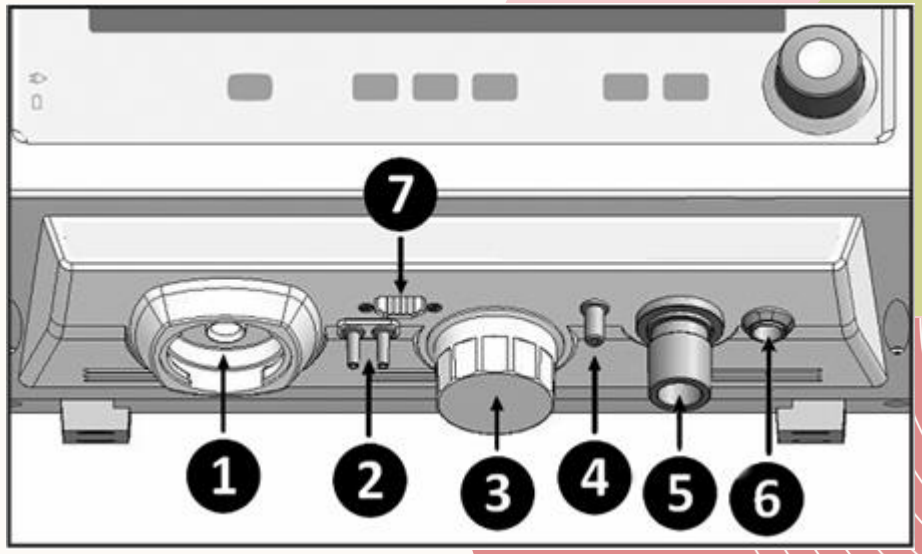
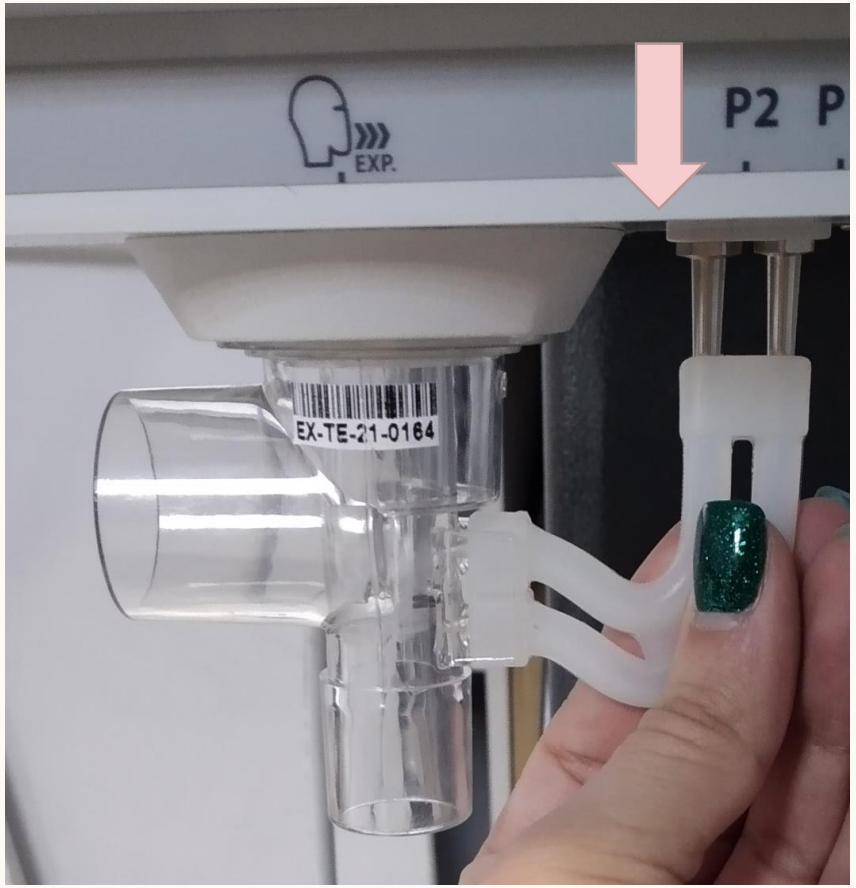
Head of Ventilator

