User Manual
Portable Suction Unit

Serial number: JLP-001, JLP-002, JLP-003

Version: A/2; Issued date: 2022-07-13

CE
2862

Read the instructions carefully before using the device

1 Description and Intended Purpose

The HOMED portable Suction Unit is a low noise level and compact medical suctioning device which can be powered by AC current, it adopts oil-free lubricating pump, avoiding the pollution of oil mist.

Intended purpose

The device is intended to be used to remove sputum, mucus or other body fluids from the airway or respiratory systems of adult patients or pediatric patients. It is for use on the order of a physician only.

Device features:

-Easy to operate, low vibrations and quiet;

-Superior performance and high reliability for continuous operation design;

-Smooth surface and easy to clean;

-Collection bottle with overflow protection;

-Oil free lubricating pump, rapid vacuum build-up;

-Powerful and high suction capacity.

Higher vacuum levels are generally selected for oropharyngeal suctioning, and lower vacuum level are usually selected for tracheal suctioning and the suctioning of children.

Note:

As the Portable Suction Units, models No.: JLP-001, JLP-002, JLP-003 have the same intended use, basic technique principle and technical specification. The differences are that: JLP-001 has one collection chamber, JLP-002 has two collection chambers; about JLP-003, which has the same construction as the JLP-001, except that its operation panel is on the top surface, while the operation panel of JLP-001 is on the side surface. So, they can use the same manual.

2 Danger, Warnings and Precautions

When using the suction unit, basic safety precautions should always be followed, read all instructions before using.

The suction equipment should only be used by persons who have received adequate instructions in its use.

Danger:

*Do not place or store product where it can fall or be pulled into a tub or sink.

*Do not place in or drop into water or other liquid.

*Do not reach for a product that has fallen into water, unplug immediately.

*The portable suction unit is a vacuum suction device designed for the collection of nonflammable fluid materials in medical applications only. Improper use during medical applications can cause injury or death.

Warning:

*Do not disassemble the unit, to reduce the risk of electrical shock or injury to persons.

Disassembly or attempted repairs if accomplished incorrectly can create electrical shock hazard. Only qualified technicians should perform servicing of this suction unit.

*Use this product only for its intended use as described in this instruction.

*Never operate this suction unit if:

-It has a damaged power cord or plug;
-It is not working properly;
-It has been dropped or damaged;
-It has been dropped into water.

*Return the product to an authorized medical equipment service center for examination and repair.

*Keep the power cord away from heated surfaces.

*Never use while drowsy or asleep.

*Keep the collection bottle in horizontal position to prevent collection spilling.

*Check the collection bottle and tubing, make sure no damage before using.

* Not for use in an oxygen rich or flammable gas rich environment.

*The suction unit has to pause for 30 minutes after working for 20 minutes.

*Drugs or chemicals which will contact the product in use and are listed in the instruction for use (IFU).

- artificial saliva;
- artificial mucus;
- if applicable, artificial skin oil;

*The suction equipment is not suitable for use in an MRI environment.

*This product does not contain natural latex.

*Waste shall be disposed of in accordance with the relevant state regulations on environmental protection.

Precautions:

*All suctioning should be done in strict accordance with appropriate procedures that have been established by a licensed medical authority.

*Some attachments or accessories may not fit the tubing supplied. All attachments or accessories should be checked prior to use to assure proper fit.

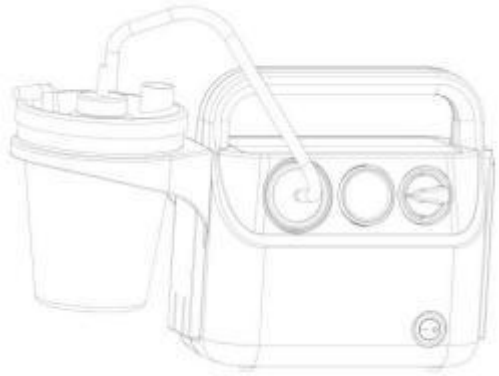
*HOMED portable suction unit is used with a power supply allowing operation on AC voltage 230V ~, 50 Hz.

