Instructions on Portable Absorb Phlegm Apparatus SS-6A

Please carefully read the instructions before attempting to operate this apparatus.

Product Features

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1. General

Portable phlegm apparatus SS-6A designed based on developing orientation of similar products at home and abroad is a new generation of oil free lubrication suction device, which is suitable for use by the patient who has difficulty in phlegm removal due to illness, coma and operation, as well as for aspirating such liquid as pus and blood during the clinical practice. It is the commonly applied medical device for use in the emergency room, operation room, and for nursing in sickroom and home health care.

2. Structure & Working Principle

- Oil free lubrication pump applied to keep the environment from being polluted by the oil mist;
- Lower noise;
- New style of the embedded liquid holder, square negative pressure meter, and full plastic enclosure;
- No any positive pressure to be generated during running, to ensure reliable and safe operation;
- Negative pressure regulating system in stepless adjustment as required;
- Suitable for first-aid and outdoor go-round for medical treatment because of its features such as small volume, light weight, and easy to carry about;
- Systematic diagram shown as follows:

(Systematic Diagram)
（Exhaust outlet） (Suction inlet) (Silencer) (Vacuum pump) (Negative pressure regulating knob) (Overflow valve) (To phlegm suction tube) (vacuum meter) (air filter) (liquid holder)

3. Main Technical Performances

(1) Limit negative pressure:	≧0.075 Mpa;
(2) Negative pressure regulating range:	0.02 Mpa ~ limit negative pressure
(3) Suction rate:	≥15L/min(SS-6A)
(4) Noise:	≤65dB (A)
(5) Liquid holder:	1000 ml/pc, 1 pc
(6) Power source:	AC 220 V ±22V, 50Hz±1Hz
(7) Input power:	90 VA
(8) Fuse tube:	RF1 Φ5X20/1.5A
(9) Weight:	5 kg
(10) Overall size:	280 x 196 x 285 (mm)

- The aspirator is not suitable for use in the place with inflammable & explosive gas;
- Working system: short time running;
- Electric safety requirement: Class I, Type B equipment

4. Normal Operating Conditions

• Ambient temperature:	5 ~ 40℃
• Relative humidity:	≤80%
• Atmospheric pressure:	86 ~ 106 Kpa

• Installing and Commissioning

1. Open Package Inspection

The customer shall carefully inspect if the appearance of product is good, and the varieties & quantities of the attachments are in conformity with ttube as indicated in the attached list before installing and commissioning. Also, the customer shall timely notify the supplier or manufacturer of damage(s) if any;

2. Connecting (See Tube Connecting Diagram, with phlegm suction tube temporarily not connected)

Note 1: Apply small amount of distilled water around the part (pressed into the holder mouth) of holder plug during installing, which is good for tightly pressing the holder plug and enhancing its sealing.

Drawing: Tube Connecting Diagram (Suction tube) (Air filter) (Blue mark) (Suction conductor) (Liquid holder) (To the phlegm suction tube)

3. Power line connection

Connect the plug with the power source. Turn on the power supply, and the power indicator will illuminate.
Note: The power plug is used for power shut-off, and the power socket shall be grounded reliably.

4. Connector inspection

- Turn tightly the negative pressure regulating valve clockwise, and block the air suction inlet with the finger or the rubber head of dropper, or fold up and hold the suction tube;
- Start the aspirator for running with no strange sound; the pointer on the vacuum meter will quickly reach up to the limit negative pressure. Release the suction inlet, the pointer will return below 0.02 Mpa. If so, the connector can be regarded as being in good connection.
- Attach the phlegm suction tube. The negative pressure in the negative pressure system shall be less than 0.06 Mpa at the time of attaching F6 suction tube, less than 0.04 Mpa when attaching F8 suction tube and less than 0.03 Mpa when attaching F12 suction tube. If so, the phlegm aspirator is considered as being in normal condition.
  Note: Dredge the suction tube if blocked as per the following method: Bend the suction conductor in "V" form (with no liquid in the holder), and release it to the original status when the negative pressure reaches up to the maximum value. Repeat this procedure several times till the tube is not blocked.

5. Negative pressure regulating

Block the suction inlet, open the aspirator switch and regulate the negative pressure valve, and the readings on the pressure meter shall be within 0.02 Mpa ~ limit negative pressure.