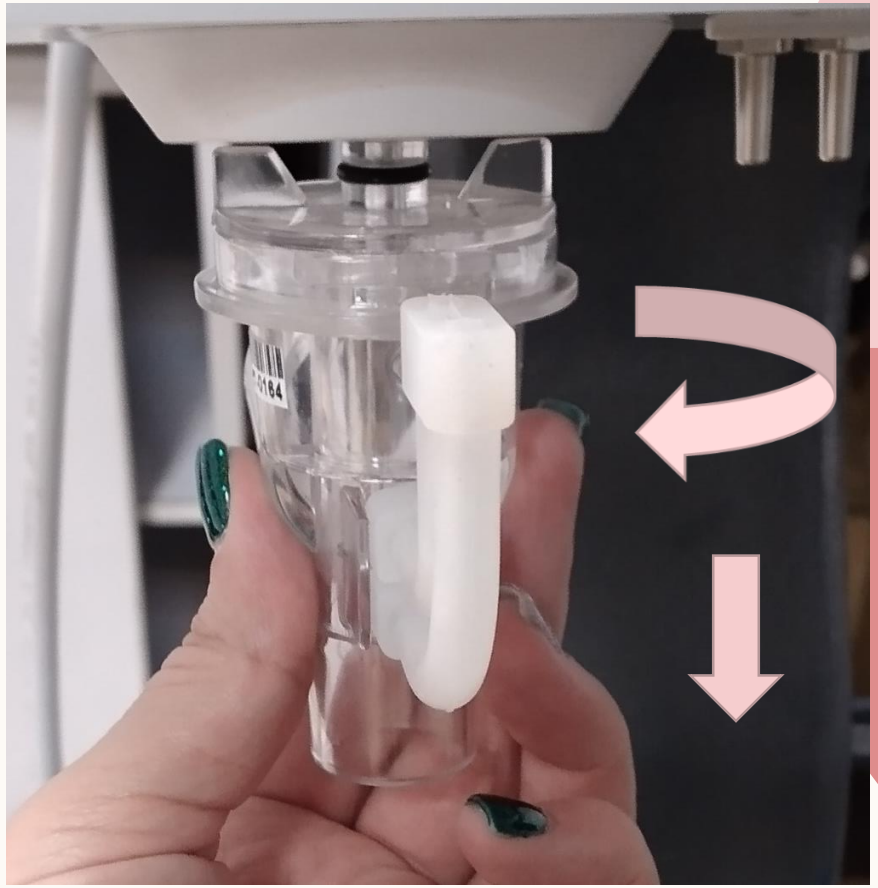
Head Connections to Patients

1. Connection for the expiratory set.
2. Connections for pneumotachograph hoses of the expiratory valve.
3. O2 cell
4. Connection for the nebulization hose.
5. Connection Towards Patient of the patient circuit.
6. Inlet for the capnograph connector.
7. Connection for proximal pneumotachograph.



