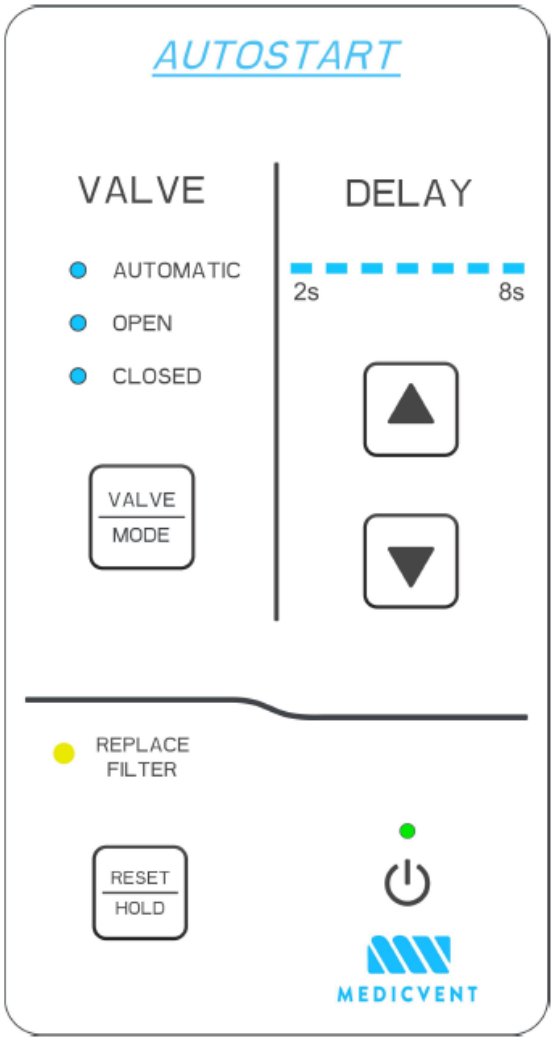
Manual



Plume evacuation - Autostart

MEDICVENT

Cleaning air in healthcare

Version 3, 2018-10-31

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Contents

Foreword, safety and important information

- The accompanying patient dedicated articles are hygienically packaged upon delivery. All articles are to be cleaned according to instruction, prior to use.
- This manual must be studied in detail, prior to system use.
- Original spare parts from Medicvent must be used for equipment repair.
- Only staff that has been trained and certified by Medicvent can make equipment repairs and adjustments.
- Only Medicvent´s own and/or approved accessories may be used with the equipment. The use of any other accessories may present risks for increased or decreased immunity to electromagnetic currency, which may result in malfunction.
- Medicvent retains the right to make revisions regarding construction and use without prior notice.
- The Autostart box must be connected to the same electrical current source as the electrosurgical/laser unit. This will avoid the loss of surgical smoke evacuation in the case of an electrical power failure.
- No system modifications are permitted.
- The Autostart box may not be opened. The Autostart box must be returned for repairs.
- The surgical smoke system may not be connected to evacuation systems intended for analgesia and anesthesia gases.
- This system may not be used in an environment with elevated oxygen content.

Introduction

Medicvent provides an effective surgical smoke evacuation system for laser surgery and electrosurgery. Medicvent´s system evacuates the air from the operating theater, instead of filtering it and returning it to the room. This means that the system eliminates even the smallest airborne particles [2], which ordinary filters cannot manage. This has been proven to provide a significant improvement of air quality [1][3]. The solution consists of:

- An effective central fan system (see separate manual) which is placed outside of the operating theater in another room (for example: on the ventilation floor).
- Motor-driven valves (see separate manual) which may be user-operated to open, close or adjust the evacuation flow (see manual for motor valves).
- Autostart box, On/Off-valve, filters, tubes, nozzles and other patient dedicated articles (see more details in this manual).

Medicvent´s central evacuation system is powerful yet more silent than mobile evacuation systems since they are installed outside of the operating theater. This additionally provides more optimal workspace and avoids interference from air circulations that disturb the operation.

Scope

This manual contains information about the Autostart system and accompanying patient dedicated articles. For information on motor valves or central system, please refer to these separate manuals. Contact Medicvent for more information or visit our website www.medicvent.com.

Studies

There are currently several scientific studies that link long-term exposure to surgical smoke to many diseases among health care staff members. These studies prove the importance of evacuation of surgical smoke. Recommended studies include:

[1] ScienceDirect EJSO 35 (2009) 780-784

[2] Ulmer BC. The hazards of surgical smoke. AORN J. 2008;87(4):721-738.

[3] O'Riley M (2010) Electrosurgery in perioperative practice. AfPP Journal, 20(9), pp.329-333.

For additional studies in additional languages, please contact Medicvent or visit our website www.medicvent.com.

Intended use

Medicvent´s surgical smoke evacuation system is intended for the evacuation of dry, airborne contaminants, such as electrosurgical smoke, from the operating theater.

The captured surgical smoke is transported out of the operating theater by means of Medicvent´s evacuation system and directed to the outer environment outside of the hospital facility.

Intended target group

The surgical smoke evacuation system with the Autostart box system and components may only be installed, mounted and used by qualified health care staff, at the educational level of registered nurse or higher.

