecolab, Düsseldorf

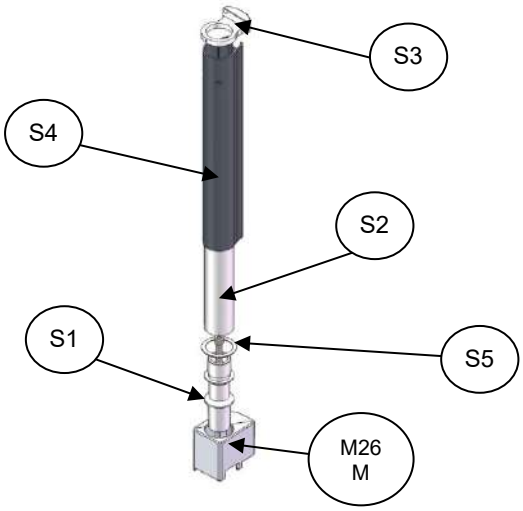
Check in each cleaning, the perfect state of conservation of all parts of the equipment.

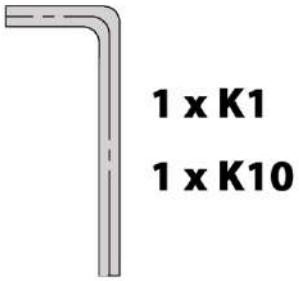
Periodic inspection: A professional expert should perform an inspection of the operation and safety of the device.

11. ACCESSORIES

11.1. MICROSCOPE SUPPORT

- Fastening cone = S1
- Column tube = S2
- Rotation limit = S3
- Cable pass sheath = S4
- Antifriction washers = S5
- Left trim = M26M
- Right trim = M26AM





TOOLS

MICROSCOPE SUPPORT ASSEMBLY

1. Remove the parts from their packaging (Fig.1)
2. Determine whether it will go on the left or the right
3. Remove the threaded part **M26B** (put it away for possible future use) which is over the trim **M26** or **M26A** (Fig.2)
4. Remove the corresponding plastic trim **M26** or **M26A**
5. Place the fastening cone **S1** matching up the red dot with the red line in the square tube. Then give it a little tap (Fig.3)
6. With the 10mm Allen key **K10** adjust moderately the internal screw (Fig.4)
7. Introduce in the cable housings at the back of the unit the supply cable **CB3** and, if necessary, the supply cables for the 12v monitor **CB2** (accessory) and/or the beam splitter with camera. Also, if required, the equipotential cable **CB5** (accessory) (Fig.5)
8. Thread the fastening cone **S1** to the tube column **S2** (Fig.6)
9. Leave enough length of cable to connect with the microscope, leaving a suitable loop. Length from the unit output to **CB3**, **CB5** and **CB2** (monitor) 994 mm and **CB2** (beam splitter) 1510 mm (Fig.6)
10. Insert over the cable ends the new trim **M26M** or **M26AM**, provided with the monitor support, and down the tube column **S2** (Fig.6)
11. Insert also the antifriction plastic washers **S5** and behind, the cable pass sheath **S4** with the notch and the two oval holes looking up (Fig.7)

12. Over the tube column **S2**, and placing the cable pass sheath with the cables behind the unit. Over the tube place the rotation limit part **S3**, introducing both its pins in the cable pass sheath **S4** (Fig.8)
13. Then put the cable pass sheath in its position so its oval holes match with the screw holes to fix the microscope to the tube column (Fig.9)
14. Without moving the sheath, tighten the captive screws M5 with the key **K1**, after matching up the end of the captive screws with their holes in the tube (Fig.10)
15. The microscope support is ready to place the OP-C12 microscope on it.

When placing the OP-C12 microscope on this support, remember to tighten the captive screws on the tube column S2 through the oval holes.
NOTE: supports for other microscope brands can be provided upon request.

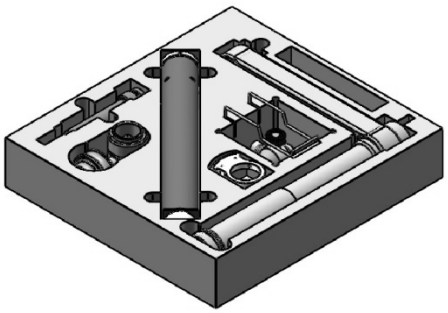


Fig. 1

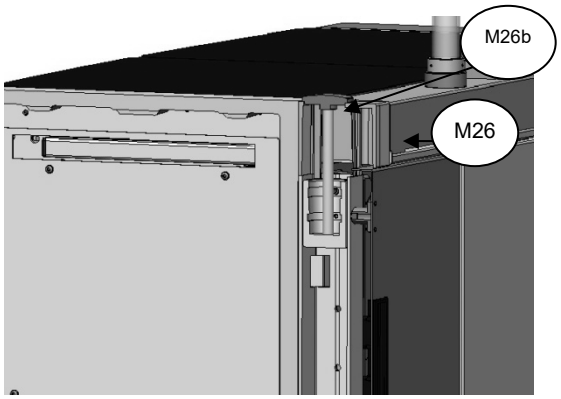


Fig. 2

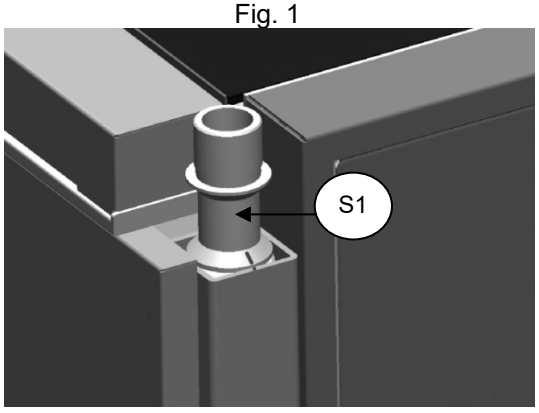


Fig. 3

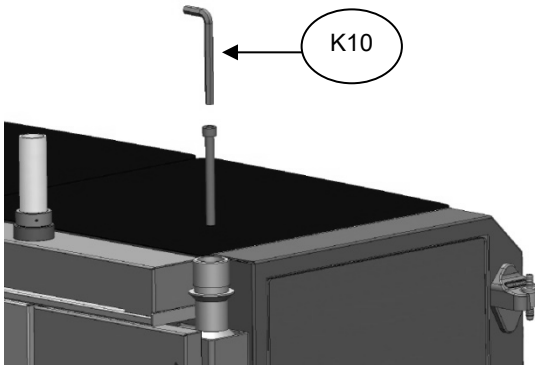


Fig. 4

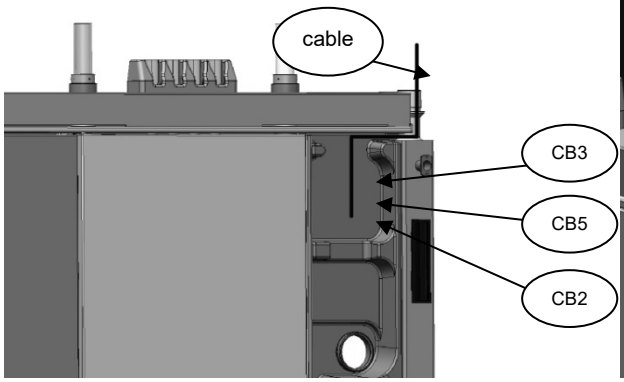


Fig. 5

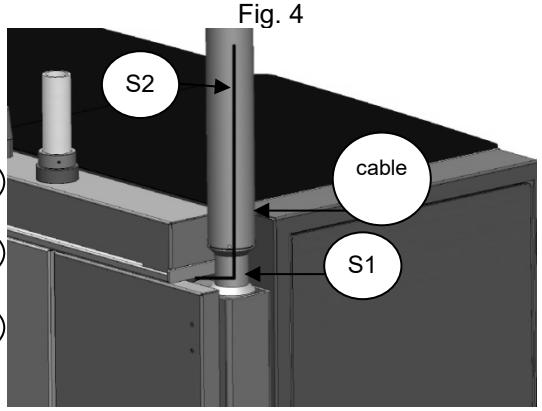


Fig. 6

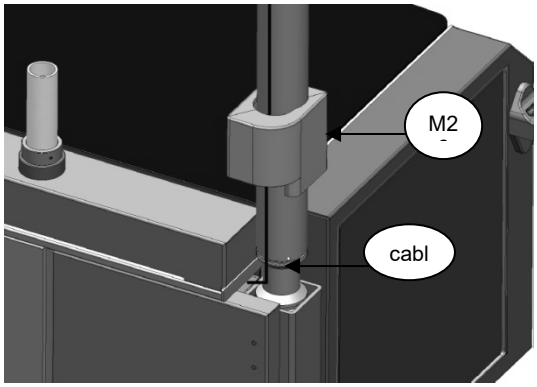


Fig. 7

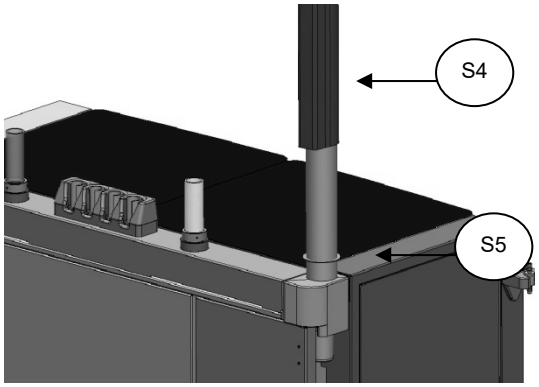


Fig. 8

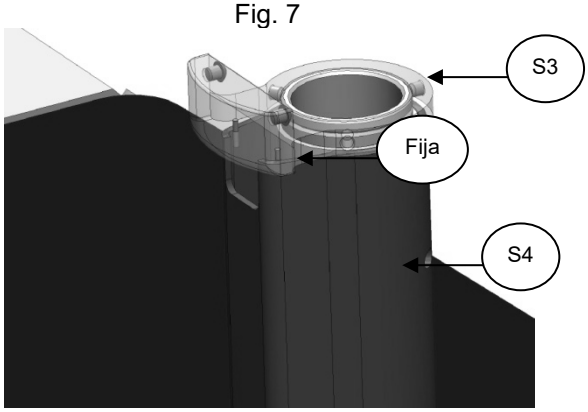
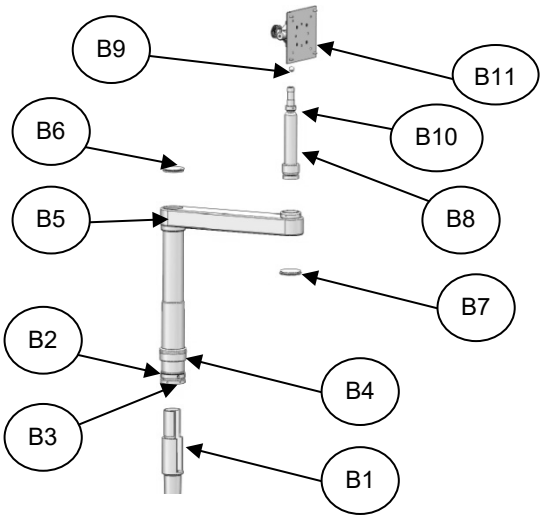


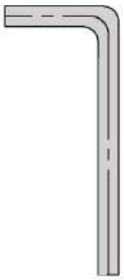
Fig. 9

Fig. 10

11.2. LATERAL MONITOR SUPPORT MT11

- Cable pass axis cone= B1
- Rotation strap= B2
- Tube-support union= B3
- Threaded trim= B4
- Elbow arm= B5
- Threaded upper lid= B6
- Threaded lower lid= B7
- VESA support axis= B8
- Ø 11 ball= B9
- Antirotation ring= B10
- VESA support= B11



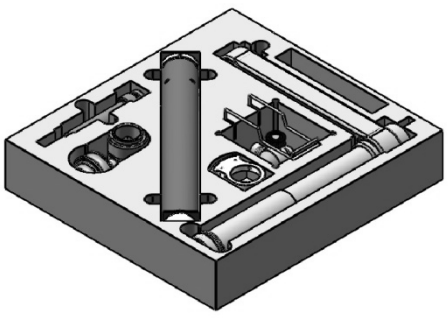


1 x K4

1 x K10

TOOLS

1. Remove the parts from their packaging (Fig.1)
2. Determine whether it will go on the left or the right
3. Remove the threaded part **M26B** (put it away for possible future use) which is over the trim **M26** or **M26A** (Fig.2)
4. Remove the corresponding plastic trim **M26** or **M26A**
5. Place the cable pass axis cone **B1**, making its slot face the endoscope holders, and parallel to the doors. Then give it a little tap (Fig.3)
6. With the 10mm Allen key **K10** adjust moderately the internal screw (Fig.4)
7. Place the support on a stable surface as taken out of the packaging (Fig.5)
8. Remove the threaded lids **B6** and **B7** (Fig.6)
9. Pass the cables (CB-3 if the monitor is connected to the mains directly or CB-2 if it is connected to 12v, plus video cable connections BNC, Mini DIN, VGA, DVI, HDMI, etc) through the inside of the tube to the other side, helping them pass through the elbow with your fingers. Let them out around 50 cm, to form a loop to allow the monitor to turn. The output length of the cables will vary depending on the connections and size of the monitor (Fig.7)
10. Pass the trim **M26** or **M26A** over the cables (Fig.8). Grab the support and take it to the unit to introduce the cables in the cone slot and take them inside the unit to the cable housing, lower the trim to its position, insert the tube-support union **B3** in the cable pass axis cone **B1**, while trying to lower the cables to the inside (Figs.9 and 10)
11. NOTE: the lateral monitor support has limits for rotation. This limitation has two options of angular movement, one wider than the other (Fig.11)
12. Once the support is mounted on the unit, turn it left and right until its limits are in the desired position. Then adjust the captive screws M3 with the key **K4**. Do not adjust the screws that match with the cable pass slot of the cable pass axis cone **B1**, as they cannot be adjusted (it was oriented to the interior of the unit). Finally lower and adjust the knurled trim (Fig.12)
13. If you wish to modify the rotation of the support between limits, before adjusting the captive screws M3, turn to one of the limits and then, holding the rotation strap **B2**, lift the support 2 cm and turn it in the same direction around 15º more. This way we enter the other section and then we can lower the support and adjust it as in step 12. (Fig.13)
14. On the upper end of the support, place the VESA support axis **B8**, passing the cables through the slot. Then adjust the three captive screws M3 (Fig.14)
15. Screw the VESA support to the monitor, place the Ø 11 ball **B9**, and place the VESA support on the axis of the monitor support. Then with the corresponding captive screw place the antirotation ring **B10** so the turn is limited to avoid damage to the cables. (Fig.15)
16. On the back of the unit, connect all the cables to the supply or to the video broadcast, gathering up the excess (Fig.16)
17. If the signal cables must be taken from one door to the other, the unit has an interconnection tube which will make this operation easy and tidy (Fig.17)