- Control the negative pressure as required for suction by means of the negative pressure valve at the time of clinical practice;
- Increase the negative pressure by turning the valve clockwise;
- Reduce the negative pressure below 0.02 Mpa prior to power shut-off.

6. Inspection & test on the overflow device

- Open the holder plug; clean up the valve mouth, and leveling the rubber valve clack on the float. The valve clack shall not be warped, bent and broken, but well connected with the float. The float shall be able to move freely in its support without any blockage;
- Lift the holder plug with hand to make the float contact the water surface perpendicularly. Gradually lower the holder cover to let the float rise;
- Tighten the hold plug, attach the suction tube conductor at the inlet, and screw firmly the regulating valve, then, actuate the aspirator;
- Put the suction conductor into one clean water pail or attempt to simulate actual application to suction the liquid into the holder of the overflow device. As a result, the float will rise as the liquid level ascends until the valve is closed and suction stops automatically. The final position of liquid level depends on the suction process adopted;
- Release the regulating valve, set the aspirator switch off, open the holder plug and empty the liquid in the holder. The float shall be at the bottom of the support and the valve is in open status in case of re-screwing firmly the hold plug;

If so, the overflow device is considered as being in normal condition, which can be used for clinical practice.

Note:

1. The liquid level still continuously ascends after the overflow device has been shut off, possibly due to:
   (1) Residual negative pressure still in the holder;
   (2) Valve mouth not fully closed.
   For Item (1), the liquid level in the holder will not ascend when the suction tube conductor is placed again into the liquid as suctioned, and for Item (2), the liquid level still ascends. Thus, it is required to observe carefully, and lift immediately the conductor out of the suctioned liquid when the holder is close to full, then, switch off the aspirator to stop suction, and examine the possible reason of the valve fault.
2. The float is still adhered on the valve mouth as already closed by the float, possibly due to the negative pressure in the line. At this moment, release the regulating valve or shut off the aspirator (to release the negative pressure in the line), the float will descends from the valve mouth under the action of gravity. (It is forbidden to pull the float with hand, in order to avoid the rubber valve clack being separated from the float);
3. After shut-off, release the negative pressure, then, open the holder plug;
4. Never use the aspirator under the condition of the overflow device & the conductor dismantled.

7. Stop running

Turn off the aspirator switch, and pull the power plug out of the socket to shut off the power supply.

8. Legends & implication for the sake of safety

Symbol	Meaning	Symbol	Meaning
~	AC power		Note! Refer to the document on board
	Protection, earthing		B type equipment

Application and Maintenance

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1. Application & maintenance

- Check the aspirator before using as per the installing and commissioning sequence to ensure its good performances, afterwards, start operation by connecting the suction conductor and the phlegm suction tube already sterilized;
  Note: Please refer to the instructions before attempting to use the suction tube supplied with the aspirator.

- Regulate the negative pressure as required for suction through the regulating valve, open/close the switch based on the situation, and observe frequently the liquid level in the holder in the process of operation. Stop suction if the liquid level in the holder ascends to the rated capacity (still applicable if slanting the aspirator 10^{o}), and re-use it after empty and clean-up. Otherwise, the float will rise as the liquid level ascends till the valve is closed and suction stops automatically;
  Note: Adopt the procedures mentioned in "Inspection & test on the overflow device", if the liquid level still ascends after the overflow device has been shut off.

- Emergency measures in the process of application:
  --- Quickly loosen the negative pressure regulating knob to release the negative pressure if the suction tube is blocked by strong phlegm and mucus, and start suction again after changing the suction tube;
  --- Adopt the above method to loosen the negative pressure regulating knob if it is not easy to take out the suction tube after completion of suction or the tube is adhered to human body tissue.
  Note 1: Bend the tube in "V" form prior to starting suction, insert the tube into the location of existing phlegm on the patient when the negative pressure reaches the desired range after start-up, then, recover the tube to its original status. This will lead to quicker suction effect.

  Note 2: The medical personnel shall select the proper suction tube according to the clinical requirement.

  Note 3: The aspirator shall be operated under the medical personnel's instructions strictly according to the scope of application and the operating sequence listed in the instruction manual. Please contact the supplier or manufacturer if there is any question.

2. **Changing air filter**

It is required to change air filter with the one produced by us in case of foam or dusts fully accumulated in the air filter, which leads to gradually darkening of the color of filter diaphragm and obviously reducing or even disappearing of suction force at the inlet of tube while the negative pressure indicated on the vacuum meter climbs up to 0.04 Mpa or more.