Peripheral components

Medicvent´s surgical smoke evacuation with the Autostart system is intended for use in electrosurgical or laser surgical procedures. The system must be connected to Medicvent´s central evacuation system for evacuation of surgical smoke (or third-party system that fulfils SS-ISO 16571:2014).

Functionality

The Autostart system provides evacuation of surgical smoke by means of a simple control of surgical smoke evacuation flow and an autostart functionality. This autostart functionality opens the On/Off-valve automatically when the surgeon activates the electrosurgical/laser unit, and closes it when the electrosurgical/laser unit is no longer in use. This also provides the user with a simpler way to control the noise levels and to automatically silence the evacuation flow, which contributes to an improved and more quiet working environment.

The Autostart box with accessories is an option to the Medicvent central evacuation system (or similar) and cannot function without it. The Autostart box with accessories controls the existing flow and does not create any individual flow.

Electrosurgery

The Autostart functionality is achieved when the user connects a sensor to the electrosurgical pen, or to the cord of the neutral plate. This sensor detects when the surgeon is using the electrosurgical pen by means of detecting the electrical current, which activates a signal to the Autostart box to open the valve. When the surgeon stops the procedure and turns off the current of the electrosurgical pen, the On/Off-valve automatically closes. This means that the evacuation will only proceed when the surgeon is actively using the electrosurgical pen and is silent when not in use.

This functionality may also be achieved with an activation cable that is directly connected to the electrosurgical unit, if the electrosurgical unit contains an actively connected signal port which is 2.5 mm mono female.

Laser

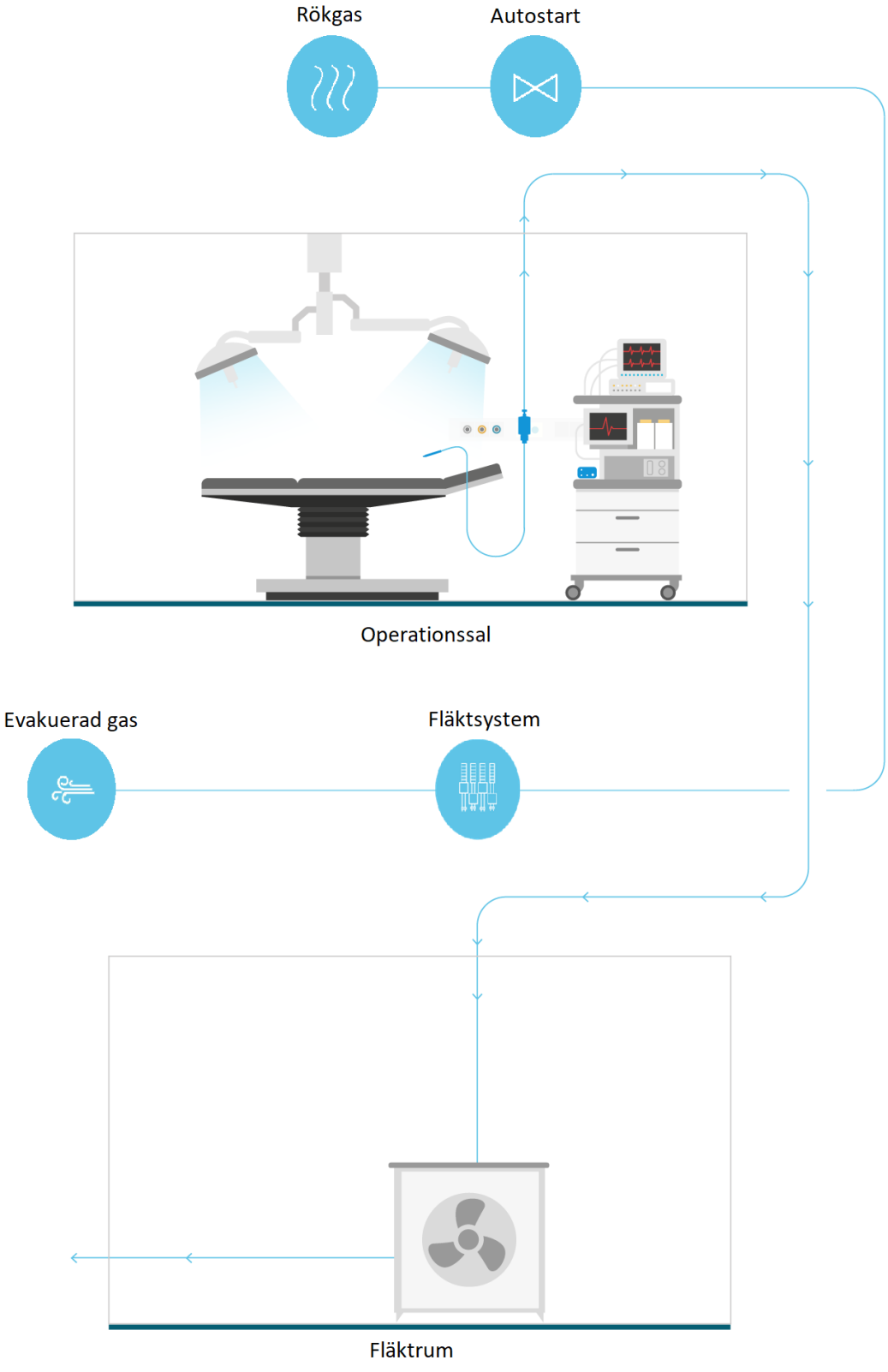
The Autostart functionality may only be used if the laser unit has a laser pen which activates electrical current when in use, or if it contains an actively connected signal port which is 2.5 mm mono female. In this case, the sensor clip may be connected either to the cord of the laser pen or to the activation cable to the signal port.