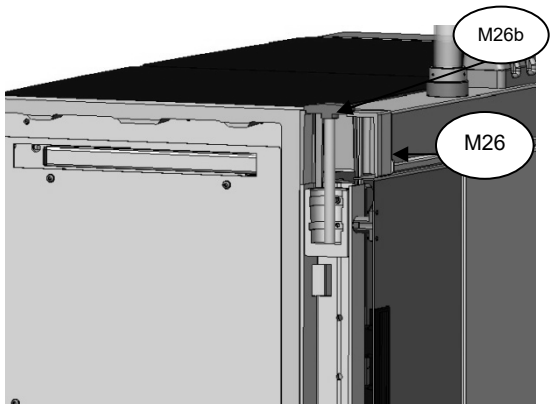


Fig. 1

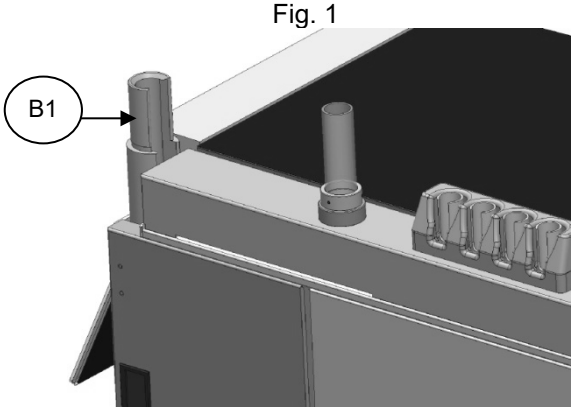


Fig. 2

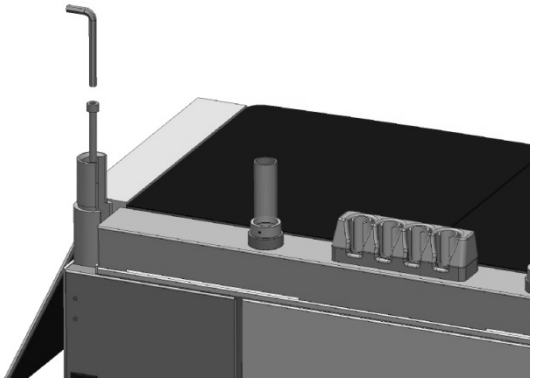


Fig. 3

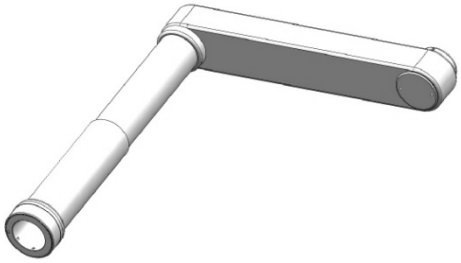


Fig. 4

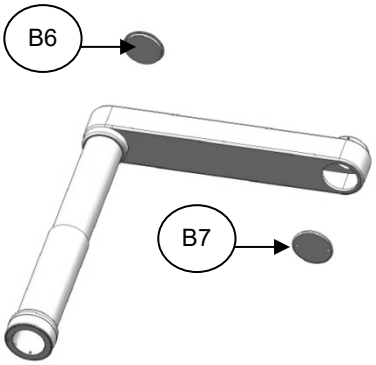


Fig. 5

Fig. 6

Fig. 7

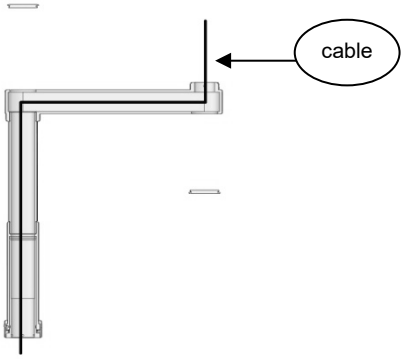


Fig. 8

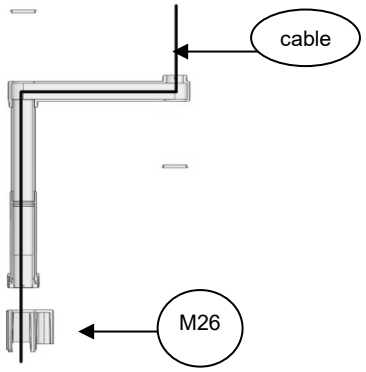


Fig. 9

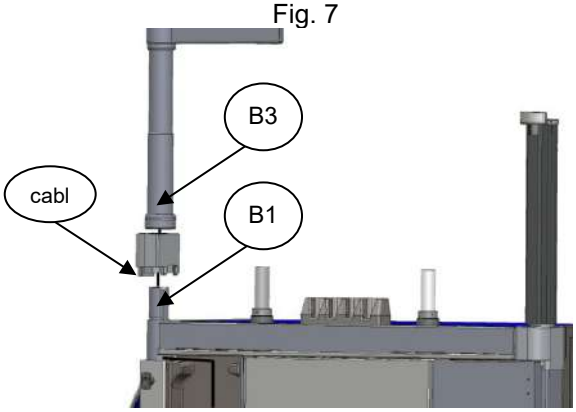
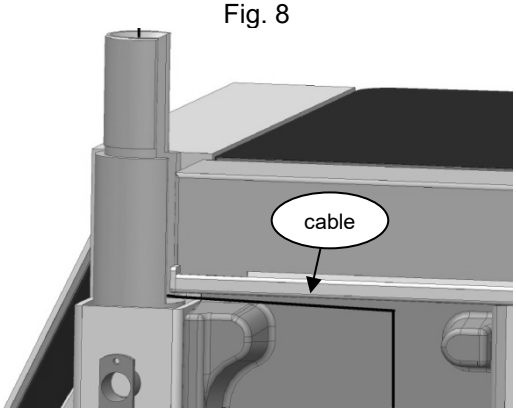


Fig. 10



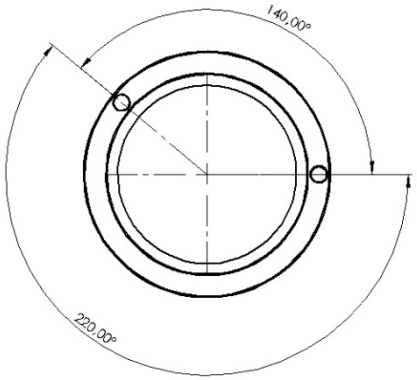


Fig. 11

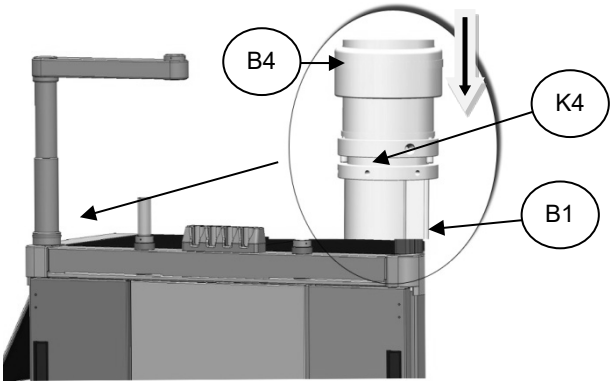


Fig. 12

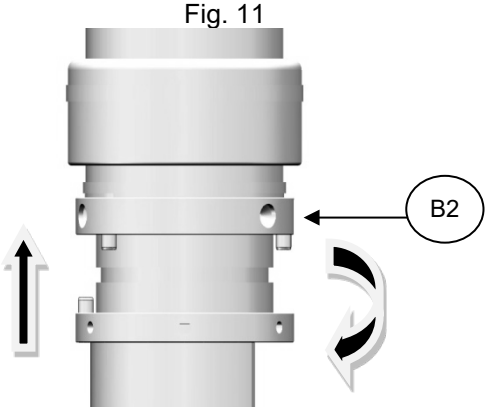


Fig. 13

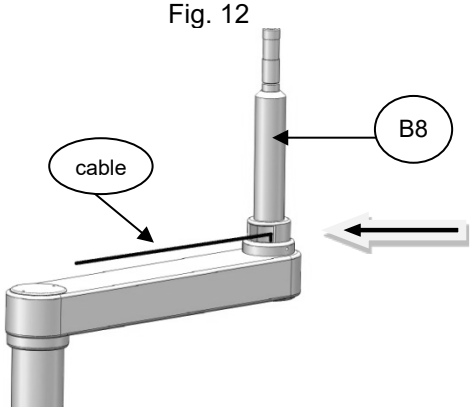


Fig. 14

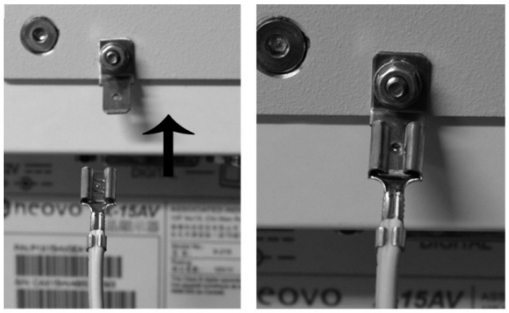


Fig. 15a

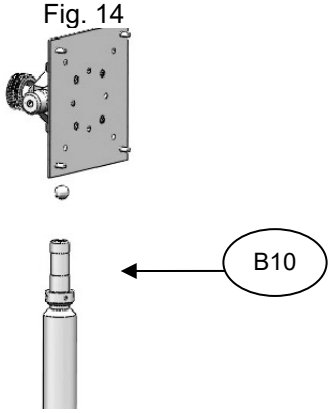


Fig. 15

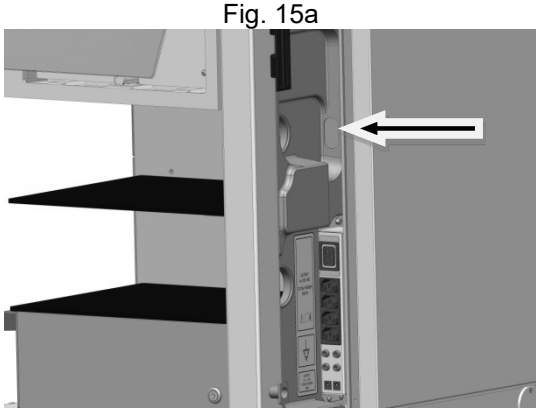


Fig. 16

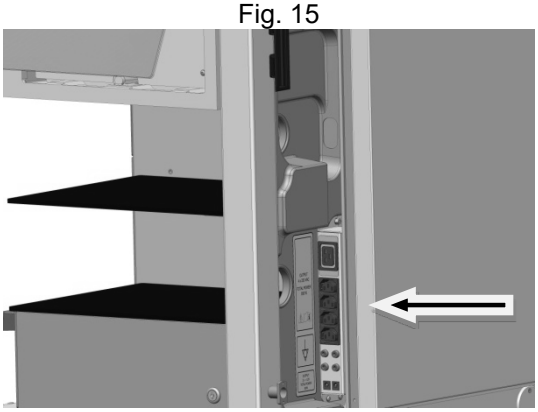
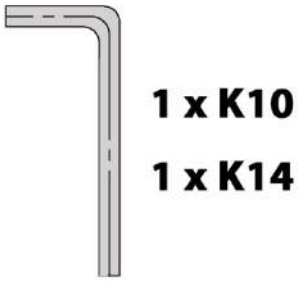


Fig. 17

HOW TO REMOVE A SUPPORT FROM THE OPTIMUS UNIT

When removing a support from the unit, or changing sides, proceed as follows:

1. Do all steps explained either for the microscope support **MM1** or for the lateral monitor support **MT1** but in reverse order.
2. Taking away the removable parts of the supports, you will see the fastening cone **S1** and the cable pass axis cone **B1** cannot be removed manually.
3. Inside each cone you will see a screw M12 which must be removed using the Allen key **K10**. This key has a retention ball which will permit the lifting of the screw once unthreaded. (Fig.1)
4. Introduce in the cone the M16 screw **T1** and with the key **K14**, adjust it until the cone is loose in its housing and remove it with your hand, so it is ready to remove the support or change it to the other side. (Figs.2 and 3)
5. If the support is going to be removed permanently, replace the plastic trim M30 or M26A, and over this the threaded part M26B (adjust it gently with your hand in order not to damage the trim).



