

Instruction Cum User Manual For EP-90



Dear Customer,

Congratulations on your excellent choice of ANAND's dual power suction unit. "EP-90" is a high vacuum high volume suction unit of proven rotary pump design with reliable performance record and is versatile with a range of accessories and safety features. So it is universally acceptable in hospitals, private practice, surgical and gyncaecology.

ASSEMBLY AND GENERAL INFORMATION

Motorized and manual pumps are housed in the cabinet. On the platform, apart from the oil container, is to faster in the motorized pump well with the base, four black hexa bolts (used as hold fast for transportation at the bottom of the unit) MUST be removed by rotating anticlockwise with the aid of a simple handtool.

Before the unit is put on please see that,

1. The plug is connected to the grounded outlet. In case of fluctuation, use voltage stabilizer.
2. The vacuum control knob is not loose. It must be fully tightened clockwise.
3. The lids are tightly placed on the jars and the tube on the nozzle of the lids.
4. The oil container is full with lubrication oil No.40.
5. The lids and tube are tightly placed on the jars. To avoid leakage the push-in and angular connectors must be inserted as far as the stop. While unplugging, twist and pull. The tubing should be without any kinks.
6. So that there is no leakage at the nozzle-connector joint, press and twist the connector to make it snug fit. Same way while unplugging, twist and pull.

ATTENTION

1. The unit can overheat if it is restarted while under vacuum. Make sure it is between 0 and 150 mm Hg
2. Always turn the power off with the power switch after job is complete or, in case of breakdown, in between the use.

TECHNICAL

Housing: Spot Welded, Oven baked cabinet

Capacity: -700 mm Hg \pm 10 regulable, flutter free vacuum control knob, 28 Ltrs./min and manual 200mm per stroke.

Pump type: Single Rotary vane pump. Manual-Piston type

Jar: Wide mouthed 2x2 Ltrs. Self sealing bungs with overflow safety device.

Vacuum Gauge: Bourden type 6.25 cms. 0-760mm Hg (also inches) calibration. A second one for manual system.

Power: 230V AC, 50 Hz, 2 ± 0.5 Amps, 200 watts. (110V on request)

Noise Level: 50 dB A \pm 3 Almost whispers.

Dimension & Weight: 40 x 40 x 90 cms: 30 kg.

VACUUM AT ALTITUDES

The specified maximum vacuum refers to sea level. According to local conditions, and barometric pressure, slight deviations in vacuum reading may be noted. As a reference, the table below shows several factors by which the indicated maximum vacuum value must be multiplied, according to the altitude of location where the measurement is carried out.

Location/Maximum Vacuum

Location	Sea level	1000m	2000m	4000m
Factor	1.00	0.88	0.78	0.60

New Development:

1. Between the motorized pump and the suction jar, an autocavable safety jar with antibacterial filter (element replaceable) has been added.
2. To minimize infection of an oral catheter, sterilizable catheter holding glass with two size tube holding hooks has been provided.
3. Overload protection (glass fuse with one spare refill) is built in beside the mains input socket.

GUIDELINES FOR USE

Lubrication: The top unit must be lubricated with good quality oil (Mobil oil no.40) as soon as oil container on the top gets empty. This way not only you get good suction but service for years together.

Foot Switch: This switch (2 volts) can be used to switch the pump on or off from a distance. The main switch on the pump unit must be in the ON position.

Safety Jar: It apart from the holding over flowing splash droplets, filters the evacuated air before it enters the pump and thereby infects the environment. For reasons of hygiene the filter paper must be changed each time the unit has been used and the housing cleaned/autoclaved.

Catheter Holding Glass: Suction tube/catheters can be put or hung through the built in two size hooks in the autoclavable glass.

Negative Pressure: Before the unit is put to use, required vacuum must be set by occluding the safety jar nozzle and controlling the release valve. Fully tightened (clockwise) vacuum control knob means full vacuum.

Pedal Unit: Pedal unit is incorporated in the housing. Vacuum inlet point is on the side and it is to be connected to one jar. The vacuum of pedal unit is shown on the separate gauge on the panel. The safety jar and release valve are only for electric system.

Jars/Tubings: The material of the jars polycarbonate (PC) is superior to glass. It is less fragile when subjected to impact and less sensitive to temperature shock. PC is resistant up to 120°C provided it is not subjected to any physical loading.

As the flow rate is high 3/4th filling of the jar is recommended. The lid has a built-in antifothing device. The jar is easier to clean if a little water or disinfectant is put into it prior to suction operation. The safety jar must, however, remain dry

CLEANING AND DISINFECTING: After each use, jars, lids, overflow cut off valves, suction cannulae, catheters, etc. should be cleaned thoroughly. When cleaning is necessary after infective fluid has been evacuated, the jars, lids, cut off valve, safety jar and metal cannulae (if any) can be sterilized by autoclaving upto 120° C which is almost equal to 5 minutes boiling and tubing by some sterilizing solution e.g. chemical method: rinse disinfectants and gas. Alkaline cleaning agents and disinfectants based on phenyl may not be used. Please note that the PVC becomes brittle after some time and should be changed.

Adherence to hospital directives on hygiene is of prime importance. The instructions provided by the suppliers of cleaning agents as well as by the manufacturers of sterilization and/or disinfection units must also be followed, where application, temperature, process duration and airing, etc. are concerned.