If these functions are not available, the user may manually open and close the evacuation system by means of the Autostart box.

Surgical smoke evacuation route

Following image (1) demonstrates how the system transports and evacuates the surgical smoke away from the operating table via Medicvent´s evacuation system out of the facility.

Image 1



System components and mounting instructions

Image 2-6

Autostart box and On/Off-valve with accessories

Autostart box (140101)

Regulates the On/Off-valve, and is connected to the electrosurgical unit via a sensor clip or activation cable. Also displays a filter indicator for filter exchange. Rail-mounted.

On/off-valve (140102)

Opens/closes the flow of the evacuation system. It is regulated by means of the Autostart box. It is connected to the Autostart box by a signal cable. Contains a filter-holder for LP10 main filter. Rail-mounted.

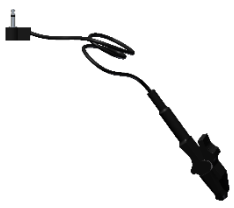
Signal cable magnetic valve (140105)

Signal cable between the Autostart box and the On/Off-valve, and electrical current cable to the magnetic valve. To be connected between the On-/Off-valve and the Autostart box.

NOTE! Colors may vary.

Electrical current adapter (140104)

Provides electrical current to the system, to be connected to the Autostart box.



Alternative 1: Sensor clip (140103)

Connects to the electrosurgical pen, detects when the electrosurgical unit is activated. Connects to the Autostart box.

Image 7-9

Alternative 2: Activation cable (140106)

Connects to the electrosurgical unit, receives a signal from the electrosurgical unit when activated. Connects to the Autostart box.

NOTE! May only be used with certain models and manufacturers of electrosurgical units, which contain an actively connected signal port that is 2.5 mm mono female.

Optional: Extension cable sensor clip/activation cable (140107)

Extension cable, for use if the Autostart box is located at a distance from the electrosurgical unit.

Evacuation tube (Ø 38mm) (230005/230010)

To be connected between the On/Off-valve and the evacuation socket.

Mounting instructions: Autostart box and On/Off-valve with accessories

1. Mount the Autostart box on a wall railing.
2. Mount the On/Off-valve on a wall railing next to the Autostart box.
3. Connect the communication cable between the Autostart box and the On-Off valve. The communication cable is connected to the socket in the Autostart box and then screwed in place. The same procedure should be repeated for the On/Off valve.

   NOTE! Take precaution so that the connector prongs are not damaged in the installation process. Proceed with caution!

4. Connect the electrical current adapter to the Autostart box and current socket. The electrical current adapter should be connected to an uninterruptable current socket, if the electrosurgical/laser unit is also connected to an uninterruptable network source.

   NOTE! The Autostart box starts automatically when supplied by electrical current.

5. Connect the sensor clip to the Autostart box, port IN1 or IN2 and attach the sensor clip around the cable of the electrosurgical pen or neutral plate.

   Alternative: If the electrosurgical unit has a 2.5 mm mono activation port, the sensor cable may be connected between the Autostart box and electrosurgical unit instead of by the sensor clip.

6. Select desired position on the Autostart box by pressing the button” valve/position”.
7. Select desired post-evacuation delay (2-8 seconds) by adjusting the up and down arrows.

   NOTE! The Autostart box must be in ”AUTOMATIC” position.