3 Device information and Content information

Your JLP-00X suction unit contains the following components:

-One Vacuum motor
-One collection bottle (1000CC)
-One collection bottle holder
-One air tubing 28FR,1.8m
-One power cable
-One suction tubing 16FR, 0.5m
-One User Manual

HOMED suction unit consists of vacuum motor, collection bottle, suction tubing and power adapter, see the following drawing for details:

	
Engineering drawing	Photo

Statement: The parts in table above are required for correct function and that they have to be in compliance with this European Standard.

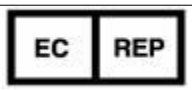
Handling

The shipping container has been designed to assure protection of this device, if the device is to be reshipped by common carrier, it should be packed in the same carton.

Information of power

230V~, 50Hz, input power 100VA

4 Description of symbols

Symbol	Explanation
	Manufacturer
	Authorised representative in the European Community
	Lot Number
	Serial Number
	Date of Manufacture
	Caution
	Waste Electrical and Electronic Equipment (WEEE)
	The CE conformity marking

	Refer to instruction manual/ booklet
	Type B applied part
	Class II equipment

Protection against harmful ingress of water
-IPX0 (ordinary)

Degree of safety in the presence of flammable anesthetics or oxygen
-No AP/APG(Not suitable for use in the presence of flammable anesthetice or oxygen)

5 Operating Instructions

1) Before use, check the specification label on the side of the suction unit to ensure that the voltage and current indicated on the unit correspond with the voltage and current available. Make sure the power switch located on the side of the unit is in the “O” position before connecting the unit to a power source.

2) Switch the power switch to “I” position (on), the unit start running.

3) Adjust the vacuum level from 0 to 520mm Hg by turning the vacuum adjust knob. Refer to the vacuum gauge while setting the desired level of vacuum. To accurately read the gauge, block the patient end of the hose or cap off the collection bottle and allow the gauge to reach a stable vacuum reading.

4) Place the patient tubing to the appropriate position of patient and start to suck sputum.

5) When the sputum reaches the safe full level of collection bottle, the suctioning will stop sucking automatically. (Float shut-off)

6) Switch the power switch to “O” position (off), shut off the suction motor.

7) Remove the sputum from collection bottle after the motor stops turning completely. (Please refer to the section “Cleaning and Disinfection” on page 6 for the directions of how to clean the collection bottle).

8) Turn on the unit and start to run the suction unit again.

Check and test the overfill protection device：

1. Useable volume of the collection container is 1000cc;
2. Open the bottle cap, clean the valve port, and press the rubber valve disc on the flat float. The valve disc should not be warped, torn, and connected to the float in good condition. The float should move flexibly in the float rack.
3. Hold the cap so that the float touches the water vertically and slowly move the cap down. The float should be able to float in the float holder.
4. Close the cap, connect the suction pipe at the suction inlet, tighten the regulating valve, and run the suction device.
5. Extend the suction pipe into a clear bucket or simulate the normal use of the situation, the

liquid will be sucked into the liquid storage bottle with overflow device, the liquid level rise will drive the float up until the valve is closed, the suction will stop automatically.

6. Loosen the regulating valve, close the suction device switch, open the bottle cap, empty the liquid storage bottle. When the cap is closed again, the float should be at the bottom of the float frame and the valve port should be open.

Regulating negative pressure：

1. Plug the suction inlet, open the sputum suction device switch, adjust the negative pressure regulator valve, the reading on the vacuum meter should be 0.02MPa to the limit negative pressure value range.
2. In clinical use, the negative pressure regulating valve is used to control the negative pressure value required when sputum aspiration.
3. Negative pressure regulating valve clockwise rotation, negative pressure increase.
4. Be sure to reduce the negative pressure to below 0.02MPa before shutting down.

