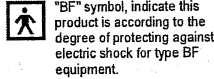




INSTRUCTION MANUAL

MEDI PUMP Portable Suction Unit Model No.: VC-701 / TC-2000V



SAVE THESE INSTRUCTIONS.
READ ALL INSTRUCTIONS BEFORE USE

SYMBOLS:

- Attention
- Consult operating instructions
- Manufacturer
- Authorised representative in the European Community

1. IMPORTANT SAFEGUARDS

- ⚠ DANGER** To reduce the risk of electrocution:
- Always unplug this product immediately after using.
 - Do not use while bathing, showering, dish washing, or close to water sources of any kind.
 - 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.
- ⚠ WARNING** To reduce the risk of burns, electrocution, fire or injury to persons:
- This product should never be left unattended when plugged in.
 - Close supervision is necessary when this product is used by, on or near children or infants.
 - Use this product only for its intended use as described in this manual. Use this product only under doctor's direction. Do not use attachments not recommended by the manufacturer.
 - Never operate this product if a) it has a damaged cord or plug, b) it is not working properly, c) it has been dropped or damaged, d) it has been dropped into water. Return the product to a specified service center for examination and repair.
 - Keep the cord away from heated surfaces.
 - Never block the air openings of this product or allow objects to fall or be inserted into the air vent openings or place it on a soft surface such as bed or couch, where the air openings may be blocked.
 - Never use while sleeping or feeling drowsy.
 - Never drop or insert any object into any opening or hose.
 - Do not use in outdoors or operate where aerosol (spray) products are being used or where oxygen is being administered in a closed environment such as an oxygen reservoir.

ATTENTION, CAUTION, WARNING & DANGER STATEMENT

- ⚠ NOTE** Indicates information that user should pay special attention to.
- ⚠ CAUTION** Indicates correct operating or maintenance procedures in order to prevent damage to or destruction of the equipment or other property.
- ⚠ WARNING** Calls attention to a potential danger that requires correct procedures or practices in order to prevent personal injury.
- ⚠ DANGER** Urgent safety information for hazards that will cause serious injury or death.

2. INTRODUCTION

2.1 Intended Use:

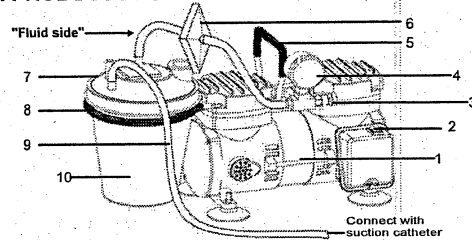
This medical suction pump is designed for professional caregivers to proceed with pharyngeal or tracheal suction for patients. Applications of this product must be prescribed by physician or qualified medical professional.

- ⚠ NOTE** Except the usages mentioned above, please do not use this product for any other purpose. This device can be used with adults, children or infants under prescriptions of medical professional.

2.2 Safety precautions Instruction:

When using this electrical product, especially when children are present, one should always follow basic safety precautions. Do not install, maintain or operate this equipment without reading, understanding and following the proper instruction manual, otherwise injury or damage may result.

3. PRODUCT DESCRIPTION



- | | |
|---|----------------|
| ① Pump body | ⑦ Canister lid |
| ② Power switch | ⑧ Bracket |
| ③ Pressure regulator | ⑨ Suction tube |
| ④ Pressure gauge | ⑩ Canister |
| ⑤ Handle | |
| ⑥ Tubing-filter set: 25 cm long tube, 15 cm short tube, hydrophobic filter, *tube connector | |

* tube Connector is available for 800c.c. canister only.

Accessories

User has to be informed to use CE marked devices only/divices which are in compliance with MDD requirements. The standard package of suction pump is one main unit with an instruction manual. There are many optional different types of tubing-filter set, suction tube, canister and suction catheter that can be used with this suction pump. You should contact our distributor and authorized service representative for recommendations on which of these accessories will best fit your needs.

A tubing-filter set suitable for use is Medical Industries America Inc. (Model #611, short tube 7.0(ID)X13.0(OD)X150(L)mm+ Long tube 7.0(ID)X13.0(OD)X250(L)mm)
A suction tube suitable for use is Lily Medical Corp.(Model #1210003, 7.0(ID)X10.4(OD)X1800(L)mm)

A canister suitable for use is Lily Medical Corp. or Medical Industries America Inc.