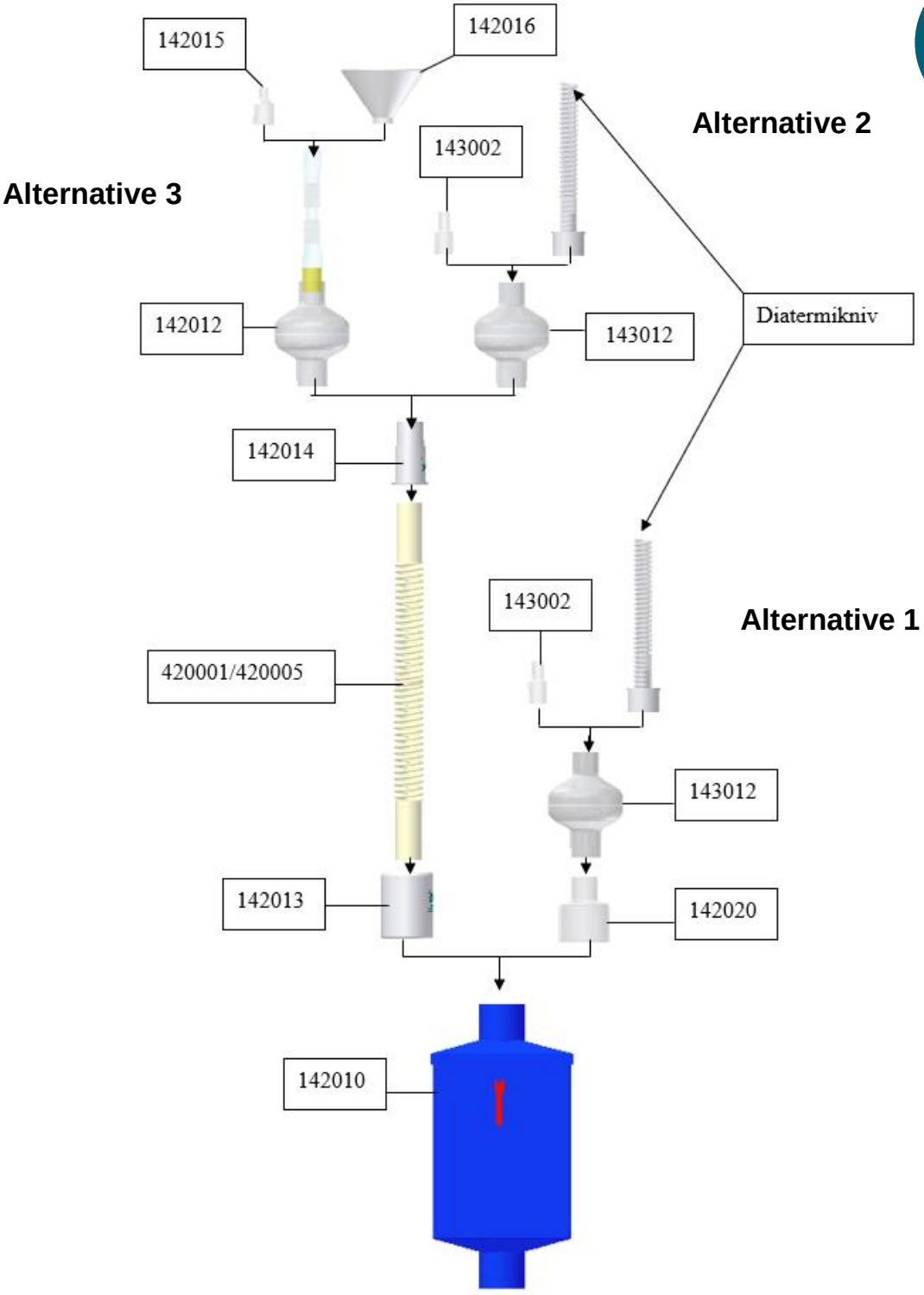
8. Mount the evacuation tube between the connection underneath the valve to the Medicvent socket in the operating theater.
9. Connect the desired accessories to the top of the main filter prior to surgery, according the chapter “Patient dedicated articles”.

Patient dedicated articles

Different sets of patient dedicated articles may be used, depending on surgical procedure, location and placement of the equipment. This image (10) summarizes the different alternatives.

NOTE! Written instructions are provided on the next page.

Image 10



Mounting instructions: Patient dedicated articles

The following mounting instructions are listed according to the image 10. In any circumstance, the LP10 main filter (142010) should be mounted first. Mount the main filter by inserting it into the On/Off valve and press lightly. The connections between the valve and the filter are conical and are fastened by pressing them together. Always mount the red arrow in the direction of the flow, pointing towards the On/Off-valve. See the following image 11.

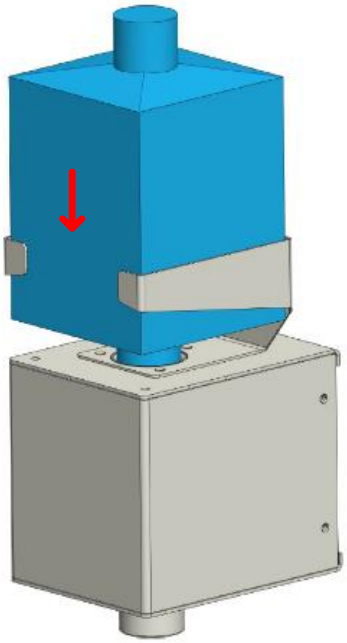


Image 11

Alternative 1: Electrosurgery, without extension tube

The suction tube of the electrosurgical pen is mounted via a single-use filter (143012) and adapter (142020) directly to the main filter (142010). Use adapter (143002) if necessary.

Alternative 2: Electrosurgery, with extension tube

When the patient is placed at a distance from the Autostart system, an extension tube is required (420001/420005). The extension tube may be connected to the main filter (142010) with an adapter (142013). The pre-filter (143012) is mounted to the extension tube with an adapter (142014). The suction tube of the electrosurgical pen is mounted to the pre-filter, use adapter (143002) if necessary.

NOTE! Do not use any other tubes other than Medicvent original to ensure sufficient suction functionality.

Alternative 3: Laser surgery

For laser surgery, connections as follows: funnel (142016) for pre-filter with buckling tube (142012). These are connected in turn to extension tube(s) (420001/420005) with adapter (142014), which is connected to the main filter (142010) with adapter (142013).

Instructions for use

Start of central system/fan

Image 12

Adjust the flow in the suction outlet by adjusting Medicvent´s stepless keypad panel (see image 12).