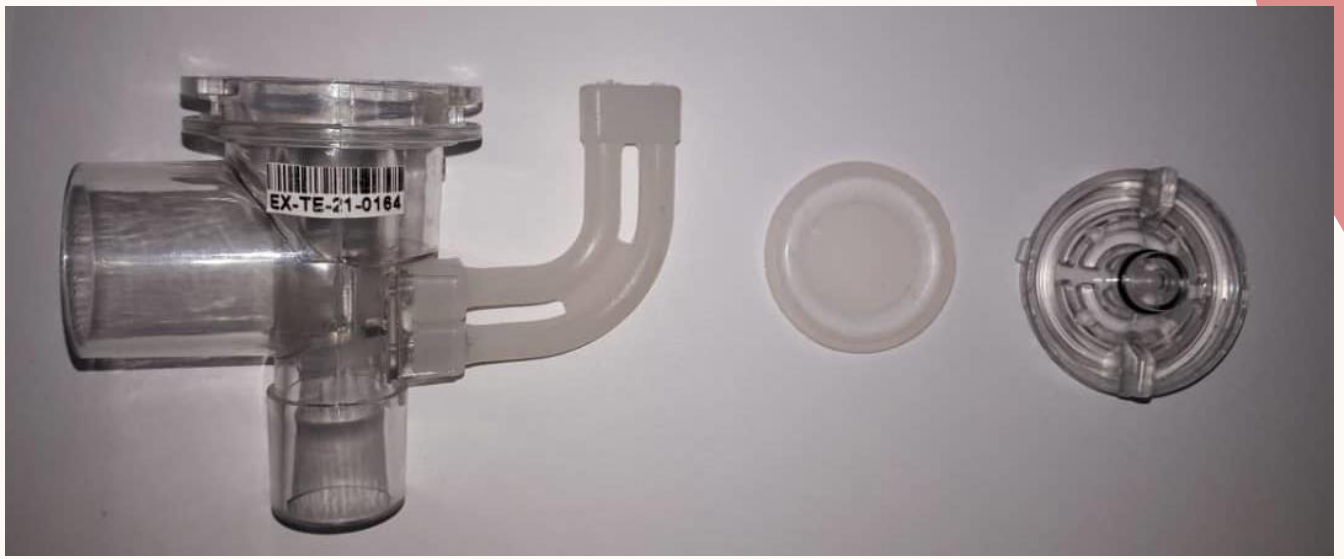
How to remove expiratory valve





How to maintain expiratory valve

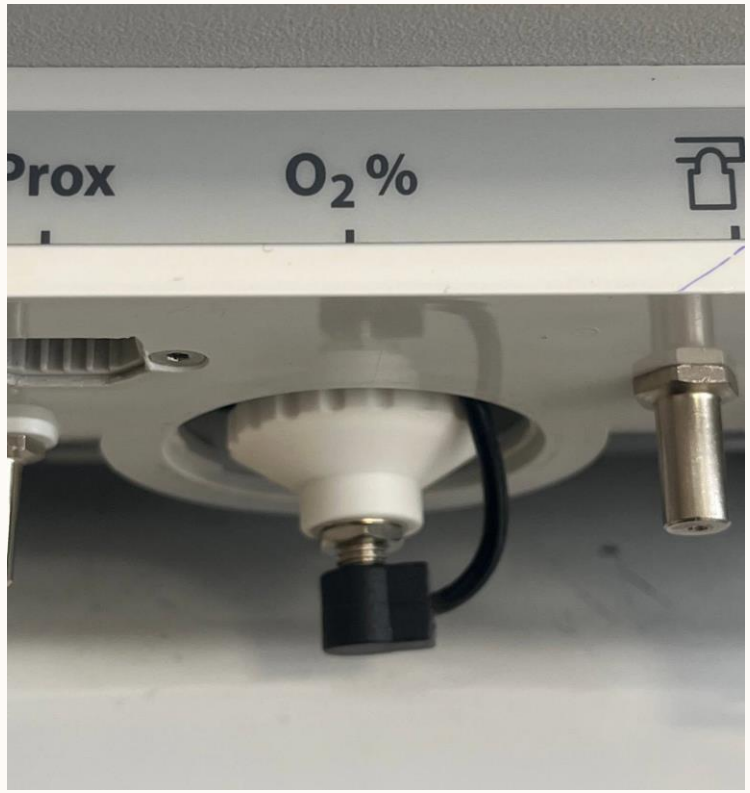
20 min
70% alcohol



O2 sensor

Adjusted FiO2 should be equal to monitored FiO2

- Defectiveness
- Low O2 Pressure
- Incorrect O2 inlet connection



Back of Ventilator