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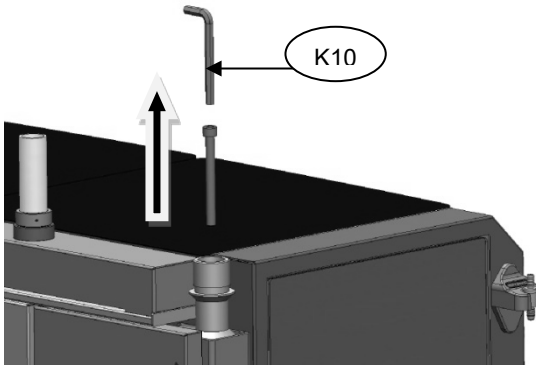


Fig. 1

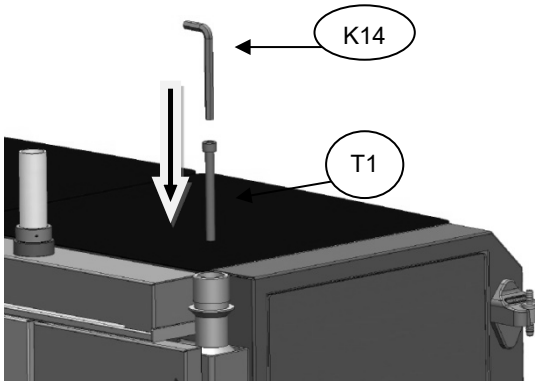


Fig. 2

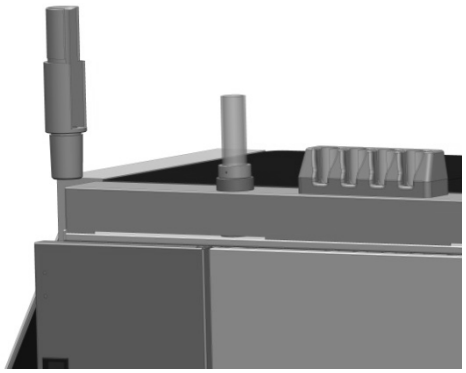
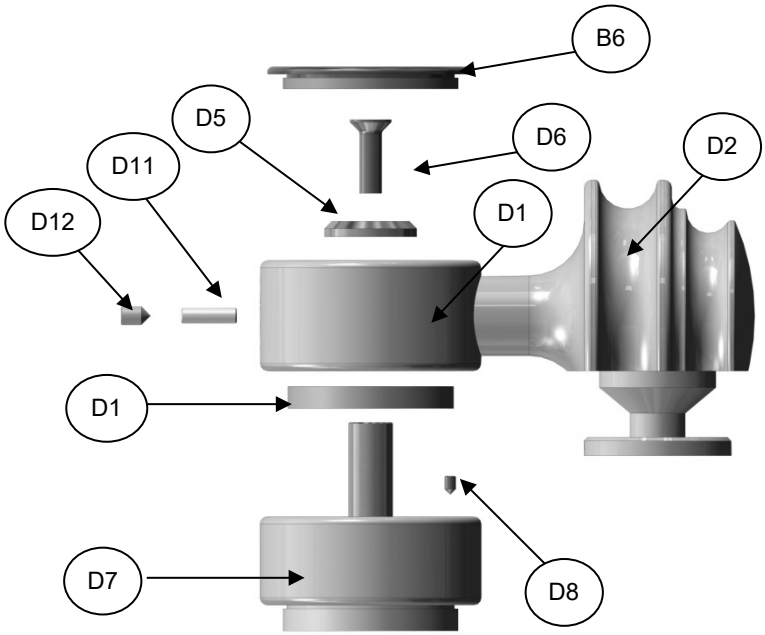


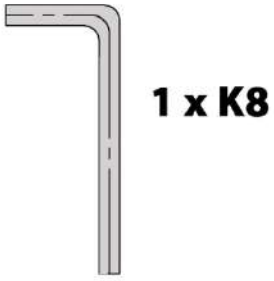
Fig. 3

11.2.1. CS-1a CAMERA HOLDER

(FOR THE LATERAL MONITOR SUPPORT

- Rotation body= D1
- Cable hanger= D2
- Camera head coupling= D3
- Separating washer= D5
- Screw M6= D6
- Arnite friction ring= D13
- Lockable threaded lower hub= D7
- Adjustment screws for threaded lower hub= D8
- Plastic axis= D11
- Rotation adjustment captive screw= D12
- Allen key 1,5mm= K8





TOOLS

1. Remove the threaded top lid **B6** of the lateral monitor support **B5** (Fig.1)
2. In its place screw the lockable threaded lower hub D7 and then adjust the three M3 captive screws **D8** with the 1,5mm Allen key **K8** (Figs 2 and 3)
3. Insert the Arnite friction ring **D13** on the hub axis (Fig.4)
4. On this part place the rotation body **D1** and attach it with the separating washer **D5** and the screw **D6** (Fig.5)
5. On the cross part of the rotation body there is a threaded hole. Insert the plastic axis **D11** and then the rotation adjustment captive screw **D12** with which we will adjust the stiffness so that the SC-1a camera support does not turn too freely (Fig.6)
6. On the rotation body **D1** thread the threaded upper lid **B6**.

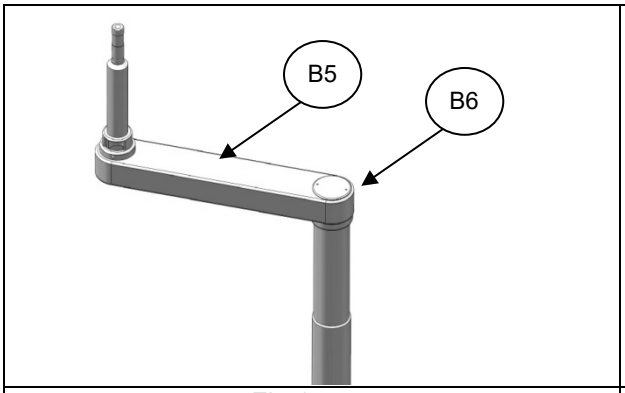


Fig.1

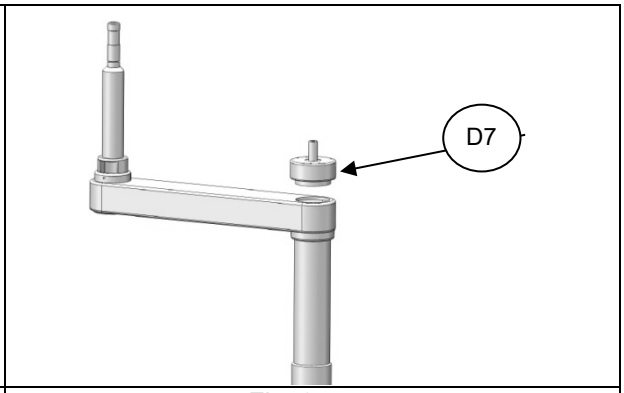


Fig. 2

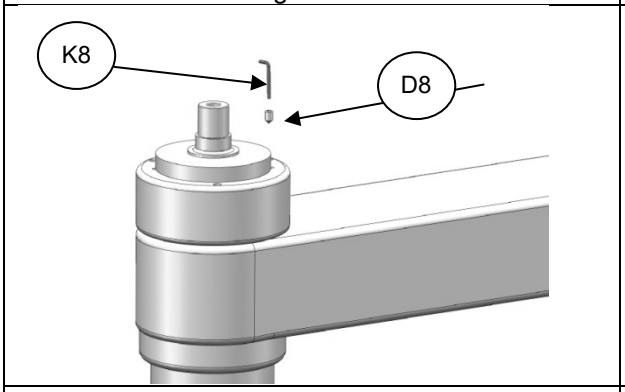


Fig.3

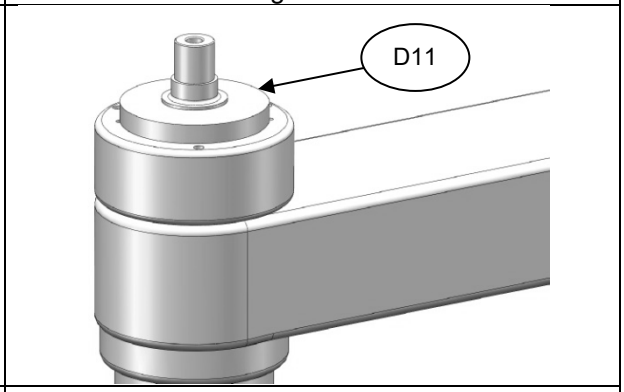


Fig. 4

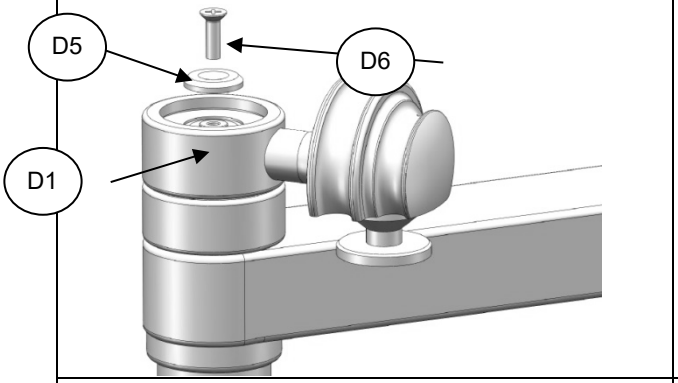


Fig.5

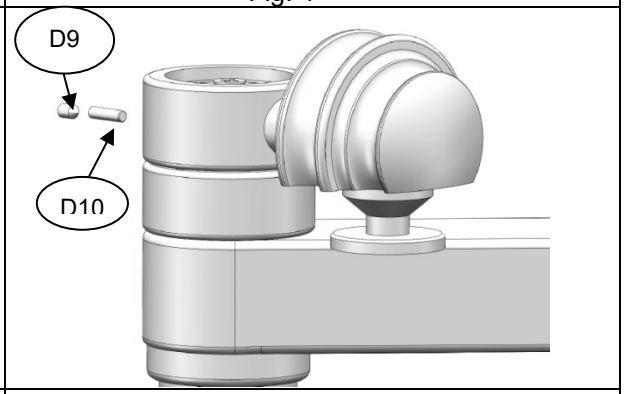


Fig. 6

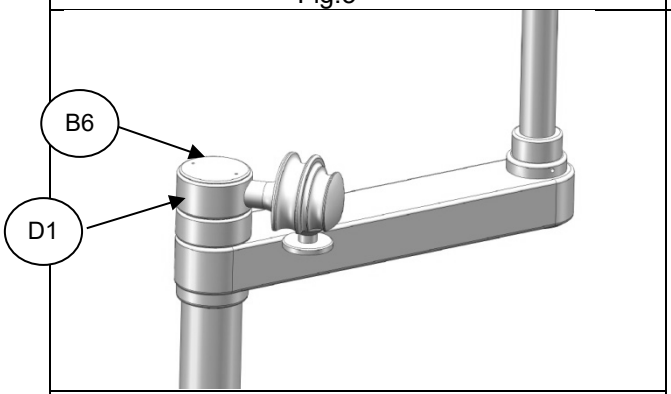
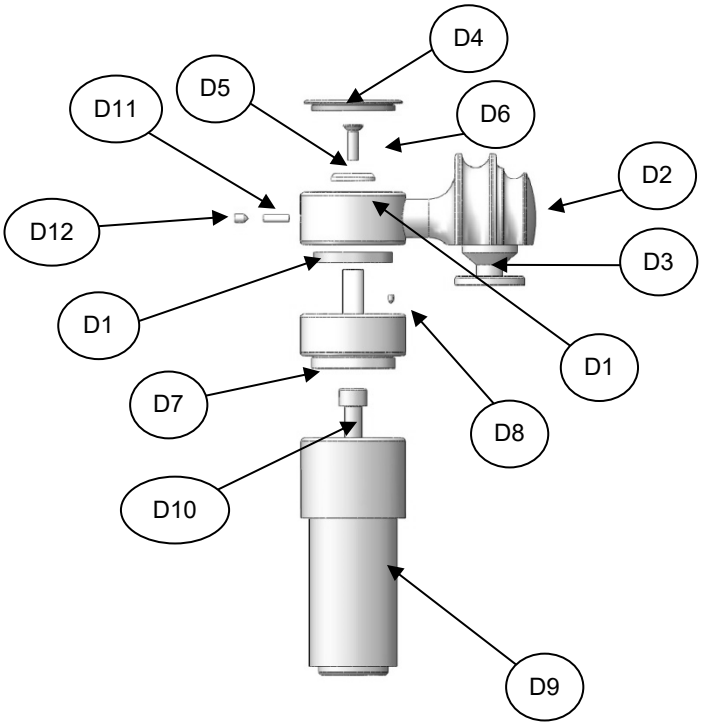


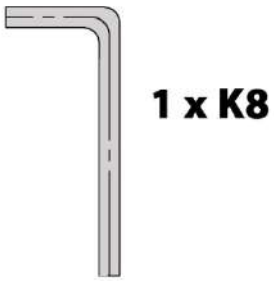
Fig.7

11.3. CS-1b CAMERA HOLDER

(FOR THE PLASTIC TRIM)

- Rotation body= D1
- Cable hanger= D2
- Camera head coupling= D3
- Upper threaded lid= D4
- Separating washer= D5
- Screw M6= D6
- Arnite friction ring= D13
- Lockable threaded lower hub= D7
- Adjustment screws for threaded lower hub= D8
- Lower fastening cylinder for plastic trim= D9
- M12 screw for lower cylinder= D10
- Plastic axis= D11
- Rotation adjustment captive screw= D12
- Allen key 1,5mm= K8





1 x K8

TOOLS

1. Determine on which side it will be installed
2. Remove the threaded part **M26b** which is on the plastic trim **M26** or **M26A** (Fig.1)
3. On the corresponding plastic trim **M26** or **M26A**, insert the lower fastening cylinder **D9** (Fig.2)
4. Insert in the part **D9** the M12 screw for lower cylinder **D10** and adjust with the Allen key **K10** (Fig.3)
5. On this part mount the camera support, the same as on the lateral monitor support steps 2, 3, 4 and 5.