NOTE! Medicvent´s evacuation system may in some cases be driven by central control panels. If Medicvent´s keypad panel is not used, please refer to the operating system manual instead.

Medicvent recommends as high flow as possible for the best possible evacuation. This means however that the noise level may increase, so that in more simple procedures with less surgical smoke the flow may be decreased accordingly. The user can adjust the flow after his/her own individual preference. When odors are distinguishable, the flow levels should be raised for better evacuation.

Selection of electrosurgical pen

The electrosurgical pen which is connected to the system should create a flow of at least 90 liter per minute. Different electrosurgical pens have evacuation holes of different dimensions, and several manufacturers reduce this so that the pen will be smaller and easier to hold in hand. This means however that the evacuation is worsened, and healthcare staff may be exposed to larger quantities of surgical smoke.

Electrosurgical pens are often part of a central purchasing process within the individual hospital institutions, and Medicvent therefore has not control of which types of electrosurgical pens are selected. Subsequently an investigation of the flow of the selected electrosurgical pens is recommended in terms of functionality.

Autostart box and on/off-valve

NOTE! Written instructions are provided on the next page.

Image 13

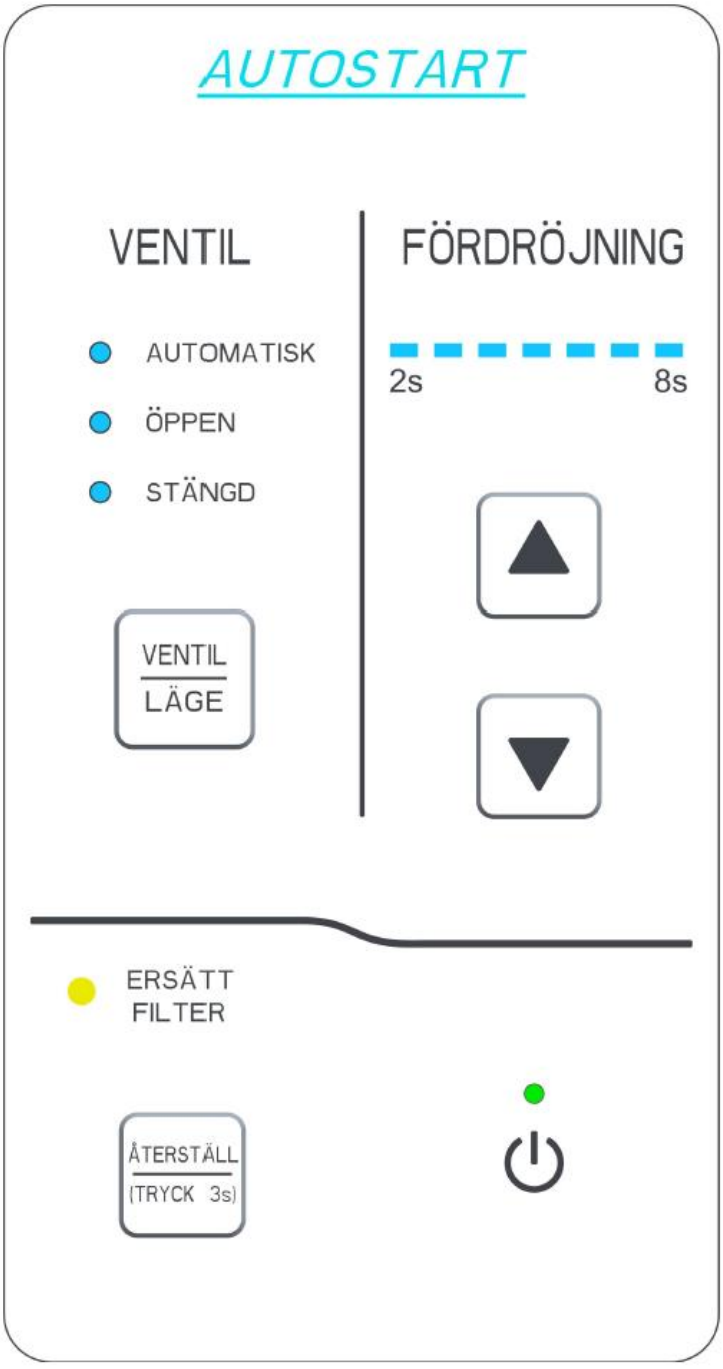


Image of Autostart box panel

Valve

The Autostart box has three positions which may be adjusted on the button VALVE/POSITION (see image 13):

- **Open:** Valve and suction are always open.
- **Closed:** Valve and suction are always closed.
- **Automatic:** Opening of On/Off-valve occurs automatically when the Autostart box detects electrical current from the electrosurgical pen, laser pen or neutral plate, by means of the sensor clip (or activation cable).

  When the surgeon stops use of the electrosurgical pen and the electrical current stops, the Autostart box will close the On/Off-valve after chosen delay of 2 – 8 seconds.

  In this situation, the evacuation will only be active when the surgeon is actively using the electrosurgical/laser pen, and silent otherwise.

Delay

Is a built-in delay functionality in the ”automatic” position of the Autostart box, from the moment the surgeon stops using of the electrosurgical pen to when the valve will close the flow. This built-in delay function is to ensure that as much of the surgical smoke as possible created by electrosurgical pen will be evacuated. It is therefore recommended that the surgeon keeps the electrosurgical pen in the same position until the evacuation valve has closed.