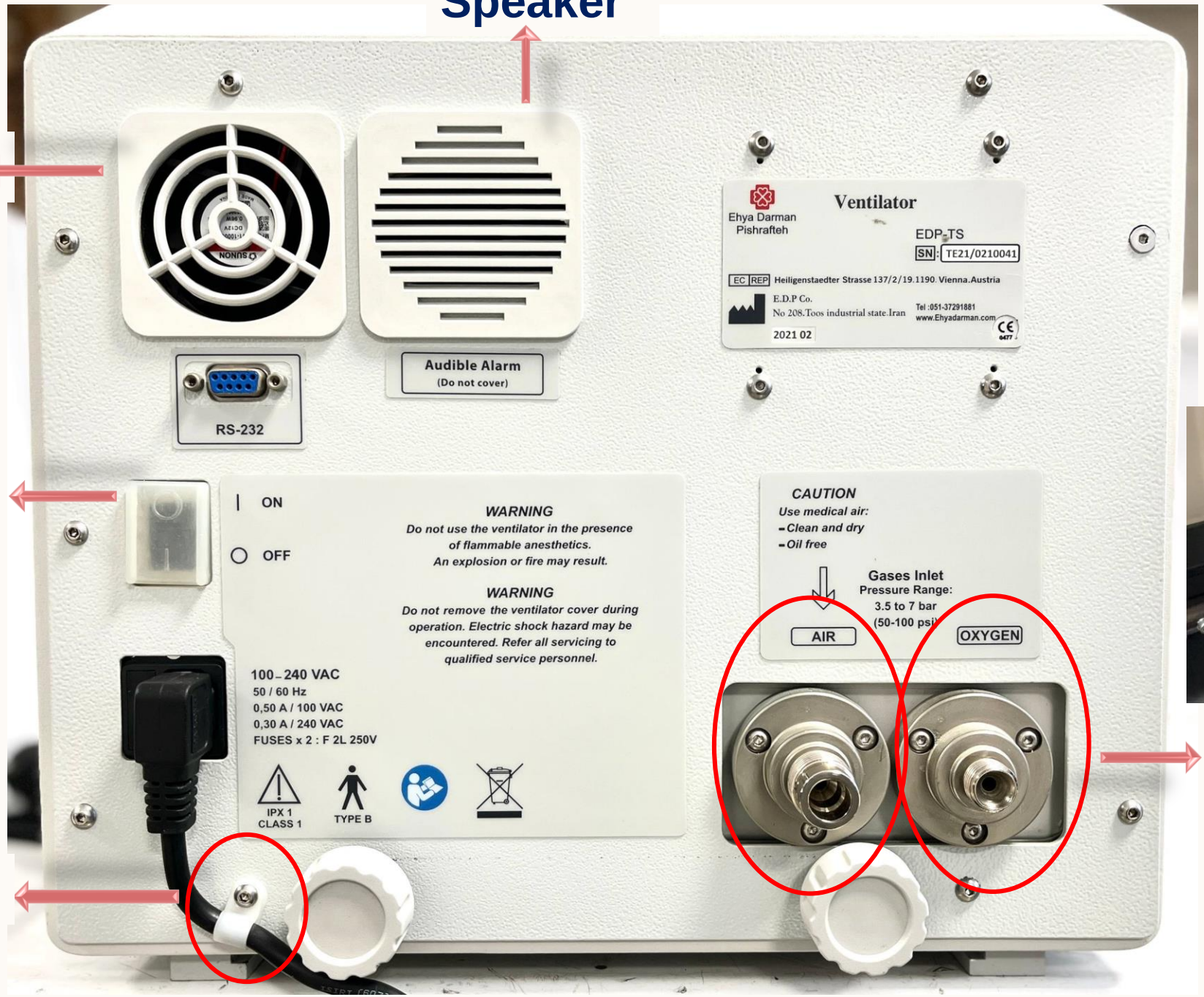
Speaker

Fan

ON/OFF

Safety Clamp

connectors



Compressor

- Make compressed medical air
- Filtered and Prepared to mixed with O2
- Time Service : Evry 4000 Hours
- Pressure range: **3.5 – 7 bar**

Back of Compressor

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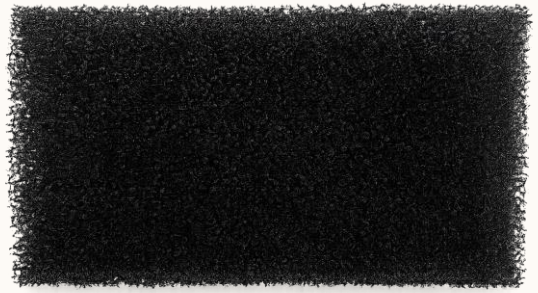