Note:

1) If the unit sustains a severe drop, validity of the gauge must be checked. Inspect if the float shut-off is still functioning properly when the liquid in the collection bottle reaches the safe full level.

2) Always transport unit with vacuum adjust knob rotated fully clockwise in case unit is dropped.

Caution:

1) When automatic float shut-off is activated, contents of the collection bottles should be emptied. Further suctioning could cause damage to the vacuum pump.

2) Should fluid be aspirated back into the unit, send your suction to an authorized service center for a detailed inspection as the vacuum pump may have been damaged.

6 Cleaning and Disinfection

Clean collection bottle:

1) Turn off the suction unit and allow vacuum to drop, then disconnect AC power source.

2) With the collection bottle still in the holder, remove the collection bottle lid, the bottle can now be taken out of the holder to be emptied.

Note: collection bottle should be emptied after each use.

3) Collection bottle should be thoroughly clean after each use by one of the following three methods:

a. Wash in a hot water/dishwashing detergent solution and rinse with clean, hot tap water. Then wash in one part vinegar to three parts hot water solution. Rinse with hot tap water and air dry.

b) Wash with rubbing 75% ethyl alcohol for 3 times and air dry;

c) Wash with a commercial disinfectant; follow disinfectant manufacturer recommended instructions and dilution rates carefully; or immerse the bottle into 75% ethyl alcohol for 5 minutes;

Clean suction unit and collection bottle lid:

1) Disconnect the suction unit from all external power sources.

2) Wipe the suction unit housing and collection bottle lid with a clean cloth and any commercial disinfectant.

Warning: Do not submerge in water as this will result in severe damage to the vacuum pump.
Warning:

*The waster in collection bottle may cause respiratory infection which muct be handled according to medical waste disposing regulation. Operator must wear gloves and medical class mask before cleaning the collection bottle, tubing and handle the wasting unit and/or accessories.

*The suction tubing is for single use only, DO NOT reuse it, and also DO NOT use the tubing if the package is broken before it is unopened.

Bacteria filter change:

Bacteria filter should be replaced every two months. If overflow occurs, change the filter immediately.

Remove filter by disconnecting it from tubing connected to pressure adjusting valve and tubing connected to collection bottle lid assembly.

Replace with a new bacteria filter and connect to above two tubing. Additional filters can be purchased from an authorized dealer.

Replacement of fuse tube：

Specification of fuse tube：T2.5A 250V

Replacement cycle: If the fuse tube is damaged, replace it immediately.

Replacement method: the fuse tube is installed at the bottom of the base. Before replacing it, cut off the power supply. Open the rear cover with a screwdriver. If you find it difficult to replace parts, contact the manufacturer for replacement.

7 Technical specifications

Items	Specifications
Power adapter	230V~ 50 Hz
Input power	100VA
Free air flow rate	≥20L/min
Maximum vacuum	≥-60KPa
Operating atmospheric pressure	70kPa~106kPa
Sound level	≤65dB(A)
Operating environment	10℃~40℃, 30~80%RH, 70-106kPa
Storage temperature	-20℃~55℃
Storage humidity Range	10%~93%RH
Storage atmospheric pressure	70kPa~106kPa
Dimensions	JLP-001/002 246*120*229mm (L*W*H) JLP-003 315*205*190mm (L*W*H)
Weight	2.6kg

8 EMC information

This medical device manufactured by HOMED conforms to this EN60601-1-2 standard for both immunity and emissions.

Nevertheless, special precautions need to be observed:

Note: Do not use mobile (cellular) telephones and other devices which generate strong electrical or electromagnetic fields, near the medical device.

This may result in incorrect operation of the unit and create a potentially unsafe situation.