This delay will only be activated and adjustable in the “automatic” position, where the delay may be adjusted between 2 seconds to 8 seconds by pressing the arrows up or down. Each step corresponds to one second.

Filter indicator

The Autostart box has an in-built aid to monitor the exchange interval for the main filter.

When the user inserts a new main filter, the button “Reset/hold” should be pressed for 3 seconds. This will reset the filter timer, and during the next use of the Autostart box, the timer will start a countdown. After a 90-calendar day period or 450 hours of active use, the diode “REPLACE FILTER” will light up. The user should exchange the main filter at that time and repeat the procedure by pressing the button “Reset/hold” to reset the timer.

Current indicator

The Autostart box is always turned on when powered. The green diode at the symbol  indicates that the Autostart box is powered and is ready for use.

Adjusting the sensitivity of the Autostart box

The sensitivity of the Autostart box for triggering of the sensor clip is adjusted during manufacturing. However, if the Autostart box is not activated by the electrosurgical pen, activates itself or is activated by other equipment, the sensitivity may be adjusted. This is done by means of adjusting the potentiometer at the sensor clip entrance to the Autostart box.

1. Mount the Autostart box with accessories according to the chapter “Mounting instructions”.
2. Place the Autostart box in “automatic” position.

   Tip! Adjust the delay to the lowest possible, 2 seconds.

3. Adjust the potentiometer L1 for IN1 or L2 for IN2. Turn counter-clockwise for higher sensitivity, clockwise for lower sensitivity. With 15 turns you sweep through the entire resistance range.
4. Activate the electrosurgical pen, then inactivate it. If the Autostart box opens the On/Off-valve when the electrosurgical pen is activated and closes it (after selected delay) when inactivated, the adjustment is complete. Otherwise repeat step 3.

Cleaning

The Autostart box and On/Off-valve with accessories

NOTE! The On/Off-valve is an evacuation valve, is not in direct patient contact, and is located behind two filters. In normal connection and in normal use conditions, it will not become contaminated on the inside. If it is used incorrectly or in error, resulting in contaminants entering inside the valve and causing risk of infection, the On/Off-valve must be exchanged. The valve contains electronics and moving parts, and their functionality may be impaired if in contact with fluids.

The Autostart box, On/Off-valve, LP10 main filter, evacuation tube and accessory tubes should be cleaned by wiping with disinfectant. If required, the evacuation tube may be cleaned in a dishwasher.

The following disinfectants may not be used: Hypochlorite, phenol (>5%), formalin, ketone, chlorinated hydrocarbons, aromatic hydrocarbons, inorganic acids or denatured ethanol with concentrations higher than 70%.

Evacuation tube (Ø 38mm), to suction outlet

When required: Remove the evacuation tube (Ø 38mm) from the remaining equipment. This is only required if the inside of the evacuation tube has become contaminated and there is risk of infection. The evacuation tube is not in direct patient contact and is connected to the evacuation system.

The tube should be cleaned in a certified medical dishwasher constructed for disinfection of medical tubes, anesthesia equipment and respiratory accessories.

Cleaning parameters

The evacuation tube (Ø 38mm) should not be cleaned in the same dishwashing program as the rest of the equipment (except for possible sleeves). The tube should be cleaned in a dishwasher program that maximally reaches a temperature of 60-70 °C degrees (140 °F - 158°F) for a minimum of 1 minute, with a maximum of 5 minutes. If other cleaning programs with higher temperatures are used, there is the risk that the tube may become deformed and must be replaced.

Placement

Place the tube in the dishwasher according to the dishwasher manufacturer´s instructions. This often means that the tube should be attached to a water sprinkler and be bound around a sink. Hang the tubes in big circles and make sure the end of the tube (not connected to the water spreader) is hanging and does not lie on the bottom of the dish washer. This will enable the water flow through the tube and help it to dry during the drying stage.

Detergents

Use an enzymatic, alkaline detergent (pH ≤ 11) according to the manufacturer´s instructions.

WARNING! The following substances may not be used: Hypochlorite, phenol (>5%), formalin, ketone, chlorinated hydrocarbons, aromatic hydrocarbons, inorganic acids or denatured ethanol with concentrations higher than 70%.

Drying parameters

Many washers have a built-in drying program at the end of certain washing programs. If possible, use the medical dishwasher to dry the articles. In other cases, we recommend a drying cabinet designed for medical tubes, anesthesia equipment and respiratory accessories.

Dry for at least 20 minutes with minimum temperature of 50 °C (maximum 70 °C).

If needed, drying can be completed by manually drying with a sterile lint-free towel.

If none of the above alternatives are available, it is possible to dry everything in room air.

- Hang the tubes over a drying rack (not looped) with both ends pointing downward.
- Place accessory articles on a drying rack.

Sleeves

NOTE! Sleeves are only used with evacuation tube with a steel spiral (Ø 38mm), not if the transparent evacuation tube (Ø 38mm, length 2 meters) is not being used.