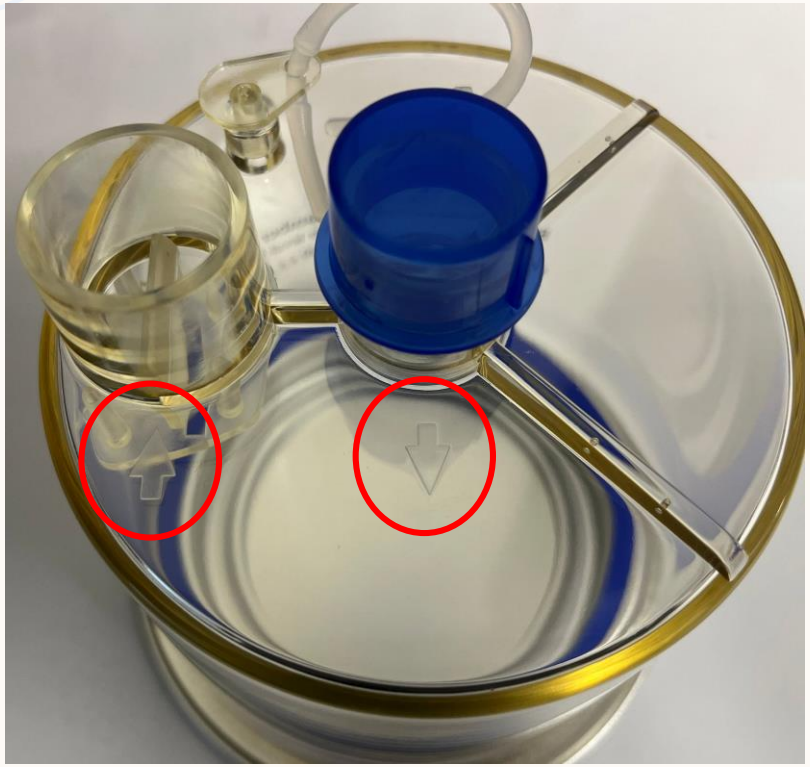
Change every 6 months

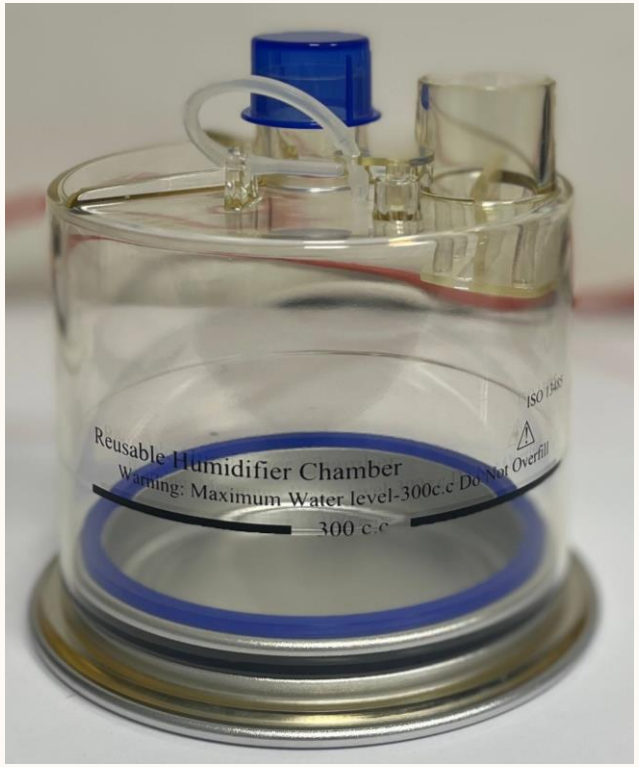
Humidifier

- **Non-Servo (For ADL)**

Humidifier

- **Non-Servo (For ADL)**
  - **How to Connect**





Just fill with Distilled Water
Do not use with HME Filter simultaneously

Humidifier

- **Non-Servo (For ADL)**
  - **Chamber Maintenance**

- **Autoclavable**
  - 120 °C (393 °F)
  - 96 kPa
  - 15 min
- **Eto**
  - 55 °C (131 °F)

HME filter (Heat and moisture exchanger)

- Contains alkaline salts
- Just warm and humidify the inspiration
- Best installation : in front of Y piece
- Do not confuse this with antibacterial filter
- Make sure the filter is not blocked
- Installation in expiratory valve:
  Returning excess air to the lung
- If you sense any change in filter color or resistance in airway, you must change the filter