6. On the rotation body **D1** adjust the upper threaded lid **D4**. (Fig.4)

Fig. 1

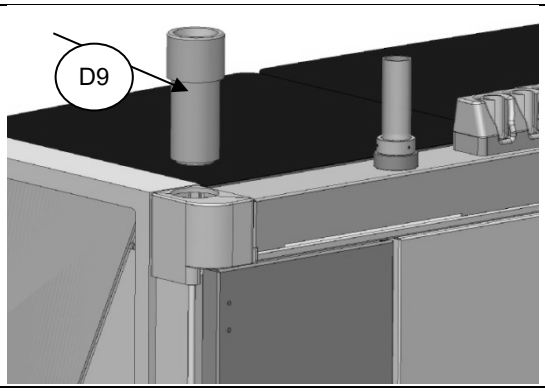


Fig. 2

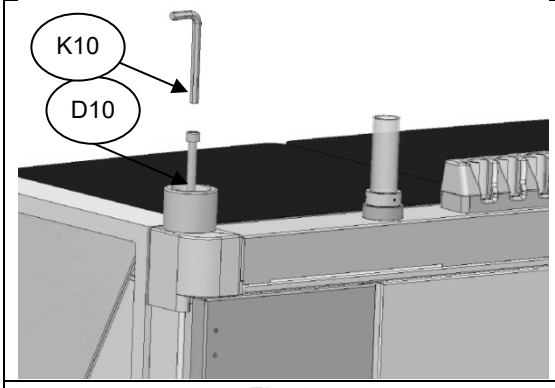


Fig. 3

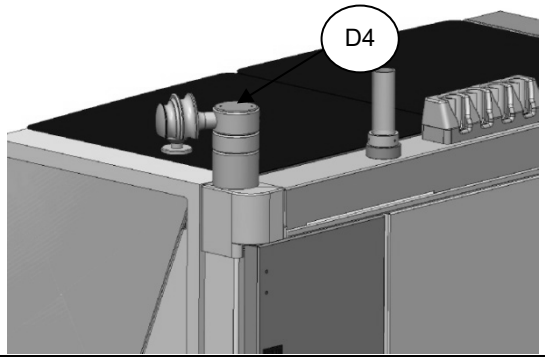


Fig. 4

11.4. CONTINUOUS DRAIN SUCTION UNIT

INSTALLLATION:

This accessory is factory installed inside the Optimus Unit, but it must have a water inlet from the building network and a drain.

Connect a ¼ ”hose (angled) [Fig. 3 Nº1] of the required length, at the water inlet of the rear socket of the Optimus Unit [Fig. 1 Nº1] and the other end [Fig. 3 Nº2] to the building network, inserting the attached pressure regulator [Fig. 2 Nº1] .On the other adjoining connector [Fig. 1 Nº2], install the 3/8 ”hose (angled) [Fig. 4 Nº1], and its free end to the drain [Fig. 4 Nº2].

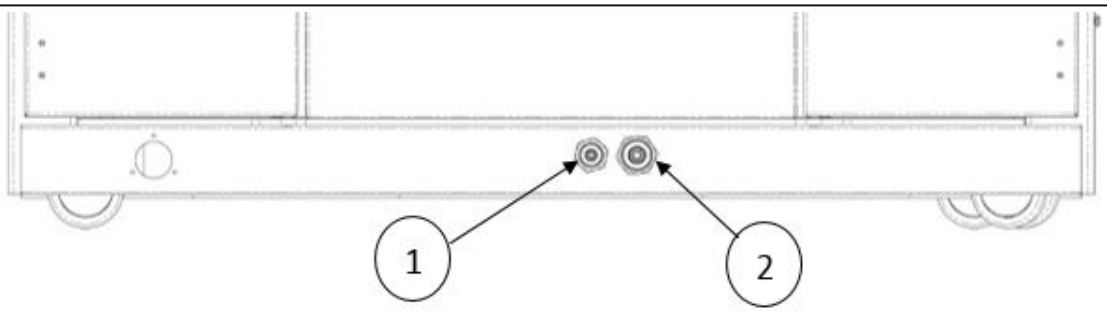


Fig. 1

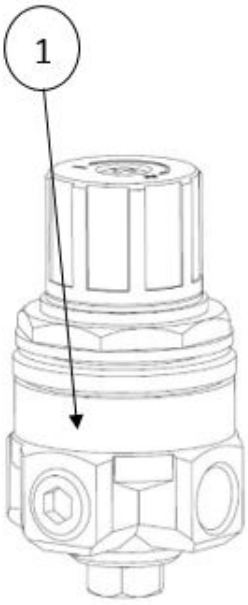


Fig. 2

Fig. 3

Fig. 4

FUNCTIONING:

Suction:

1. Start the Optimus Unit.
2. Lift the suction hose of said unit, [Fig. 1 Nº1] the secretion suction system is in operation.
3. Once this operation is done, you will put the hose back in its housing.
4. For a period of 40/50 seconds the system will not use the aspiration again, since the cleaning of the secretion vessel is being processed.

Insuflation:

1. Lift the insufflation hose from the Optimus Unit holder [Fig. 1 Nº2], the air flows.
2. Connect the vaporizer instrument (not supplied) to the gun [Fig. 2 Nº1].
3. To allow the spray to escape, cover the rear hole of the gun with your thumb [Fig. 2 Nº2].

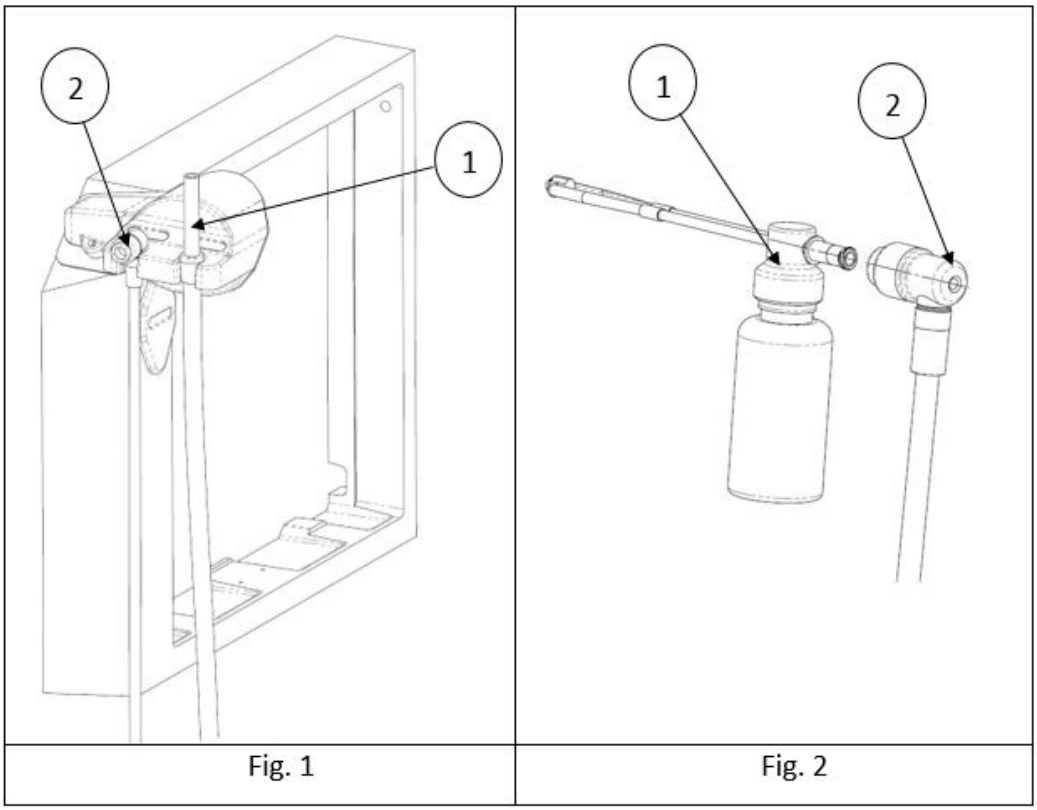


Fig. 1 Fig. 2

Maintenace

This equipment does not have a daily maintenance like the conventional system, but you should (visually) periodically monitor the condition of the hoses and especially the peristaltic pump.

⚠	***CAUTION: IF ANY OF THE FUNCTIONS OF THE CONTINUOUS DRAIN SUCTION UNIT ARE NOT WORKING PROPERLY, THE FOLLOWING FUNCTIONS MAY NOT WORK PROPERLY, PLEASE REFER TO THE TWELVE "FAULTS" SECTION OF THIS MANUAL FOR TROUBLESHOOTING.***

11.5. ELITE IRRIGATION UNIT

FUNCTIONS:

1. Water irrigator for ear washing.

2. Air insufflation for the use of spray.INSTALACIÓN:

This accessory is factory installed inside the Optimus Unit, but it must have a water inlet from the building network and a drain.

1. Connect a 1/4 "hose (angled) [Fig. 2 No. 1] of the required length, to the water inlet of the irrigation unit [Fig. 1 No. 1] and the other end [Fig. 2 No. 2] to the network of the building, inserting the pressure regulator attached [Fig. 4 Nº1] and the 20 micron filter [Fig. 5 Nº1].
2. On the other adjoining connector [Fig. 1 Nº2], install the 3/8 ”hose (bent) [Fig.3 Nº1], and its free end [Fig.3 Nº2] to the drain.
3. Install the irrigation gun [Fig. 6 Nº1], attaching the hose quick plug connectors [Fig. 6 Nº2] and [Fig. 6 Nº3], in those of the unit [Fig.1 Nº3] and [Fig.1 Nº4].
4. Connect the insufflation gun [Fig. 7 No. 1] by inserting the hose connector [Fig. 7 No. 2] into the fitting [Fig. 1 No. 5] of the unit.
5. Connect the power cable to the unit [Fig. 1 Nº6] and the other end to the power grid.

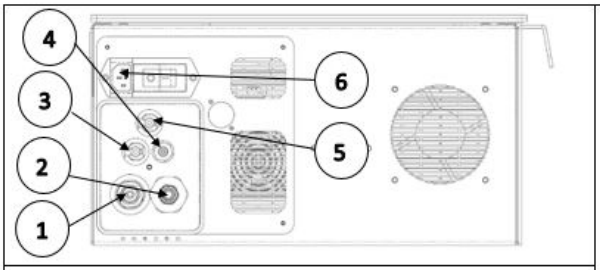


Fig. 1

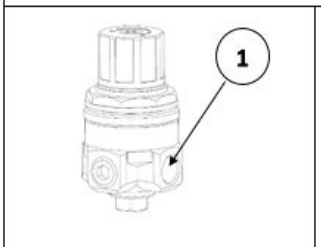


Fig. 4

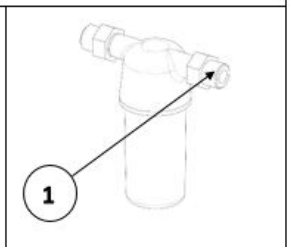


Fig. 5

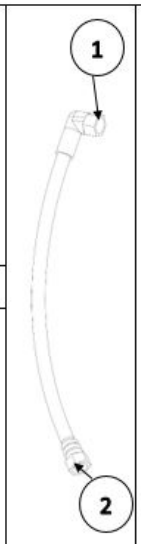


Fig. 2

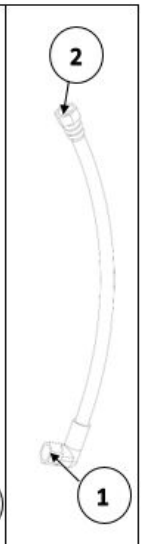


Fig. 3

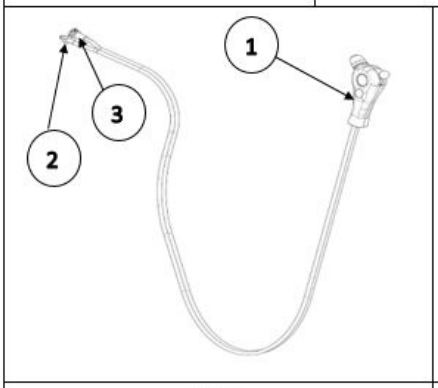


Fig. 6

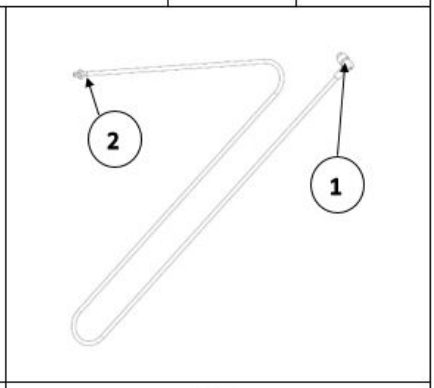


Fig. 7

FUNCTIONING:

Irrigator for ears with high temperature water treatment and UV light.
1. Turn on the device with the switch [Fig. 1 Nº1]
2. The superheat cycle of water at 70º starts for 5 min. The amber LED indicator [Fig. 2 Nº1], will shine intermittently in the accessory holder.
3. When the water reaches the wash temperature 36-38º C the green LED will turn on [Fig. 2 Nº2] enabling the use of the water gun.
4. The blue LED will also light next to the green LED, which will indicate the operation of the ultraviolet LED lamp [Fig. 2 Nº3]
5. To wash the ear, we will lift the wash gun [Fig. 2 Nº4] of your accommodation [Fig. 2 Nº5]. Immediately we proceed to perform the washing, orient the gun towards the patient's ear and regulate the water flow using the lever [Fig. 2 Nº6]
6. When we hang the gun in its housing, after 15 minutes without use, the system will turn off the water heater and ultraviolet light, to avoid unnecessary consumption. For a new use, the system will return to the beginning of the heating operation until its 37º. The cycle will be repeated as many times as necessary to use the irrigation gun.
7. The 70º superheat function will begin when the power supply is cut off and reconnected, being connected and spent 10 hours without having raised the gun.