If needed: Separate the sleeves from the rest of the equipment. This is only required if the inside has become contaminated and there is a risk of infection. The sleeves are not in direct contact with the patient and are connected to an evacuation tube.

The sleeves should be cleaned in the same dishwashing program as the evacuation tube (Ø 38mm).

Patient dedicated articles

NOTE! The main filter LP10 should be exchanged after 90 days or after 450 hours of active use.

NOTE! Articles**:** Adapter LP10/Pre-filter 142020, Pre-filter 143012, Pre-filter 142012, Electrosurgical Adapter 143002, Funnel 142016 and Nipple 142015 are single-use articles and should be exchanged between every patient

When using extension tube 420001/420005, adapter LP10/Ø19mm 142013 and adapter Pre-filter/Ø19mm142014, please observe that these should be cleaned in a medical dishwasher between every patient.

The tube and adapters must be cleaned with a certified medical dishwasher designed for disinfection of medical tubes, anesthesia equipment and respiratory accessories.

Cleaning parameters

Choose a dishwashing program that fulfills the following minimum requirements or similar:

- 2 minutes for rinsing with cold water.
- 5 minutes dishwashing with a temperature of at least 55 °C (158°F), maximum 95 °C (203°F), with an enzymatic, alkaline (pH ≤ 11) detergent.
- 2 minutes rinsing with cold water.
- 2 minutes final rinsing with cold water.
- Thermal rinsing with reverse osmosis water, 93 °C (200°F) for 5 minutes.

Placement

Place the tube in the dishwasher according to the dishwasher manufacturer´s instructions. This often means that the tube should be attached to a water sprinkler and be bound around a sink. Hang the tubes in big circles and make sure the end of the tube (not connected to the water spreader) is hanging and does not lie on the bottom of the dish washer. This will enable the water flow through the tube and help it to dry during the drying stage.

The tube adapters should be placed in a basket or on a shelf within the dishwasher.

Detergents

Use an enzymatic, alkaline detergent (pH ≤ 11) according to the manufacturer´s instructions.

WARNING! The following substances may not be used: Hypochlorite, phenol (>5%), formalin, ketone, chlorinated hydrocarbons, aromatic hydrocarbons, inorganic acids or denatured ethanol with concentrations higher than 70%.

Drying parameters

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If needed, drying can be completed by manually drying with a sterile lint-free towel.

If none of the above alternatives are available, it is possible to dry everything in room air.

- Hang the tubes over a drying rack (not looped) with both ends pointing downward.
- Place accessory articles on a drying rack.

Technical data

Autostart box

Voltage:	24V
Current:	0,7 A
Dimensions (hxbxd):	165x93x60 mm
Weight:	Approximately 0.3 kg

Electrical current adapter

In:	100-240 Vac, 1.0-0.5 A 50-60 Hz, uninterruptable network
Out:	DC 24V, 1.5A

On/Off valve

Voltage:	24V
Current:	0.7 A
Connection male:	38.5 mm
Connection female:	37.5 mm
Dimensions (hxbxd):	230x120x175 mm
Weight:	Approximately 3.2 kg

Noise level

Noise level measured with funnel: 53 dB(A) (measured according to SS-ISO 16571:2014 and reference standards).

Evacuation system requirements

Negative pressure: Negative pressure in the evacuation system that the equipment will be connected to should be at a level of -100 hPa or lower, for more information refer to the manual for the fan system.

Suction capacity without accessories: The suction flow in the evacuation system should be at a level of 500+ L/minute (Requirement according to SS-ISO 16571:2014) at -100hPa without connected autostart system.

System capacity

Suction capacity with accessories: Approximately 100 L/minute with 2-meter evacuation tube, On/Off-valve, main filter, single-use filters. (Tested with electrosurgical pen: Valleylab Goldvac and Valleylab Clip-on).

Particle filtration: Down to a level of 0.3µm. Particles which pass through the filter are evacuated away from the operating theater and never risk re-entry into room air.

Material information

All material that is included in the system are well-proven in medical-technical products and are considered safe and non-allergenic. All material in direct contact with patients or health care staff are evaluated according to SS-EN ISO 10993-1:2009 and are free of phthalate and latex.

For more information about the materials please contact Medicvent.

Maintenance and product life span

Ocular inspection should be made for all parts of the system prior to every use, **broken and damaged articles may not be used and must be exchanged.**

All product life spans should be respected from the perspective of patient safety. Tubes and plastic articles dry out and become more brittle with time, old patient dedicated articles can crack, and in the worst-case scenarios break and enter the patient body (in open surgical procedures). The filter exchange interval must also be respected with consideration to bacterial growth and diminishing functionality.

LP10 main filter

Must be exchanged at three months from first use, or after 450 hours active use.

To most easily remove the filter from the valve, grasp the filter and press thumbs against the holder.

When the filter is removed, attach the two white caps (which accompany each filter) on each side/connection. The filter should then be discarded as hazardous waste material.

Other patient dedicated articles

Single-use articles must be exchanged between each patient, other articles may be cleaned as specified in the chapter “Cleaning”. All reusable tubes and adapters shall be exchanged after 2 years’ time or 200 cleanings. Tubes and adapters are marked with expiration date on their labels.

Autostart box and On/Off-valve with accessories

No maintenance is required for the Autostart box or the On/Off-valve.