Note 1: The suction force will diminish or disappear, and the negative pressure ascend if the overflow device is closed, and the tube blocked in the process of application. Please refer to "Trouble Shooting".

Note 2: Necessary to frequently change air filter and destroy it centrally.

3. Changing the fuse tube

The fuse tube is mounted at the rear of the base. Switch off the power supply, and turn it counterclockwise and open, then, start changing the tube.

4.Maintenance

- It is recommended to have the suction tube suctioned small amount of clean water for cleaning up the inner wall;
- After use, empty the holder, clean up dirt on the holder and plug with soft brush or rag, flush it with water and conduct sterilization. (including the overflow device, the seal ring and various tubes. Unscrew the overflow device, and separate the float from its support for completely cleaning up, if necessary. (**Note: The rubber valve clack shall not be separated from the float**.)
- Use the physiological saline to clean out the residual strong phlegm and mucus in the tube after used. Replace the suction tube if not smooth. It is recommended to adopt one-time suction tube;
- Place the holder, cover and all tubes into the disinfectant compounded with the Kangweida disinfector tablets (0.5 g per tablet) in 1:500 concentration for 1 hour
  Note: Keep the glass holder away from any sharp utensils to avoid drop in the process of cleaning and application.
- Wipe the case outer surface with lightly wet rag already soaked in the disinfectant, and prevent any liquid seeping into the pump. Never wipe the places marked with letters and patterns;
- Place the machine in dry and clean places, and periodically start running once a time (normally one time every 6 months).
  Note: Install the overflow device, conductor and other tubes as per the connecting mode before re-use.

5. Trouble shooting

No.	Problem & Question	Reason	Possible Solution	Remarks
1	Limit negative pressure < 0.075 Mpa	a.Holder mouth leakage; b.Leakage on connecting points; c.Regulating valve loose or released.	a. Remove dirt, tighten or change the holder cover, seal ring, and connector; b. Re-tighten each connection point; c. Turn tightly the regulating valve	b. Change the broken suction tube
2	Negative pressure > 0.04 Mpa, with distinct reduction or disappearing of suction force at tube outlet	a. Overflow device shut-off; b. Tube blockage; c. Air filter blockage	a.After shut-off, turn the regulating valve loose counterclockwise to release negative pressure in tube, then re-screw; b. Dredge, clean or replace the tube; c.Replace it with air filter produced by us.	a. Empty the holder timely; c. The end (in blue mark) of air filter is the air inlet
3	Normal power voltage, but the indicator doesn't illuminate	a. Loose socket; b. Fuse broken; c. Indicator damaged	a. Repair or change the socket; b. Replace the fuse tube; c. Replace the indicator	b. Size: RF1 cp 5 X 20/1.5A
4	Fuse tube broken	a. Voltage over high; b. Internal line in fault; C. Pump blocked, and current increasing	a. Adjust voltage; b. Check the circuit line, and correct; c. Check the pump body and motor	By the specialized maintenance worker (Refer to Electric Systematic Diagram)

Note: The dismantling & repair on the pump body if fault shall be conducted by the specialized worker. Please contact the manufacturer if required.

Precautions - Tedbirler

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1. Handling and storage environment conditions

- Ambient temperature: -40 ~ 55℃
- Relative humidity: ≤95%
- Atmospheric pressure: 500 ~ 1060 hPa

Note: It is required to store the aspirator in the well-ventilated room without corrosive gas, and avoid any violent shock while handling.

2. Electric systematic diagram

Grey Brown Blue : Electric repair to be conducted by the specialized operator

2. **After-sale service**

- The manufacturer will be responsible for repairing or replacing free of charge this apparatus if it doesn't work properly under normal storage & operating conditions within 1.5 years starting from the ex-works date or 1 year from the sold date;
- Necessary information on the circuit diagram and for check is available upon request. Please contact the manufacturer if there is any problem related to the circuit check.

4. Attachments

- Suction conductor (2m long): one pc
- Air filter: two
- Fuse tube (RF1 et>5X20/1.5A) two sets
- Suction tube(SS-6A) one pc respectively
- Instruction manual: one pc
- Product warranty card: one copy
- Certificate of quality: one copy

one copy

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