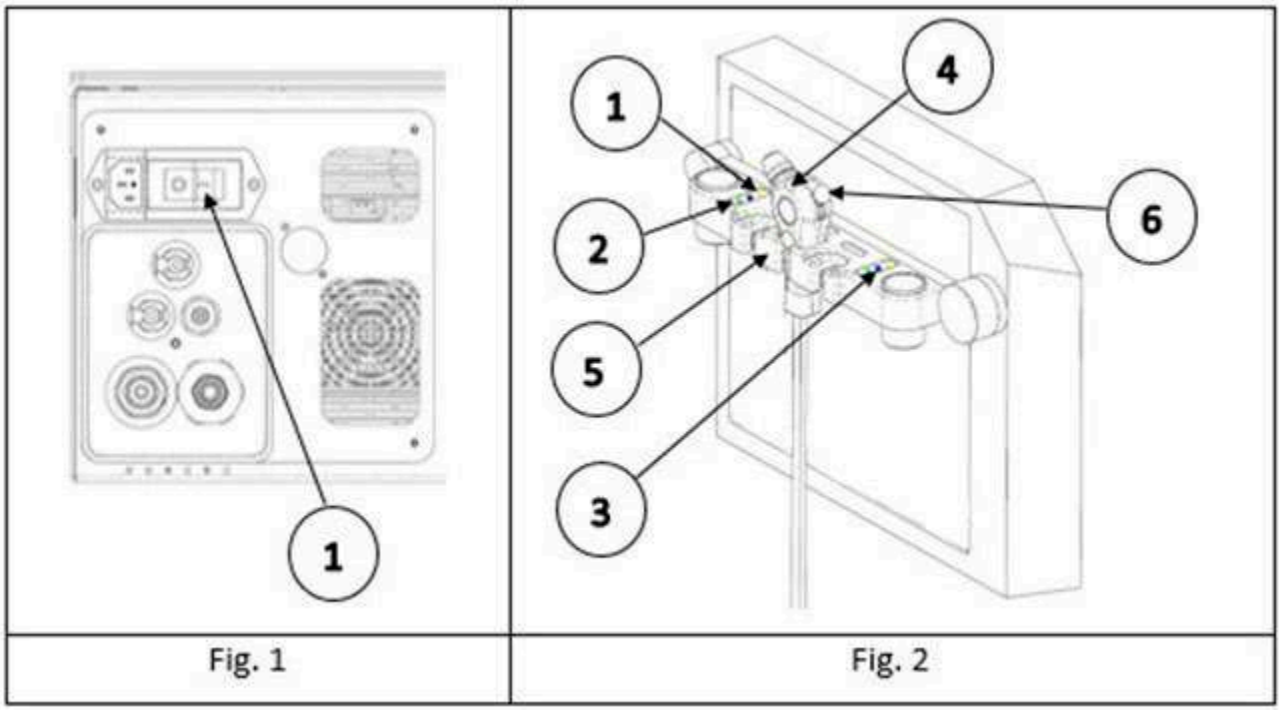


Fig. 1 Fig. 2

Air insufflation for the use of spray.

1. When lifting the insufflation gun [Fig. 1 Nº1] starts the air pressure.

2. Place the spray bottle (not supplied) in the gun housing [Fig. 2 Nº1], just by pushing one over the other.

3. For its operation, with the thumb, we cover the rear hole and allow the spray to spray. [FIG. 2 Nº2].

NOTE: The suction hose interacts with this accessory as a mere support [Fig. 1 Nº2], since the aspiration depends on the OPTIMUS ENT UNIT.

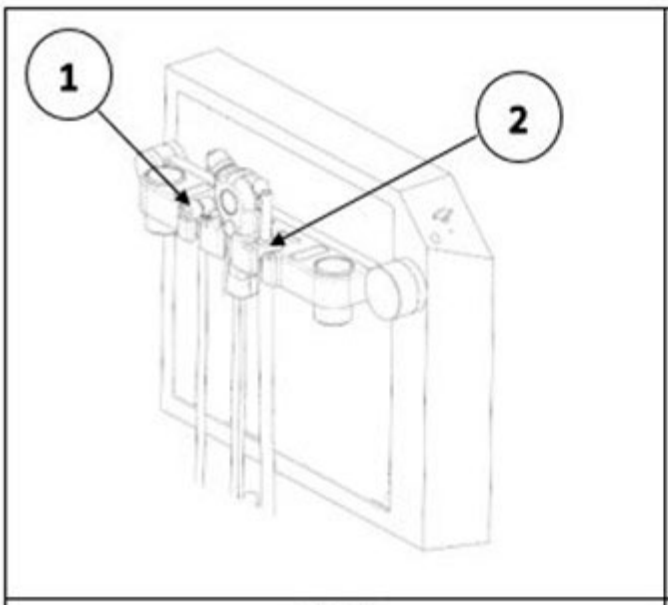


Fig. 1

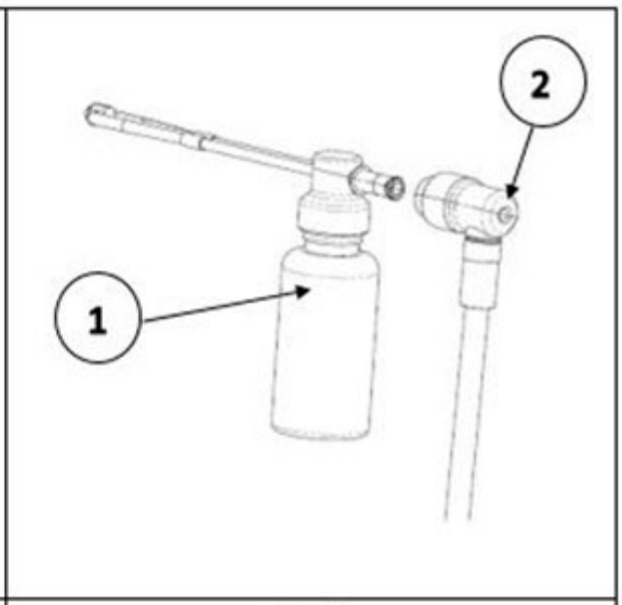


Fig. 2

Maintenance:

You must change the air filter every 30 hours. for use of the insufflator, to remove the glass cover (lift it by hand, it is only held by magnets [Fig. 1 Nº1].
Inside, remove the used filter and place the new one [Fig. 1 Nº2].
Periodically visually checked the condition of the hoses.

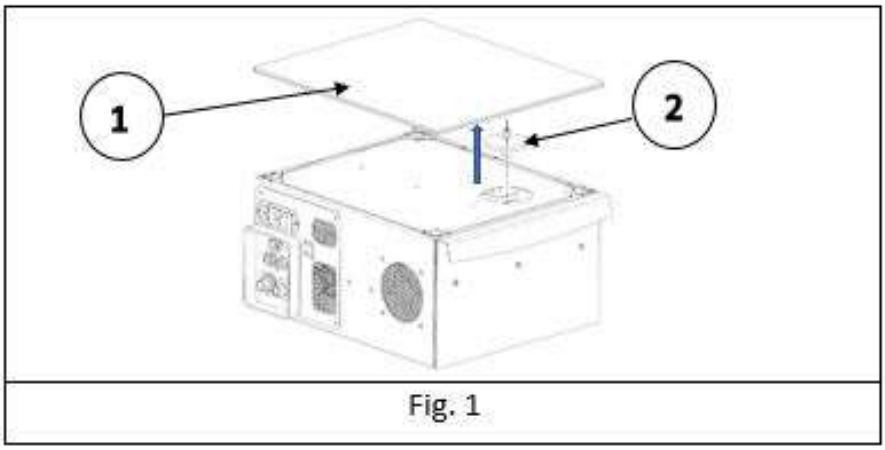


Fig. 1

⚠	***CAUTION: IF ANY OF THE FUNCTIONS OF THE ELITE IRRIGATION UNIT ARE NOT WORKING PROPERLY, THE FOLLOWING FUNCTIONS MAY NOT WORK PROPERLY, PLEASE REFER TO THE TWELVE "FAULTS" SECTION OF THIS MANUAL FOR TROUBLESHOOTING.***

11.6. ENT EXPERT SYSTEM

Installation:

This accessory is factory installed inside the Optimus Unit, but it must have a water inlet from the building network and a drain.

1. Connect a 1/4 "hose (angled) [Fig. 2 No. 1] of the required length, to the water inlet of the irrigation unit [Fig. 1 No. 1] and the other end [Fig. 2 No. 2] to the network of the building, inserting the pressure regulator attached [Fig. 5 Nº1] and the 20 micron filter [Fig. 6 Nº1].
2. On the other adjoining connector [Fig. 1 Nº2], install the 3/8 ”hose (angled) [Fig. 3 Nº1], and its free end to the drain [Fig. 3 Nº2].
3. Install the irrigation gun [Fig. 3 Nº1), coupled to the hose quick-plug connectors [Fig. 3 No. 2 and Fig. 3 No. 3], in the unit [Fig. 1 No. 3 and Fig. 1 No. 4]
4. Connect the insufflation gun [Fig. 7 No. 1] by inserting the hose connector [Fig. 7 Nº2] in the fitting [Fig. 1 Nº6] of the unit.
5. Connect the power cable to the unit [Fig. 1 Nº5] and the other end to the power grid.

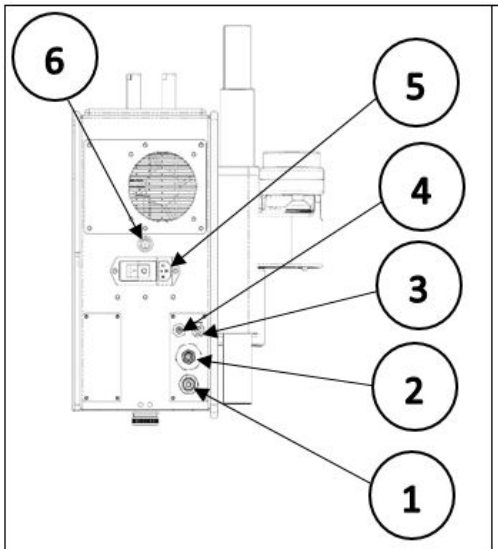


Fig. 1

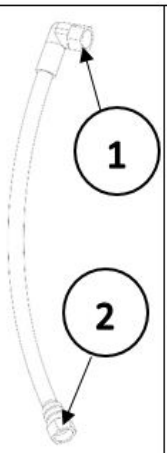


Fig.2

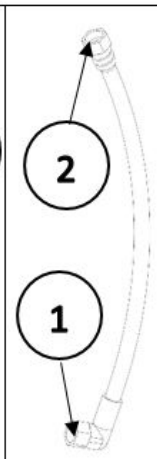


Fig. 3

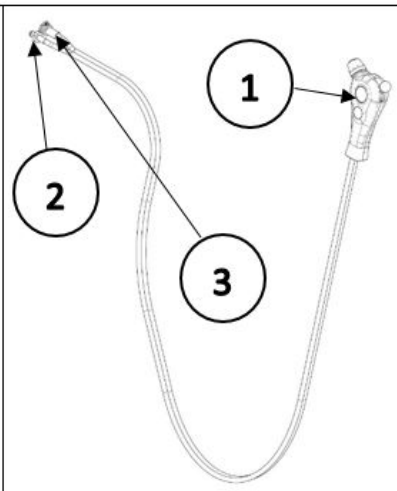


Fig. 4

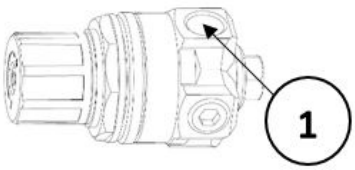


Fig. 5

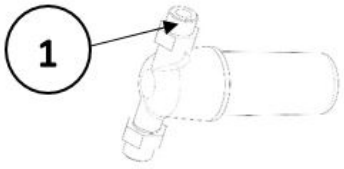


Fig. 6

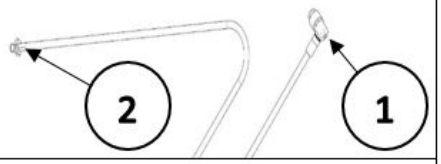


Fig. 7

FUNCTIONS:

This system combines the following functions in the same accessory:
1. Ear irrigator with high temperature water treatment and UV light.
2. Air insufflation for the use of spray.
3. High power vacuum cleaner derived from the OPTIMUS Unit or the OPTIMUS Unit with the accessory: Continuous Drainage Suction Unit.
4. Heats rigid endoscopes.
5. Heats infrared mirrors.
6. Cold light source by high power LED.
7. Accommodation for Nasofibroscopes.
8. Housing for spray bottles.
9. Folding arm for instruments with start-up sensors.

DESCRIPTION OF THE OPERATION OF THE "EXPERT" ACCESSORY:

1. Ear irrigator: once its use is enabled through the monitor screen, we lift the irrigation gun [Fig. 1 Nº1] fix the irrigation needle (not supplied) and orient the ear, channel the water by graduating it with the gun lever [Fig. 1 Nº2].
2. Air insufflator: this is not commanded by the monitor, we just have to lift the gun [Fig. 1 Nº3] to put it into operation. To this we must insert the spray bottle (not supplied) [Fig. 1 Nº4]. To allow spraying, cover the rear hole of the gun with your thumb [Fig. 2 Nº1].
3. Vacuum cleaner: Although its hose is hung in the instrument holder, the indicated operation of the ENT OPTIMUS Unit. For use, lift the suction hose [Fig. 1 Nº5] and to stop replacing said hose in its housing.
4. Heats rigid endoscopes: Your housing is in [Fig. 1 Nº6] and its system dependent operation and displayed and modified by means of the monitor screen (see screen states) [Fig. 1 Nº7].
5. Heats mirrors: It is not governed by the unit, this is an independent element [Fig. 1 Nº8] and works by pressing the switch [Fig. 3 Nº1] and placing the mirror in its opening [Fig. 3 Nº2].
VERY IMPORTANT: The professional will calculate the exposure time and determine the required temperature, proving that it does not exceed 40 ° C throughout the mirror, avoiding unpleasant effects and even burns if it gets too high.
6. LED light source: It has 2 high-power LED light sources, governed by the system monitor. To operate, lift the fiber optic cable [Fig. 1 Nº9], connect the endoscope and press the screen in the corresponding figure. [P. 69 image 2].
7. Housing for Nasofibroscope: Support for these instruments [Fig. 1 Nº10].
8. Housing for spray bottles: Two containers for the spray assembly [Fig. 1 Nº11].
9. Instrument arm: Folding arm to support the instruments described above. It has disposable housings and covers the heated mirrors [Fig. 1 Nº12].