Overall View

How to operate

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Initial Test

- Nebulizer should not connect to device

Initial Test

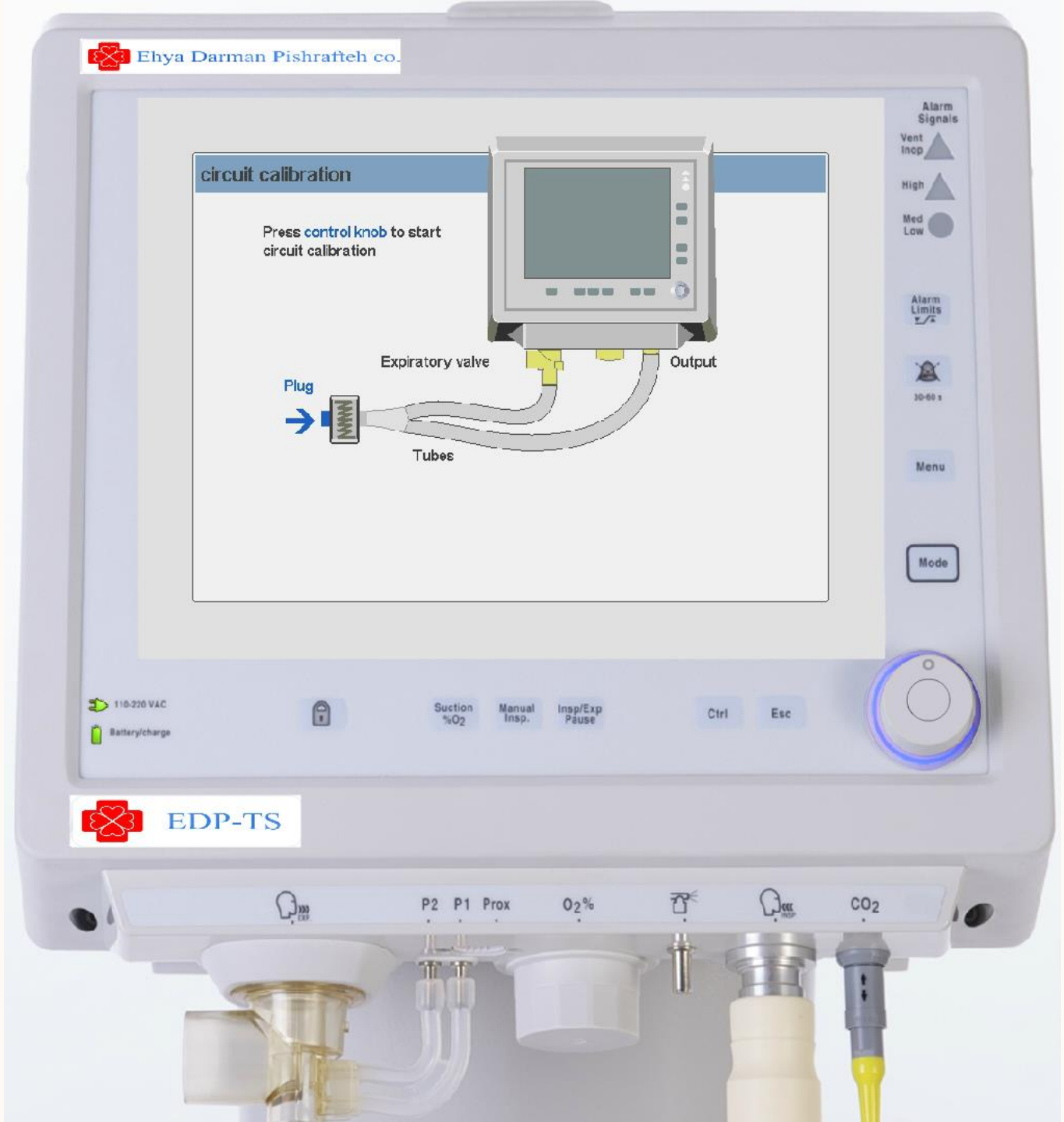
- **Active Humidifier**

Press Knob to start

Initial Test

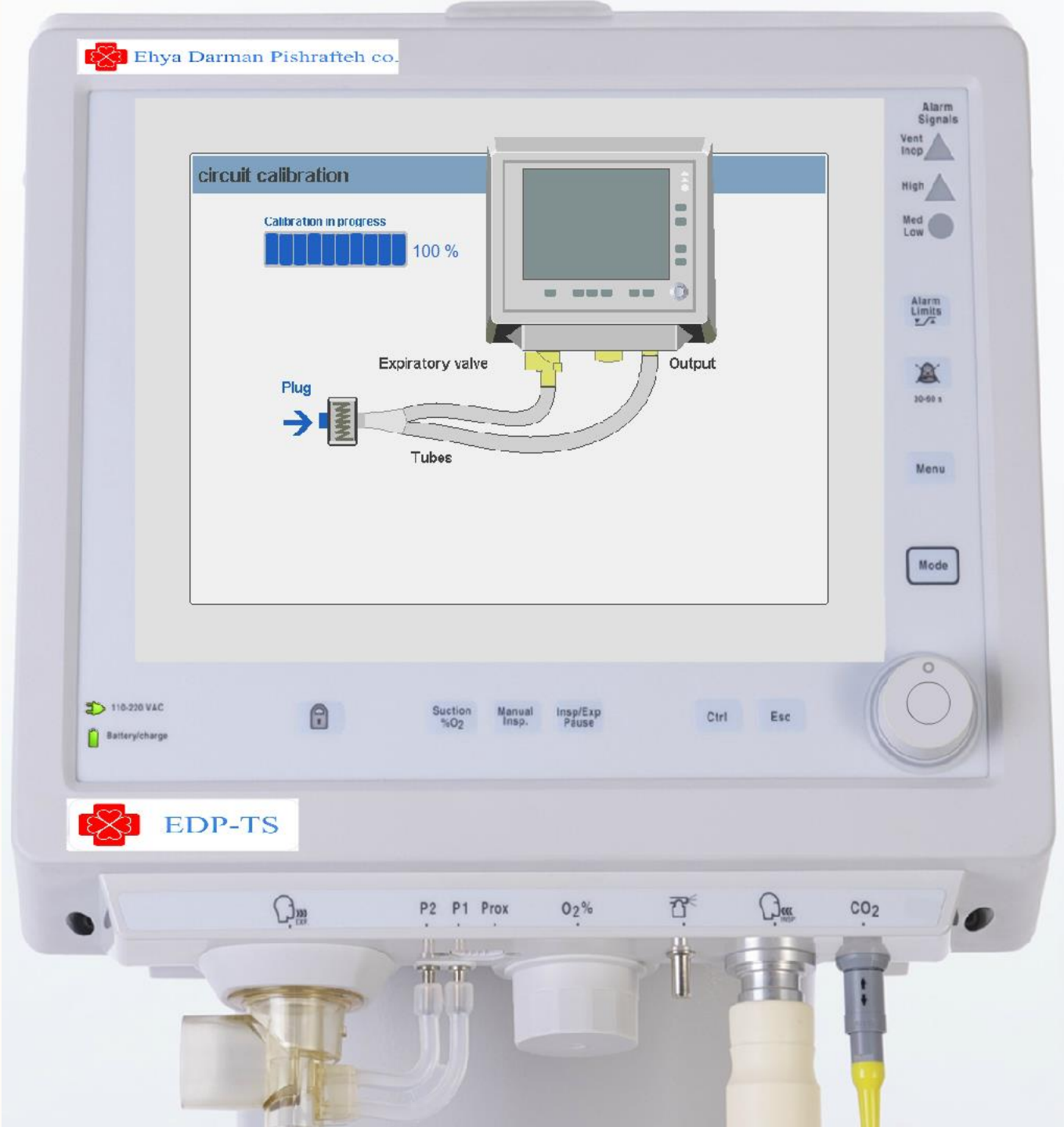
- **Passive**

Press Knob to start



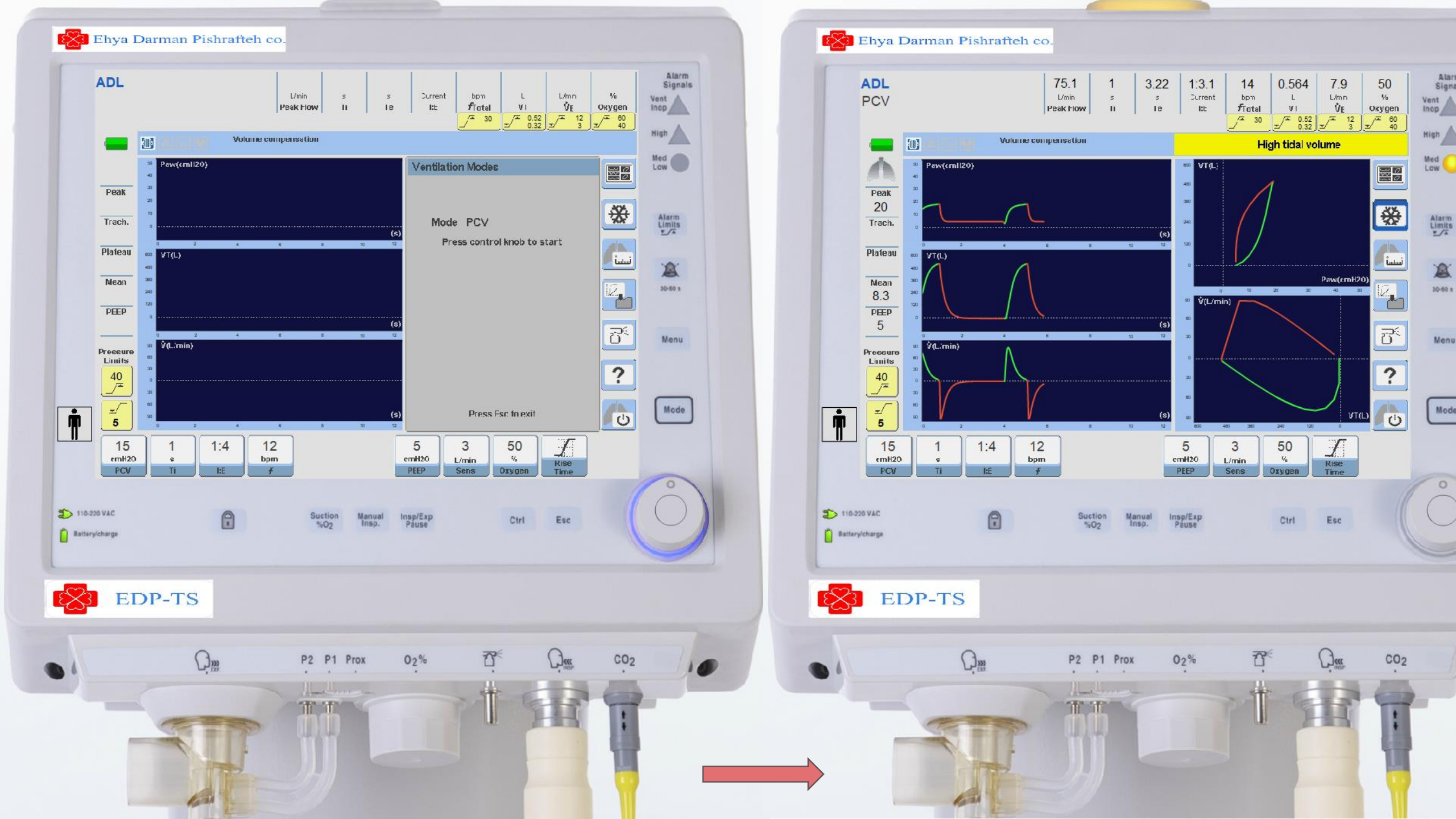
Initial Test

- Calibrating
  - O2 sensor
  - Expiratory Valve
- Check leaks
- Calculating dead space and airway resistance



Initial Test Done

choose your mode


Ehya Darman Pishrafteh co.
ADL
L/min Peak Flow
s Ti
s Te
Current I:E
bpm ƒTotal
L Vt
L/min V̇E
% Oxygen
Alarm Signals
Vent Inop
High
Med Low
Volume compensation
Paw(cmH20)
VT(L)
V̇(L/min)
Peak
Trach.
Plateau
Mean
PEEP
Pressure Limits
Ventilation Modes
Mode PCV
Press control knob to start
Press Esc to exit
Alarm Limits
Menu
Mode
15 cmH20 PCV
1 s Ti
1:4 I:E
12 bpm ƒ
5 cmH20 PEEP
3 L/min Sens
50 % Oxygen
Rise Time
110-220 VAC
Battery/charge
Suction %O2
Manual Insp.
Insp/Exp Pause
Ctrl
Esc
EDP-TS
P2 P1 Prox O2% CO2