Recommendation is to keep a minimum distance of 7 m. Verify correct operation of the device in case the distance is shorter. See the table 8.1 to table 8.4 in the following:

Table 8.1 Electromagnetic emissions

JLP-00X series suction units are intended for use in the electromagnetic environment specified below; The customer or the user should assure that it is used in such and environment.		
Emission test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	JLP-00X uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	/.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies	

Table 8.2 Electromagnetic Immunity

Guidance and manufacture's declaration – electromagnetic immunity			
JLP-00X is intended for use in the electromagnetic environment specified below. The customer or the user should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact +2 kV, +4 kV, +8 kV, +15 kV air	±8V Contact +2 kV, +4 kV, +8 kV, +15 kV air	Floors should be wood, concrete or ceramic tile. If floor is covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for Power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1kV differential mode ±2kV common mode	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	0% UT; 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 and 315 degrees, 0% UT; 1 cycle 0 degree 70% UT (30% dip in UT) for 25 cycle single phase at 0 degree 0% UT; 250 cycle	0% UT; 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 and 315 degrees, 0% UT; 1 cycle 0 degree 70% UT (30% dip in UT) for 25 cycle single phase at 0 degree 0% UT; 250 cycle	Mains power quality should be that of a typical commercial or hospital environment. If the user of the JLN-2305AS requires continued operation during power mains interruptions, it is recommended that the JLN-2305AS be powered from an uninterruptible power supply.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	30 A/m 50Hz/60Hz	30 A/m 50Hz/60Hz	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Table 8.3 Electromagnetic Immunity

Guidance and manufacture's declaration – electromagnetic immunity			
JLP-00X is intended for use in the electromagnetic environment specified below. The customer or the user should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment -guidance
Conducted RF IEC 61000-4-6	3 VRMS 150kHz to 80MHz 6Vrms in ISM bands between 150kHz to 80MHz 80%AM at 1kHz	3V	Portable and mobile RF communications equipment should be used no closer to any part of JLP-00X, including cables, than the recommended separation distance calculated from the equation applicable 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 2.7 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 an electromagnetic site survey, should be less than the compliance level in each frequency range.
Radiated RF IEC 61000-4-3	10 V/m 80MHz to 2.7GHz 80%AM at 1kHz	10 V/m	

			Interference may occur in the vicinity of equipment marked with the following symbol: 

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.

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio 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 JLP-00X is used exceeds the applicable RF compliance level above, JLP-00X should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating JLP-00X

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Table 8.4 Electromagnetic Immunity

JLP-00X is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and JLP-00X 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	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated 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.

9 Troubleshooting

Problem	Action
Unit does not turn on	Check power source and connection

	Ensure that the wall outlet is live
	Check power cord is not damage
Motor runs, no vacuum	Verify tubing connection security
	Check for leaks or tubing kinks
	Ensure that float shut-off is not activated
	Check for bottle leaks and cracks
Low vacuum	Use vacuum adjust knob to increase vacuum level
	Check system for leaks
	Adjust vacuum, knob and release

10 Warranty and Validity

Validity of Main Unit: Two years

Validity of suction tubing: single use

Note: Do not attempt to open or remove the suction cabinet, it may cause electric shock hazard, and opening or tampering with the unit will void warranty.

The legal provisions in this respect apply. The warranty is limited to detective material and workmanship. Batteries and cable are not covered by the warranty, damage through misuse or modification is not covered. The warranty is only valid if the product has neither been opened nor subjected to violence or willful damage and it is return with the original receipt. Contact your dealer if you have any complaints. For further information contact the customers service (TeL: +86 0755 29821671/29821673/29821675, E-mail: sales-oe@systems.citizen.co.jp). In the event of warranty claims being deemed to be justified, the customer concerned will be supplied with a replacement product. The customer is only entitled to receive a comparable replacement product.

WEEE information

Caution: Instructions for a correct disposal of the product.

Disposal requirement: Comply with WEEE directive, it must be disposed of in accordance with the locally applicable regulations, not with domestic waste.

11 Address

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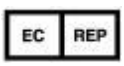

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