Pump	Canister model	Canister supplier	Dimension
TC-2000V	1104005	Lily Medical Corp.	Ø171x272.8(H)mm
VC-701	610-48	Medical Industries America Inc.	Ø150x185(H)mm

A suction catheter suitable for use is Lily Medical Corp.

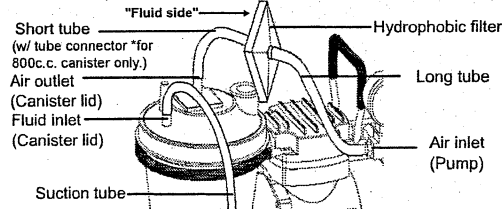
Suction Catheter model	Dimension
Adult CSA-5114GA	14FR+3.18(ID)X4.7(OD)X470(L)mm
Child CSA-5110GA	10FR+2.19(ID)X3.3(OD)X470(L)mm
Infant CSA-5105GA	5FR+1.0(OD)X1.7(OD)X470(L)mm

4. OPERATION

- ⚠ CAUTION** The suction procedure should be instructed by medical professional.
- ⚠ CAUTION** Prior to plug-in the unit, make sure the power switch is at "O" (OFF) position.
- ⚠ CAUTION** The suction pump is designed for intermittent use only. Do not operate it continuously for more than 30 minutes for a single use without turning it off and following a cooling period for least 30 minutes.

- Before each use, inspect the suction pump and the accessories for damage or wear, replace as needed.
- Place the suction pump on a flat, stable surface.
- Keep both the power switch and the pressure-adjusting knob within the reachable distance of the operating person.
- Seal the canister properly with lid and then put the sealed canister into the bracket.
- Make sure the power switch is in the "O" (OFF) position; turn the pressure-adjusting knob to the minimum suction power, and plug the power cord into an appropriate electrical wall outlet.
- Connect the long tube of the tubing-filter set to the air inlet of the pump and connect the short tube with *tube connector of the tubing-filter set to the air outlet of the canister lid. (**for 800c.c. canister only.)

** The "fluid side" of the hydrophobic filter shall connect to the short tube, tube connector then to the canister lid.



- Connect the suction tube to the fluid inlet of the canister lid.
- Press the power switch to the "I" (ON) position and adjust the suction pressure to the ordered value to start with the suction procedure.

Expert opinion suggests endotracheal suctioning pressure

Adult	100-120 mmHg
Child	80-100 mmHg
Infant	60-80 mmHg

Nasotracheal suctioning pressure

Adult	100-150 mmHg
Child	100-120 mmHg
Infant	80-100 mmHg

- Suction time should be ≤15 seconds, the interval of repeating suction should be more than 2 minutes.
- If the suction procedure needs to be interrupted; turn the suction pressure to the minimum level and press power switch to "O" (OFF) position.
- When the treatment is completed, press the power switch to "O" (OFF) position and unplug the power cord from the electrical outlet.
- Clean the suction pump and dispose the suck-out waste, suction accessories properly.

5. CLEANING

5.1 Unit Housing Cleaning

- ⚠ WARNING** Electric shock hazard. Do not remove outer case of this unit. All disassembly and maintenance of this unit must be done by a qualified service technician. Refer servicing to qualified service personnel.
- ⚠ WARNING** This unit does not require oil. Do not attempt to lubricate any internal parts.
- ⚠ WARNING** Unplug unit before cleaning. Do not submerge in water for cleaning.
 - Wipe the main unit with a damp cloth every few days to keep it dust-free.
 - Do not use any powdered type cleaners or soap. Do not submerge the unit into water.

5.2 Accessories Cleaning

- ⚠ WARNING** Detail information about cleaning, maintenance, storage & transportation, please refer the information from the instruction of accessories.

6. STORAGE

Keep the suction pump and all accessories dry; avoid direct sunlight.

7. MAINTAINENCE

- To reduce the risk of electric shock, do not disassemble the unit.
- All repair services and maintenance procedures must be performed by qualified service personnel.

8. TROUBLE SHOOTING

If your suction pump fails to function, consult the trouble shooting guide below. If the problem persists, consult your equipment provider.