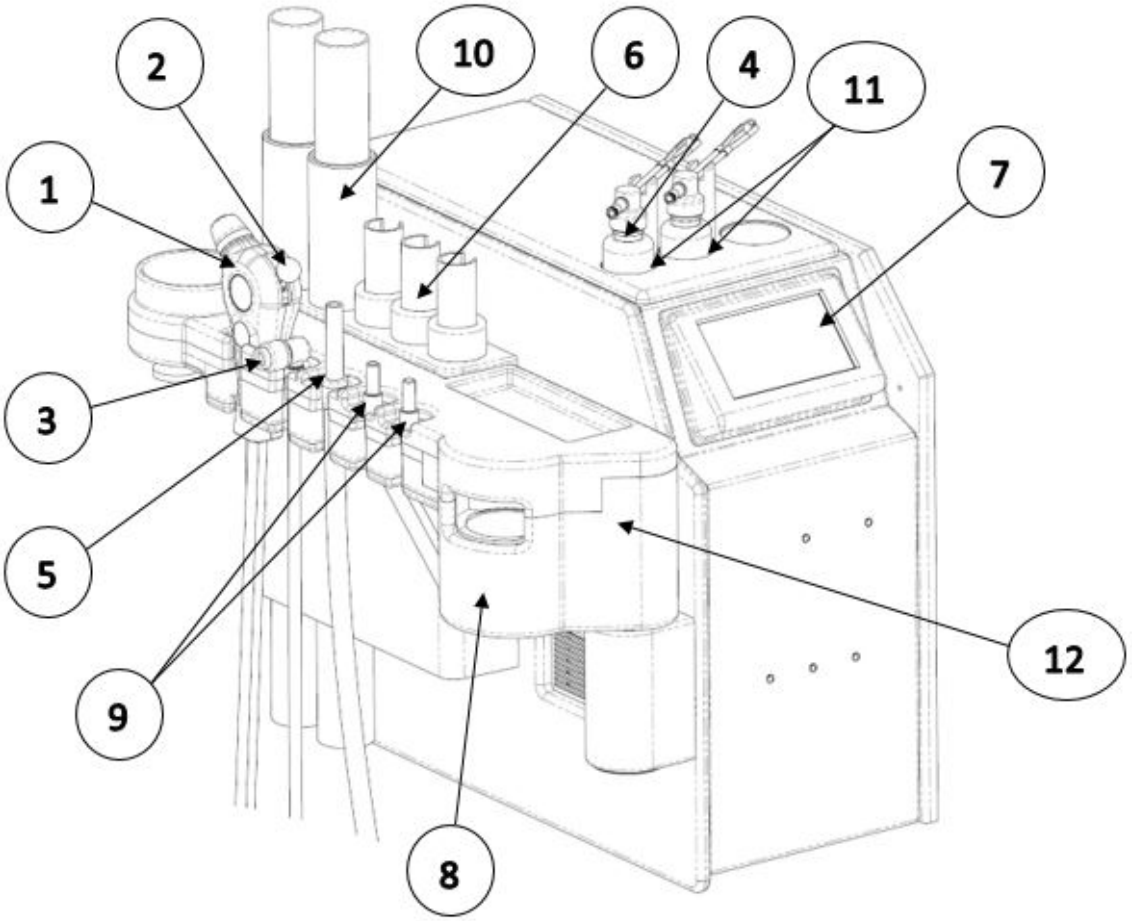


Fig. 1

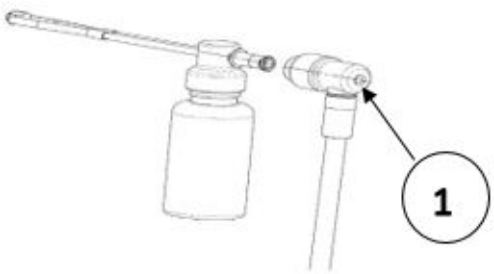


Fig. 2

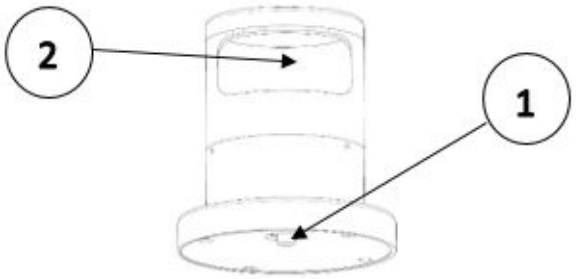


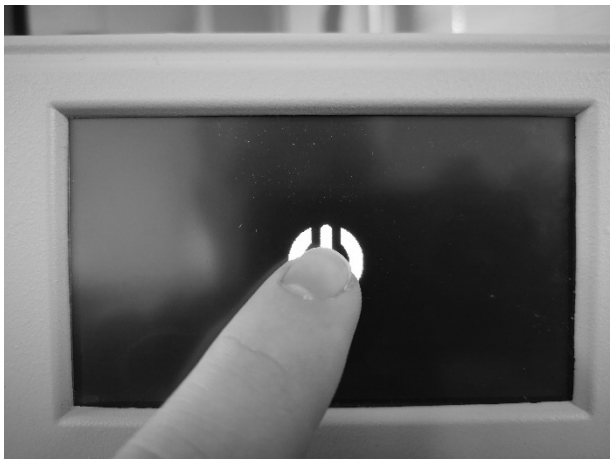
Fig. 3

1. Description of the operation of the equipment through the monitor screens:

Equipment startup and main menu. Once the power switch is activated, the display shows the Optomic logo for a few seconds:

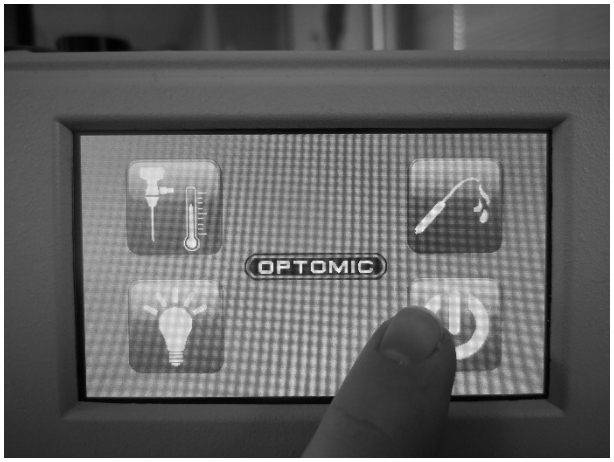
Subsequently a power button is displayed:

Pressing the power button, you access the main menu:



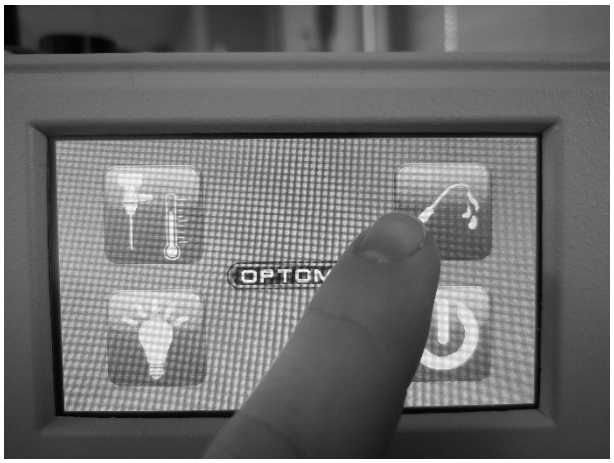
In the main menu you can access the configuration and control of:
Heats endoscopes (upper left button);
LED lamps (lower left button);
Irrigator (upper right button);
Sleep mode (lower right button).

If you want to place the system in sleep mode, press the lower right button:

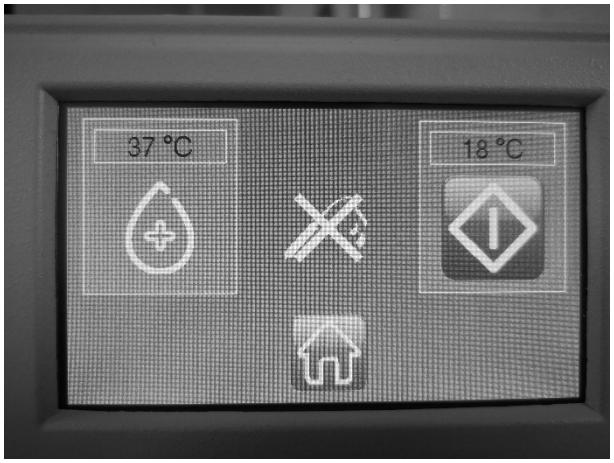


IRRIGATOR OPERATION

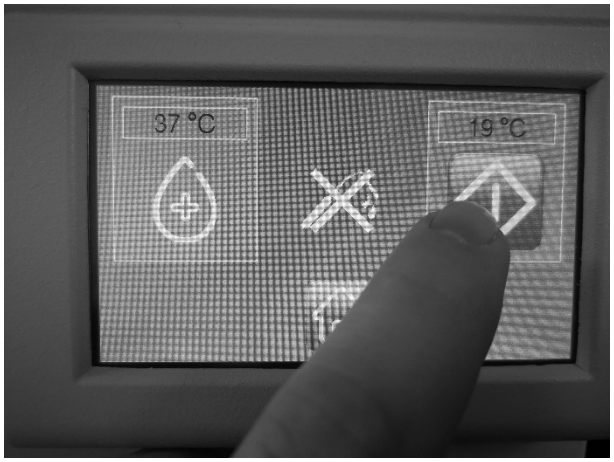
To access the irrigation function, press the upper right button:



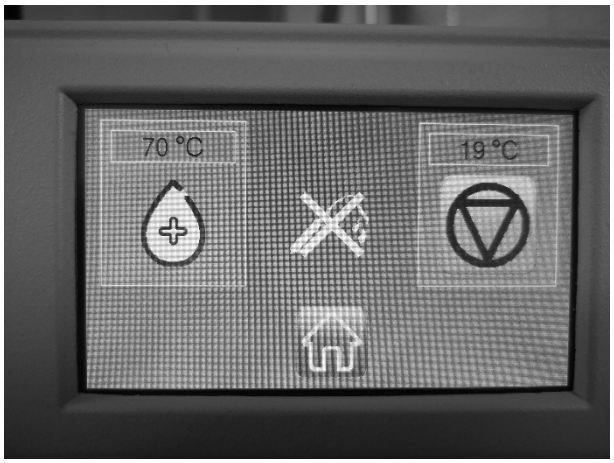
If the hanger is in position, the following screen is displayed and the irrigator is ready to start the cleaning cycle:



To start the cleaning cycle at 70 ° C, press the power button on the irrigator located in the upper right:

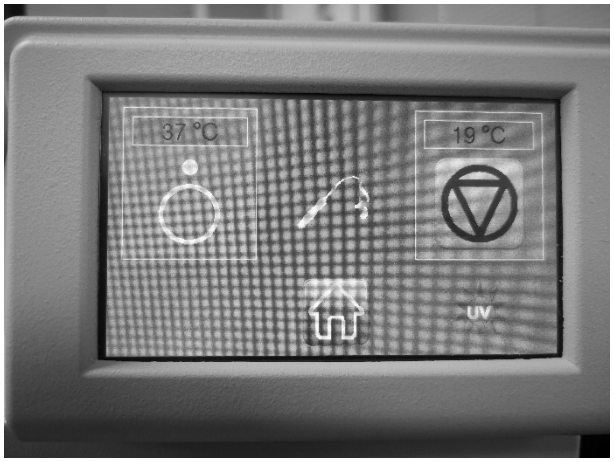


Once the irrigator power button has been pressed, the system will start cleaning the water circuit. The cleaning cycle consists of heating the water to 70ºC and keeping it for 5 minutes to eliminate impurities present in the water circuit:

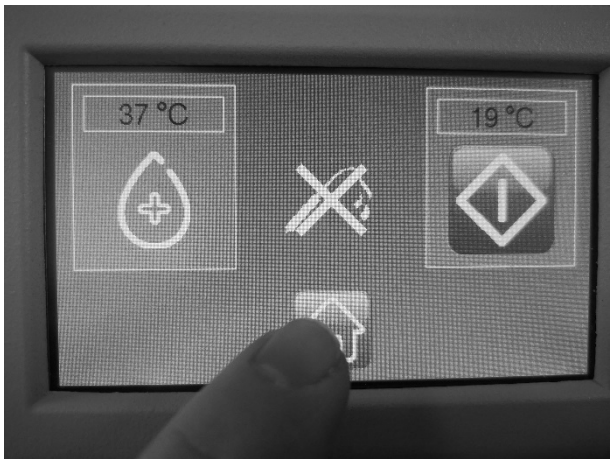


When it reaches 5 minutes at 70 ° C, the system will lower the temperature to 37 ° C and leave the irrigator ready for use:

If the hanger is placed in its place during normal use and the system detects a 15-minute disuse, it is automatically placed in echo mode, that is, it does not heat and cut off the water flow:



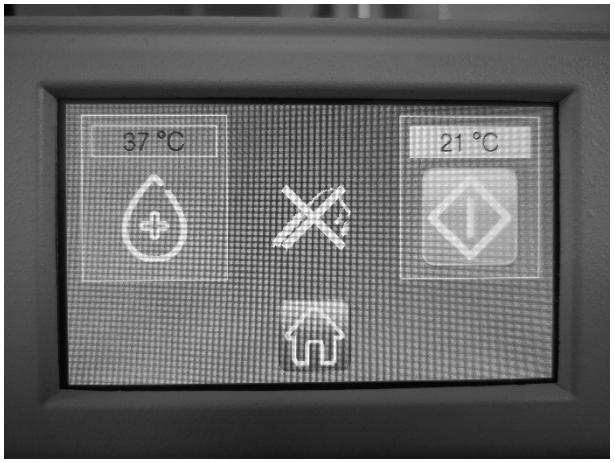
To return to the main menu, simply press the lower center button:



IRRIGATOR FAILURES AND WARNINGS

If the hanger is out of position at the start of the equipment, it is not possible to change the irrigator or start the cleaning cycle of the water circuit:

If the inlet water is outside the permitted operating limits (min. 7ºC, max. 20ºC) the system will be blocked:



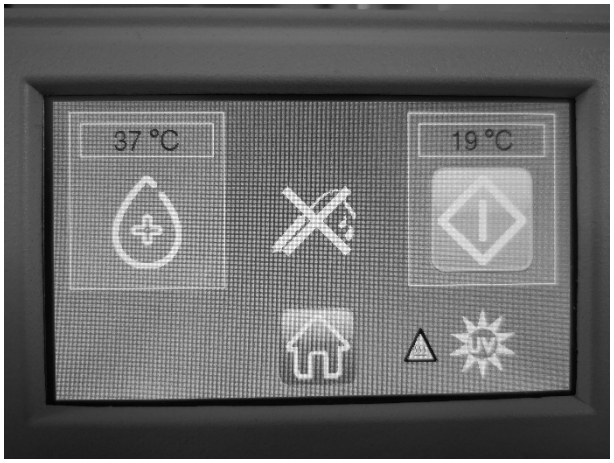
If during the cleaning cycle at 70 ° C a fault is detected and the temperature exceeds 90 ° C, the system would go into fall mode by turning off the heater and letting the water circulate to try to cool the heater. The system will be operational again when it reaches a minimum of 37ºC:

If during normal operation a fault is detected and the temperature exceeds 43 ° C, the system would go into a fall mode by turning off the heater and letting the water circulate to try to cool the heater. The system will be operational again when it reaches a minimum of 37ºC:

In the event of a water cut during heating, the system will stop heating until it returns to detect water in the circuit:

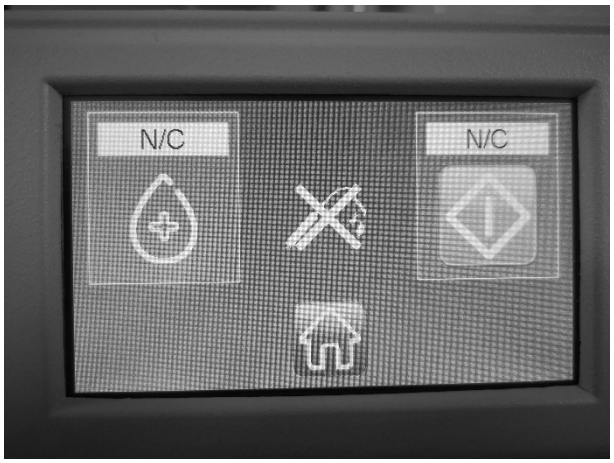
In case of degradation of the UV lamp, the system warns the user to check and / or replace the lamp:

In case of overheating of the UV lamp, the system will lock

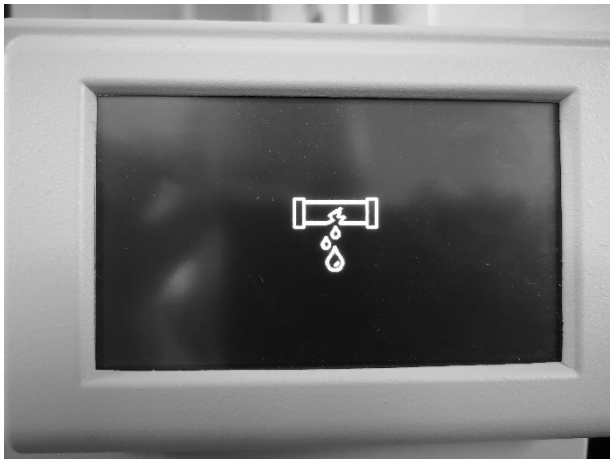


In the event of a UV lamp connection failure, the system locks until the lamp is verified:

If some of the heater sensors are broken, the system locks until they are replaced:

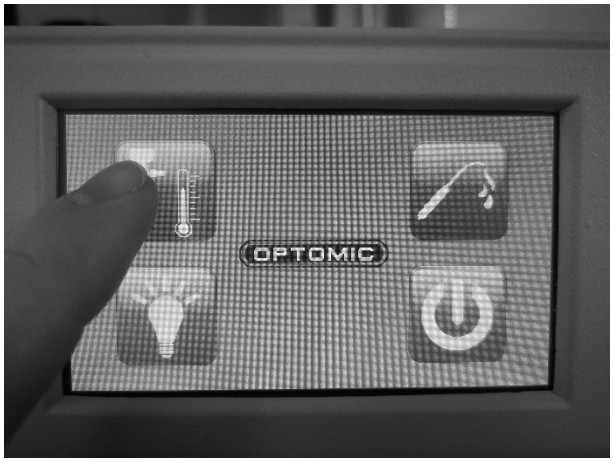


If there is any leakage in the water circuit, activate the leak sensor, blocking the system and turning off all peripherals:



ENDOSCOPE HEATER OPERATION

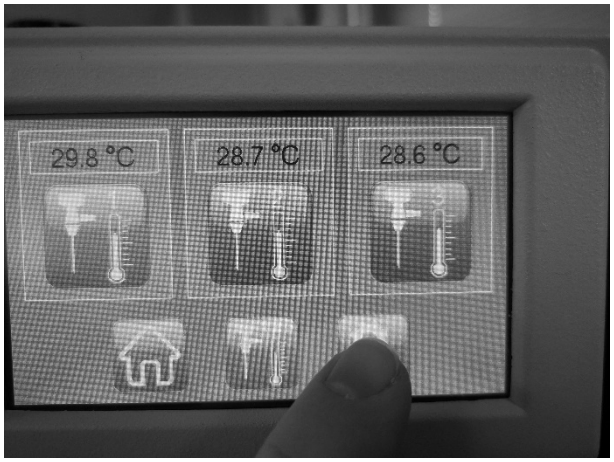
To access the endoscopes heat function, press the upper left button:



The endoscope heater menu allows you to individually turn on each heater.

It also allows all heaters at once:

To change the temperature of the endoscopes muscles, the configuration menu must be accessed. Configuration limits range from 33.0ºC to 43.0ºC:



To change the temperature you can press the X (lower left button of the numeric keypad), this key deletes the whole number. To correct any individual digit, you must press the arrow (lower right button of the numeric keypad):

Once the working temperature changes, you must press the save button to save the new temperature in the internal memory:

To return the endoscopes heat menu you must press the return key:

To return to the main menu, press the lower left key:

FAULT HEATS ENDOSCPES

In case of failure of the temperature sensor, the corresponding endoscope heater is deactivated:

OPERATION LED LAMPS

To access the function of the LED lamps, press the lower left button:

To activate any of the lamps, press button 1 or 2, but the lamp will come into operation when the hanger arm head is lifted:

To change the light intensity, press the + button to increase or the - button to reduce the intensity:

MAINTENANCE:
You must change the air filter every 30 hours. of use of the insufflator, to do this remove the aluminum cover (lift it by hand, it is only held by magnets [Fig. 1 Nº1],
Inside, remove the used filter and place the new one [Fig. 1 Nº2]
Periodically visually checked the condition of the hoses.

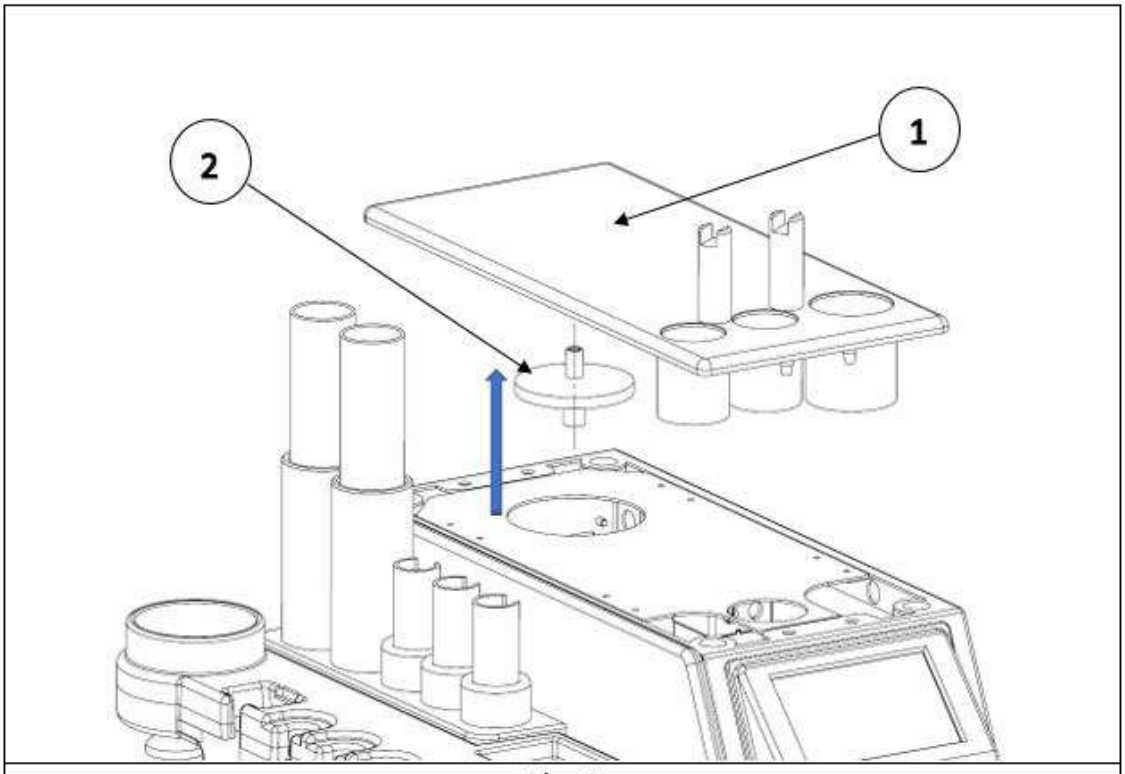


Fig. 1

⚠	***CAUTION: IF ANY OF THE FUNCTIONS OF THE ENT EXPERT UNIT ARE NOT WORKING PROPERLY, THE FOLLOWING FUNCTIONS MAY NOT WORK PROPERLY, PLEASE REFER TO THE TWELVE "FAULTS" SECTION OF THIS MANUAL FOR TROUBLESHOOTING.***

11.7. ENDOHOT HEATING UNIT

FUNCTIONS:

1. Heats rigid endoscopes
2. Heats flexible endoscopes
3. Heat mirrors (laryngeal mirrors)

INSTALLATION:

This accessory is factory installed inside the Optimus Unit.

FUNCTIONING:

1. Insert the rigid endoscope (s) to be heated in its housing [Fig. 1 Nº1]

2. Insert the flexible endoscope (s) to be heated in its housing [Fig. 1 Nº2]

3. Press the operation button of the heating endoscopes. [FIG. 3 Nº1] the heating process begins (depending on the outside temperature it may take about 15 minutes) and a temperature between 37º / 42ºC is maintained.

4. Insert the mirrors to be heated in the upper drawer tray [Fig. 2 Nº1].

5. Press the operation button of the heated mirrors. [FIG. 3 Nº2] the heating process begins (depending on the outside temperature it may take about 15 minutes) and is maintained at a temperature between 37º / 42ºC.

NOTE: In use, the doctor should monitor the temperature in that range in each instrument, if it is below 36ºC, wait until it warms up more, if it is above 45ºC, disconnect and notify the technical service.

6. To turn off the system, press the corresponding button (the same one we use to turn on). Since they are independent they can be turned off one or the other or both.

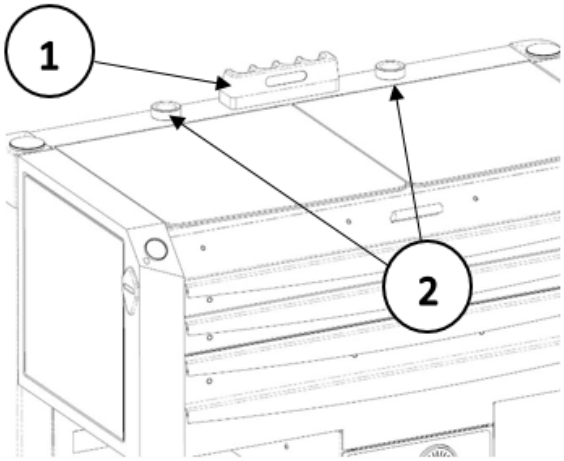


Fig. 1

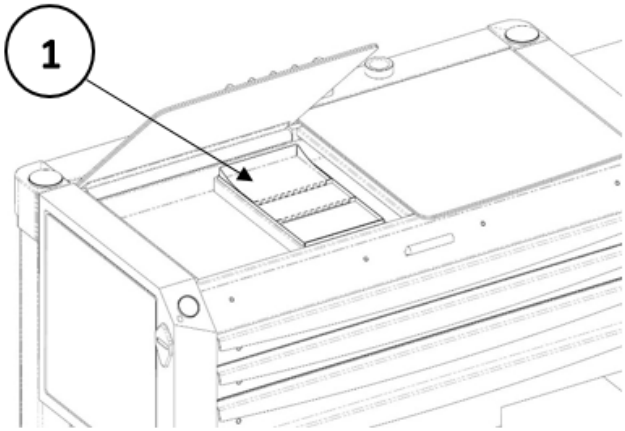


Fig. 2

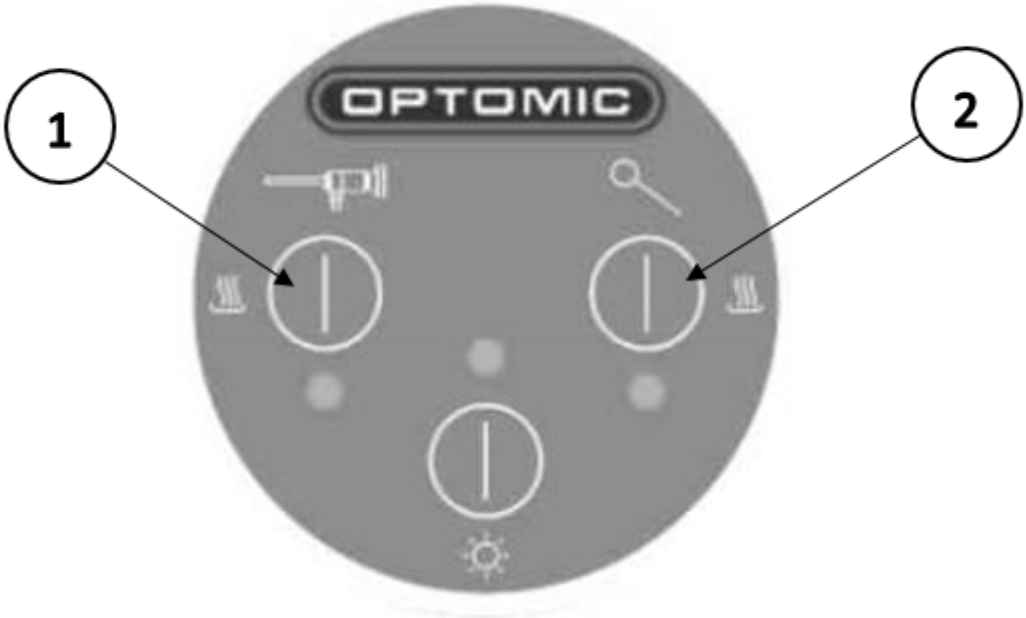


Fig. 3

MAINTENANCE:

This accessory is maintenance free.