Ehya Darman Pishrafteh co.
ADL
PCV
75.1 L/min Peak Flow
1 s Ti
3.22 s Te
1:3.1 Current I:E
14 bpm ƒTotal
0.564 L Vt
7.9 L/min V̇E
50 % Oxygen
Volume compensation
High tidal volume
Peak 20
Mean 8.3
PEEP 5
15 cmH20 PCV
1 s Ti
1:4 I:E
12 bpm ƒ
5 cmH20 PEEP
3 L/min Sens
50 % Oxygen
Rise Time
EDP-TS
P2 P1 Prox O2% CO2

Indication of Use :

Ventilation

Oxygenation

Airway Protection

VENTILATION (CO2 WASHING)

MV=VT*RATE

- VT
- RATE
- I/E (TI OR PEAK FLOW)

Tidal Volume Estimation

- **IBW**

  Male: 50 + 0.91(Patient Height – 152.4) or Patient Height – 105

  Female: 45.5 + 0.91(Patient Height – 152.4) or Patient Height – 107

Tidal Volume = IBW X (6 – 8 ml/Kg) (Peak Pressure< 30 – 40)

PC **VC**

Rate Readjustment

Initial rate (12 – 16) → set on mean (14)

ABG Test → Amount of CO2 if > 45

$$New\ Rate = \frac{CO2 \times Previous\ Rate}{40}$$

OXYGENATION

- FIO2
- PEEP
-MAP

- FiO2 100%(40-60)% SPO2(92-94) OR PaO2(65-70)
- PEEP 5 cmH2O (Physiological 3 – 5 cmH2O)

SYNCHRONY

- TRIGGER (2-3)
- PSV (8-10)

PULMONARY DISEASES

Type of Disease	Name of Disease	Common Symptoms
Obstructive	COPD (Chronic Obstructive Pulmonary Disease)	Shortness of breath, chronic cough, sputum production, wheezing
	Asthma	Episodic shortness of breath, wheezing, cough (worse at night or early morning), chest tightness
	Bronchiectasis	Chronic productive cough, shortness of breath, recurrent lung infections
	Tracheobronchial Fistula	Chronic cough, recurrent pneumonia, abnormal breath sounds
Restrictive	Pulmonary Fibrosis	Progressive shortness of breath, dry cough, fatigue, cyanosis
	ARDS (Acute Respiratory Distress Syndrome)	Sudden severe shortness of breath, rapid breathing, low oxygen levels, often requiring mechanical ventilation
	Severe Scoliosis (affecting lung function)	Reduced lung capacity, exertional shortness of breath
	Neuromuscular Diseases (ALS, Muscular Dystrophy)	Respiratory weakness, reduced vital capacity, shallow breathing
	Sarcoidosis	Shortness of breath, dry cough, fatigue, systemic involvement
	Chronic Pleural Effusion or Pleural Fibrosis	Chest pain, shortness of breath, reduced breath sounds

THANK YOU