PUMP CLEANING

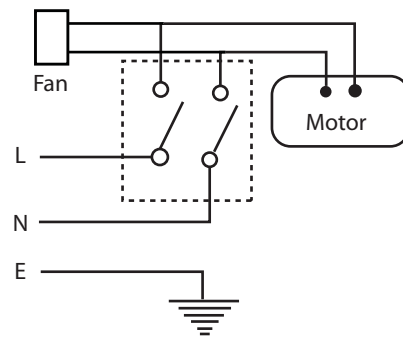
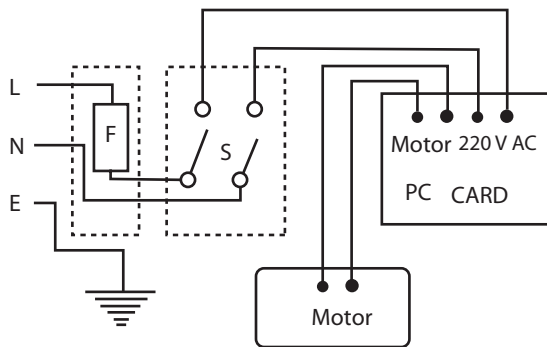
One jar is for electric part and the other is for manual operation (inlet connectors for manual is on the side.) The mechanical overflow cut off device in Jar II will debar it from entering into the safety jar. However, splash droplets might enter the safety jar (which should always be dry) and which has another mechanical safety device fitted in the lid. If for any reason, because of human error, droplets find way into the pump, the following exercise should be done immediately.

1. Pull out the safety jar arm and run the unit by keeping a thumb on the suction inlet for a minute or two. Unscrew and take out the pin from the vacuum control knob and with the pump still on, gradually pour, 10-15 drops of lubrication oil in the opened release valve. Block the inlet 'OFF' and 'ON' for a couple of times. Put the knob pin and the safety jar in their respective places.

2. If it does not start, please consult the hospital engineer or an electrician. If this exercise is not done immediately after the accidental entry of blood in the pump, the blood will stick dry inside the pump housing and the whole pump will have to be opened, cleaned, lubricated and set again. For this, open the back door, remove plastic tubing outlet point 'L' tube. To dilute the dried blood, pour few drops of kerosene oil/diesel and make the unit on-off. After it takes a start, keep the unit running and gradually pour 10-20 drops of lubrication oil in the running unit.

3. After say a run of 30 minutes or more put the tubing, exhaust outlet and door back to its original position. The outlet point (exhaust) inside the housing can be opened. Cleaned and gauze refill replaced in it. Even otherwise, replacing of gauze/refill is suggested every six months.

In long duration operations, if possible, put off the unit even if for a few minutes.



TROUBLE SHOOTING:

Problem	Possible source of trouble	Check/Action to be taken
Motor does Not Run	Power Supply	Voltage, power socket
	Main switch	Set at "ON"
	Electrical cord	Plug type, plug connections, damaged cord
	The blood has entered the pump. The remedy is given above under pump cleaning, if the unit makes more noise, it needs lubrication. Also clean the exhaust outlet.	
Inadequate Suction Performance	Leak within the pump or in the external suction circuit	Isolate the source of trouble by carrying out the checks outlined.
	External cause: Push-in connector O-rings/Lid gasket	Condition
	Safety jar O-rings	Condition
	Push-in angular connectors	No Leaks at tube ends. Push in as far as stop.
	Release Valve	The Knob should be tightly placed
	Tubing	Cracks, brittle areas
	Lids	Airtight fit jars and Safety jar
	Jars	Condition, Possible cracked edges, hairline cracks
	Bacteria filter housing on Safety jar top	Condition and absence of leaks
	Filter paper	Condition, position of housing
	Internal cause: Tubing or mechanical components	Diagrams given above-also electrical
Vacuum gauge indicates a vacuum Pump does not suck, however	Blockage or kink in tubing within the pump or in the external suction circuit	Isolate source of trouble as follows: Remove the safety jar, leave the suction connection open. If the vacuum gauge now indicates zero vacuum, the cause is external
	External cause: Bacteria filter, safety jar, overflow valve in the lid, (float valve) push-in connectors, tubing etc.	Investigate the whole external suction circuit for blockage (s), float valve sticking, kinked tubing and rectify. If the vacuum gauge still indicates a vacuum, the cause is internal

* If need be, check 'pump cleaning' above

TERMS OF WARRANTY

Anand Medicaids Private Limited warranty the high quality and workmanship of each Anand's HI-VAC for a period of one year subsequent to the date of delivery by the company. During this period, faulty material will be replaced free of charge. This warranty does not extend to components that are subject to wear and tear in the course of normal operation or due to improper treatment/maintenance as per instructions.

Further conditions in accordance with international standard IEC 601.1 item 6.8.2b.

The manufacturer is only responsible for effects on the safety, the reliability and the performance of the appliance if

- Installation, additions, adjustments, modifications or repairs are carried out by personnel authorized by the manufacturer
- The electrical installations within the room concerned satisfy the requirements laid down by IEC.
- The appliance is used in full accordance with the instruction manual which is solely a guide and no substitute for professional training. The safe and effective use of this product largely depends on the skill of the operator. We are not liable for any damages due to mishandling or improper and unauthorised use.
- The company reserve the right to change technical specifications, designations and catalogue numbers without prior notice.

Note

Ensure that your electrical wirings are well earthed with 1 line and 1 neutral phase and your voltage is between 220V 240V. 50 Hz.

Ensure that the suction unit should not be lifted above human body level.

Dispose of used product/packaging in safe manner so as not to harm stray cattle, children and environment.

WARRANTY CARD

Model No. _____

SN _____

Date of Purchase: _____

Dealer Name: _____

Stamp :



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EC REP

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