11.8. OPTIONAL

(ONLY FACTORY INSTALLATION)

Upon request and only for factory application, the following components can be provided:

Isolation Transformer 230v.1,500W = TRA1
If you need to have greater electrical safety in the case of an endoscopic surgical intervention, it may contain an isolation transformer which creates its own ground network affected from the ground of the electrical network.
Since the internal wiring varies, this optional accessory must be ordered to be installed at the factory.
EQUIPOTENTIAL EQUIPMENT CABLE = CB4.

Optomic reference 67637198

EQUIPOTENTIAL CABLE TO MICROSCOPE = CB5.

Optomic reference 67637205

⚠	***CAUTION: IF ANY OF THE FUNCTIONS OF THE ENDOHOT HEATING UNIT ARE NOT WORKING PROPERLY, THE FOLLOWING FUNCTIONS MAY NOT WORK PROPERLY, PLEASE REFER TO THE TWELVE "FAULTS" SECTION OF THIS MANUAL FOR TROUBLESHOOTING.***

12. FAULTS

If the equipment experiences a fault, consult the following troubleshooting chart:

PROBLEM	POSSIBLE CAUSE	ACTION
The ENT unit does not work	• Unit is disconnected • Unit is not switched on • Faulty board • Faulty motor	• Connect • Switch on • Contact the Technical Service • Contact the Technical Service
Suction does not work	• Faulty connection in holder connector • Damaged electronic board	• Connect properly • Contact the Technical Service
The suction pump works, but there is no suction	• Filter blocked due to suction of fluid • Some part of tube disconnected • Bottle cover incorrectly placed • Broken bottle or tube • The bottle is full	• Change filter • Locate the section and reconnect • Place the cover correctly • Replace • Empty
The waste bin's opening mechanism does not work	• Faulty button • Faulty magnet • Damaged electronic board	• Contact the Technical Service • Contact the Technical Service • Contact the Technical Service
Drawers do not open properly	• Faulty drawer guide	• Contact the Technical Service
Locks on the lower drawers in poor condition	• Faulty	• Replace
Broken glass	• Impact	• Replace

CONTINUOUS DRAINAGE SUCTION UNIT		
PROBLEM	POSSIBLE CAUSE	ACTION
Continuous beep	Lack of water supply	Check stopcock or blockage hose or Valves
Beeps, one long + one short	Water loss inside the equipment	Check water hoses and installation. Check peristaltic pump hose
Three beeps followed long + one short	Peristaltic pump blocked or lack of power supply	Verify electrical installation. See pump status
Intermittent beeps	Blockage in the hose after the pump or in the drain hose	Verify installation and hoses

ELITE IRRIGATION UNIT		
PROBLEM	POSSIBLE CAUSE	ACTION
Blue LED flashes very fast	Low performance ultraviolet LED lamp	Check and if necessary change it.
All LEDs are flashing	Water supply interruption	Check water hoses and installation. Check stopcock
All LEDs shine, lighting one after the other cyclically	Water loss inside the unit	Verify installation and hoses.

ENDOHOT HEATING UNIT		
PROBLEM	POSSIBLE CAUSE	ACTION
It does not heat the instrument	Short waiting time	Leave more time in your accommodation.
Heats the instrument too much	Electronic control system defect	Call technical service

13. TECHNICAL SPECIFICATIONS

Medical devices classification.....IIa

ELECTRICAL

. Mains connection 230V~ ..... 230V~ 50Hz
. Mains connection 120V~…… ...…120V~ 60Hz
. Máximum power…… .1600 VA

. Applicable part.....Type B

. Electrical protection according to UNE EN 60601/IEC 601 ..... Class I
. Maximum flow rate …... ……..……..60l/min

. Glass:

1,5 L autoclavable (standar) (supplied OPTOMIC)

1 L disposable (optional) (not supplied by OPTOMIC)

0,8 L disposable (optional) (not supplied by OPTOMIC)

. Máximum vacuum…….. ……...30 mbar abs.

. Fuse ……..…….2x 8A 250V~ TH

. Power cord: Enchufe: Schucko CEE 7/7 (euro). Fabricante TCSA. Ref.

Concis<MAR>H05VV-F. IEC: C13. Fabricante Schurter. Ref. 4782.0100

. Unit operation…… Continuo

MATERIAL

materials……..…..…… ABS, ignífugo clase-Fire Prof. nº UL94HB

Glass…..…… Laminados colores según muestrario

MECHANICAL

Dimension(without attachments) ..... 96(ancho) x 95(alto) x 54(fondo) cm

Weight (without attachments) .....191, 50 Kg

Reduced weight (without central drawer, side glass, shelves, rear door drawers)…….. 85 Kg

PERMISSIBLE ENVIRONMENTAL CONDITIONS

Permissible environmental conditions in use .....2~+45°C, 20~90% RH, non-condensing
Permissible environmental conditions in transport .....-10~+70°C, 10~95% RH, non-condensing
Permissible environmental conditions in storage .....-10~+70°C, 10~95% RH, non-condensing
Atmospheric pressure.....0,7 – 106 KPa

TECHNICAL FEATURES ASPIRATION UNIT CONTINUOUS DRAINAGE:

Electric connection…….Optimus Unit
Hydraulic network connection…… 1/4"
Connection to the drainage network…… 3/8”
Minimum pressure required in the water network……. 2,5 bares
External pressure regulator (interleaved in the water inlet)…….. 2,2 bares
Liquid level……... Ultrasound
Liquid los sensor……... Optical
Water consumption…….. 20 dl
Waterproof glass…….. …… 100 dl
24 v peristaltic pump..…… 2,2 l/min
24v air insufflation pump..……. Reg. 2 bares
Suction pump…. ……..... 60 l/min

TECHNICAL CHARACTERISTICS ELITE IRRIGATION UNIT:

Mains connection 230V~ ..... 230V~ 50Hz
Mains connection 120V~…… ....…120V~ 60Hz
110V máximum consumption……..…….. 1600VA
230V máximum consumption ..…….. 1700VA
Hydraulic network connection …….…… 1/4"
Connection to the drainage network …… 3/8”
Minimum pressure required in the water network……. 2,3 bares
Minimum permissible water inlet temperature…..……... 7ºC
Maximum permissible water inlet temperature…… 34ºC
External water filter……... 20 micras
External pressure regulator..…….. 2 bares
Liquid loss sensor……...
Óptico
Water consumption per wash…….. 20 dl
Air inlet filter…… 2200-55
24v air insufflation pump……. Reg. 2 bares

TECHNICAL FEATURES OF THE EXPERT ENT SYSTEM:

Mains connection 230V~ ..... 230V~ 50Hz
Mains connection 120V~…… ....…120V~ 60Hz
110V máximum consumption ……..…….. 1600VA
230V máximum consumption ……..…….. 1700VA
Hydraulic network connection …….…… 1/4"
Connection to the drainage network …… 3/8”
Minimum pressure required in the wáter network …… 2,3 bares
Minimum permissible wáter inlet temperatura …….. 7ºC
Maximum permissible wáter inlet temperature …… 34ºC
External wáter filter …….. 20 micras
External pressure regulator……. 2 bares
Liquid los sensor……..……... Optical
Water consumption per wash…….. 20 dl
Air inlet filter…… 2200-55
24v air insufflation pump……. Reg. 2 bares

ENDOHOT HEATING UNIT TECHNICAL FEATURES:

Electric connection……..…… The internal of the Optimus
máximum consumption ……..…..... 60 W
Heaters, temperature control…….…….. PT 100

14. ELECTROMAGNETIC COMPATIBILITY (EMC)

Guide and manufacturer's declaration – electromagnetic emissions		
The Optimus workstation is suitable for use in the electromagnetic environment specified below. The customer or user of the Optimus workstation must make sure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guide**
RF emissions CISPR11	Group 1	The Optimus workstation uses RF energy only for its internal function. Therefore, its RF emissions are very low and not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR11	Class B	The Optimus workstation is suitable for use in all establishments including domestic, and those directly connected to the public low-voltage power supply network, which supplies buildings used for domestic purposes.
Harmonics emissions IEC 61000-3-2	Class B	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Guide and manufacturer's declaration – electromagnetic immunity			
The Optimus workstation is suitable for use in the electromagnetic environment specified below. The customer or user of the Optimus workstation must make sure that it is used in such an environment.			
Immunity test	**Test level of standard IEC 60601**	**Compliance level**	**Electromagnetic environment - guide**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8kV air	±6 kV contact ±8kV air	Floors should be wood, concrete or ceramic tile. If floors are covered in synthetic material, the relative humidity should be at least 30%.
Transient/ bursts IEC 61000-4-4	±2 kV on AC mains ±1kV on input / output lines	±2 kV on AC mains ±1kV on input/ output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line to line ±2kV line to ground	±1 kV line to line ±2kV line to ground	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC-61000-4-11	<5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	<5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Optimus workstation requires continued operation during power mains interruptions, it is recommended that the Optimus workstation is powered from an uninterruptible power supply or battery.
Magnetic field at power frequency (50/60 Hz) IEC 61000-4-8	3 A/m	3 A/m	Magnetic fields at power frequency should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the AC mains voltage prior to application of the test level.			

<table>
<tr><th colspan="4">Guide and manufacturer's declaration – electromagnetic immunity</th></tr>
<tr><td colspan="4">The Optimus workstation is suitable for use in the electromagnetic environment specified below. The customer or user of the Optimus workstation must make sure that it is used in such an environment.</td></tr>
<tr><th>Immunity test</th><th>Test level of Standard IEC 60601</th><th>Compliance level</th><th>Electromagnetic environment - guide</th></tr>
<tr><td>Conducted RF
IEC 61000-4-6

Radiated RF
IEC61000-4-3</td><td>3 V_{rms}
150 KHz to 80 MHz

3 V/m
80 MHz to 2.5 GHz</td><td>3 V_{rms}

3 V/m</td><td>Portable and mobile RF communications equipment should be used no closer to any part of the Optimus unit, including cables, than the recommended separation distance to the frequency of the transmitter.
Recommended separation distance

$d = 1.2\sqrt{P}$

$d = 1.2\sqrt{P}$80 MHz to 800 MHz.

$d = 2.3\sqrt{P}$800 MHz to 2.5 GHz.

Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer, and d is the recommended separation distance in metres (m).
Field strengths from fixed RF transmitters, as determined by a site survey,[a] should be less than the compliance level in each frequency range.[b]
Interference may occur in the vicinity of the equipment marked with the following symbol:
  </td></tr>
<tr><td colspan="4">NOTE 1: At 80 MHz and 800 MHz the higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</td></tr>
<tr><td colspan="4">[a]Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Optimus workstation is used exceeds the applicable RF compliance level above, the Optimus workstation should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the OPtimus workstation .

[b] Over the frequency range 150 KHz to 80 MHz, field strengths should be less than 3 V/m.</td></tr>
</table>

Recommended separation distances between portable and mobile RF communications equipment and the Optimus workstation

The Optimus workstation is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or user of the Optimus workstation can help prevent electromagnetic interference by maintaining a minimum distance between the portable and mobile RF communications equipment (transmitters) and the Optimus workstation as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter (W)	**Separation distance according to frequency of transmitter (m)**		
	150 kHZ to 80 MHz $d = 1.2\sqrt{P}$	**80 MHz to 800 MHz** $d = 1.2\sqrt{P}$	**800 MHz to 2.5 GHz** $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.20	1.20	2.30
10	3.79	3.79	7.27
100	12.00	12.00	23.00

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be determined using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

15. NORMATIVE

Repairs

Damaged equipment only needs to be repaired by persons authorized by us and specifically using original spare parts.
(If you want to send the equipment to be repaired at the factory, you must first request the return form).

Responsibility

According to legal provisions, the manufacturer only responds to the safety specifications of the device if maintenance, repair and modification work is carried out by the same or by another person authorized by him.

The manufacturer will also not assume any responsibility for the use of the equipment used or if it was used for other fines than for which it was manufactured.

Compliance with the directive

This medical device is equipped with the CE symbol according to the Medical Device Directive (MDD) 93/42 CEE. If the CE symbol is followed by an identification number, that number designates the competent identified body.

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