Problem	Cause and Solution
Device Doesn't Operate.	<ol style="list-style-type: none"> Check if plug is properly fit into an appropriate electrical outlet. Check if the power switch is turned to "O" (ON) position When device has been run continuously for over 30 minutes right before using, an auto shut down may activate by built-in thermal protector, cool down device for 30 minutes before next usage. If the hydrophobic filter is broken or drenched, replace a new one.
Weak Suction Power	<ol style="list-style-type: none"> Check for proper electrical voltage. Check tubing for blockage, damage, or air leakage at connection to hydrophobic filter, canister or main device, replace as needed. Check if the filter-tubing set is properly assembled and not damaged. If there is any damage, replace as needed. If the hydrophobic filter is broken or drenched, replace a new one.

9. SPECIFICATIONS


Pump Model	VC-701	TC-2000V
Pump Type	Single Cylinder	Twin Cylinder
Power consumption	65W	85W
Electrical Ratings	AC 110~120V,60Hz	
Power cord	6 feet	
Max vacuum pressure	≥ 600~670mmHg	≥ 600~670mmHg
Max flow rate	≥ 16 lpm	≥ 24 lpm
Dimensions (L x W x H)	34 x 15.5 x 21cm	38 x 16.5 x 24cm
Canister	800 c.c. or 1,800 c.c.	
Weight	4.25 kg	5.2kg
Temperature	Operation: 10°C to 40°C/ 50°F to 104°F Storage: -15°C to 50°C / 5°F to 122°F Transport: -15°C to 70°C/ 5°F to 158°F	
Humidity	Operation: 10% to 90%RH non-condensing Storage: 10% to 90%RH non-condensing Transport: 10% to 90% RH non-condensing	
Classification	Class I device , Type BF. (Classification according to EN 60601-1)	
Applied part	According to EN ISO 10079-1 & EN 60601-1 The applied part is: BF type/suction catheter	

WARNING For safety concern and avoid damaged occur, always make sure the electrical rating is matched between outlet and suction unit.

10. Appendix: EMC Information


Recommended separation distances between Portable and mobile RF communications equipment and the ME Equipment			
The ME equipment is intended for use in an electromagnetic in which radiated RF Disturbances are controlled. The customer or the user of the ME equipment can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the ME equipment 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

Declaration – electromagnetic emissions and immunity – for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING

The ME declaration – immunity			
The ME system is intended for use in the electromagnetic environment specified below. The customer or the user of the ME system 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 150 kHz to 80 MHz	3V	Portable and mobile RF communications equipment should be used no closer to any part of the EQUIPMENT or SYSTEM including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Interference may occur in the vicinity of equipment marked with the following symbol. 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3V/	

Declaration – electromagnetic immunity			
The ME system is intended for use in the electromagnetic environment specified below. The customer or the user of the ME system 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	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are 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 ±1 kV for input/output 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	±1 kV differential mode ±2 kV 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	< 5 % UT (> 95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles < 5 % UT (> 95 % dip in UT) for 5 sec	< 5 % UT (> 95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles < 5 % UT (> 95 % dip in UT) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the EQUIPMENT or SYSTEM requires continued operation during power mains interruptions, it is recommended that the EQUIPMENT or SYSTEM be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Declaration – electromagnetic emissions		
The ME system is intended for use in the electromagnetic environment specified below. The customer or the user of ME should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
Emissions CISPR 14-1	Passed	The ME system must emit electromagnetic energy in order to perform its intended function. Nearby electronic equipment may be affected.
Harmonic emissions IEC 61000-3-2.	Passed	The ME system must be used only in a shielded location with a minimum RF shielding effectiveness and, for each cable that exits the shielded location, a minimum RF filter attenuation of 80 dB from 10 MHz to 20 MHz, 100 dB from 20 MHz to 80 MHz and 80 dB from 80 MHz to 100 MHz. (The minimum at 20 MHz is 100 dB and the minimum at 80 MHz is 80 dB.)
Voltage fluctuations/ Flicker emissions IEC 61000-3-3	Passed	The ME system, when installed in such a shielded location, is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.

 **APEX MEDICAL CORP.**
9, Min Sheng St., Tu-Cheng,
Taipei County, 236, Taiwan