Storage

All articles should be stored at room temperature in a dark storage area, and not in direct sunlight.

Waste disposal

All parts including the main filter shall be disposed of as hazardous waste. The Autostart box should be disposed of as electronic waste. Other articles shall be disposed of according to local environmental requirements.

Description of symbols

Symbol	Description
	Manufacturer followed by text containing manufacturer and address.
LOT	Batch followed by batch-number.
SN	Serial number, followed by serial number.
 YYYY-MM-DD	Expiry date, followed by an expiry date: Year-Month-Day.
REF	Catalogue number
CE	CE-mark, followed by a number which identifies the notified body.
	Shall not be stored in direct sunlight.
	Read the user manual.
	Read the manual prior to use.
IP_{32}	Protection rating class.

	To be disposed of as electronic waste according to local requirements.
	Single-use article. Shall not be reused.

Article list

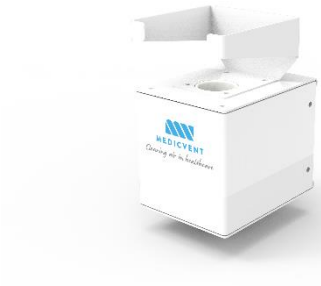
Single-use articles

Art.no.	Description
143012	**Electrosurgical Pre-filter (single-use, 25pc)** Single-use pre-filters which prevent liquid and particles from entering the main filter LP10. **Inner diameter:** Conical ≈15 mm to conical ≈22 mm. **Outer diameter:** Conical ≈25 mm to conical ≈22 mm.
142012	**Pre-filter with buckling tube (single-use, 25pc)** Pre-filter with adjustable buckling hose.
142015	**Nipple (single-use, 25pc)** Adapter for pre-filter with buckling tube, may be used to connect tube to the specula. Inner diameter: 6.3 mm with conical 15.5-15 mm (HK15). Outer diameter: 8.1 mm with conical 17.5-17 mm.
142016	**Funnel (single-use, 20pc)** Funnel for evacuation of surgical smoke. **Outer diameter:** Conical ≈18 mm to ≈70 mm. **Inner diameter:** Conical ≈15 mm till ≈66mm.
142020	**Adapter LP10/Pre-filter (single-use, 25pc)** Adapter which enables placement of pre-filter directly on LP10 Main filter (142010). **Inner diameter:** Conical ≈20 mm to ≈38 mm **Outer diameter:** Conical ≈22 mm to ≈41 mm.
143002	**Electrosurgical Adapter (single-use, 25pc)** Adapter to pre-filter, to connect tube a tube from an electrosurgical instrument to the pre-filter. **Inner diameter:** Conical 7.9–7.6 mm and 13 mm. **Outer diameter:** Conical 10.7-11.8 mm and conical 15-15.8 mm (TK15).

Autostart box och On/Off-valve with accessories

Art.no.	Description
140101	**Autostart box** Regulates the Autostart functionality.

140102	**On/off-valve** Valve to open the flow from the fan system, regulated by the Autostart box.



140105	**Signal cable magnetic valve** Signal cable between Autostart box and On/Off-valve and electrical current cable to magnetic valve. Length 30 cm. **NOTE!** Colors may vary.

140104	**Electrical current adapter EU** Network adapater to the Autostart box and the entire system. Cable length: 1.2 meters.

140103	**Sensor clip** Sensor for autostart functionality. Cable length: 2 meters.

140106	**Activation cable** Connects to the electrosurgical unit, receives a signal from the electrosurgical unit when it is activated. Length: 1 meter. **NOTE!** May only be used with certain models and design manufactures of electrosurgical units with actively closed signal port, 2.5 mm, mono female.

Art.no.	Description
140107	**Extension cable sensor clip/activation cable** Length: 1.5 meters.

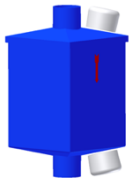
230005	**Alternative 1: Evacuation tube Ø38x2000mm** Evacuation tube between socket and On/Off-valve. Length: 2 meters.

230010	**Alternative 2: Evacuation tube with steel spiral, meter-length (PUR)** Evacuation tube, meter-length. **NOTE!** 2 sleeves (232001) are required for this tube.

232001	**Sleeve for evacuation tube** To be used in combination with (230010) evacuation tube with steel spiral.

Patient dedicated articles

Art.no.	Description
142010	**Main filter LP10** Main filter for surgical smoke evacuation. The filter must be exchanged at least every third month due to bacterial growth. **Connection diameters:** Conical ≈38mm.



142013	**Adapter LP10/Ø19mm** Adapter which enables mounting of Ø19mm Hytrel tube to main filter. **Inner diameter:** Conical ≈19mm to conical ≈38mm.

142014	**Adapter Pre-filter/Ø19mm** Adapter for mounting of Pre-filter to Ø19mm Hytrel tube. **Diameters:** Inner conical ≈19mm to outer conical ≈22mm.

420001 **Ø19x1900mm Hytrel tube**
Evacation tube, extension between main filter LP10 and pre-filter.

420005 **Ø19x3000mm Hytrel tube**
Evacuation tube, extension between main filter LP10 and pre-filter.

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