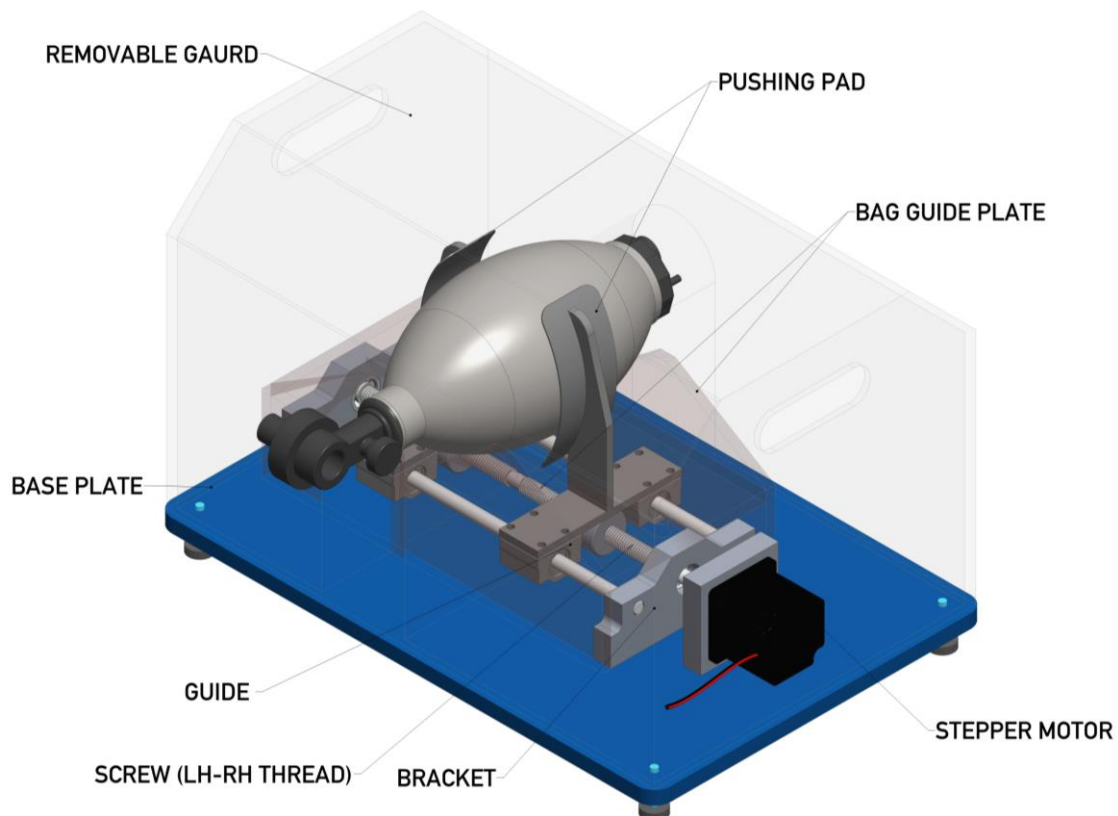


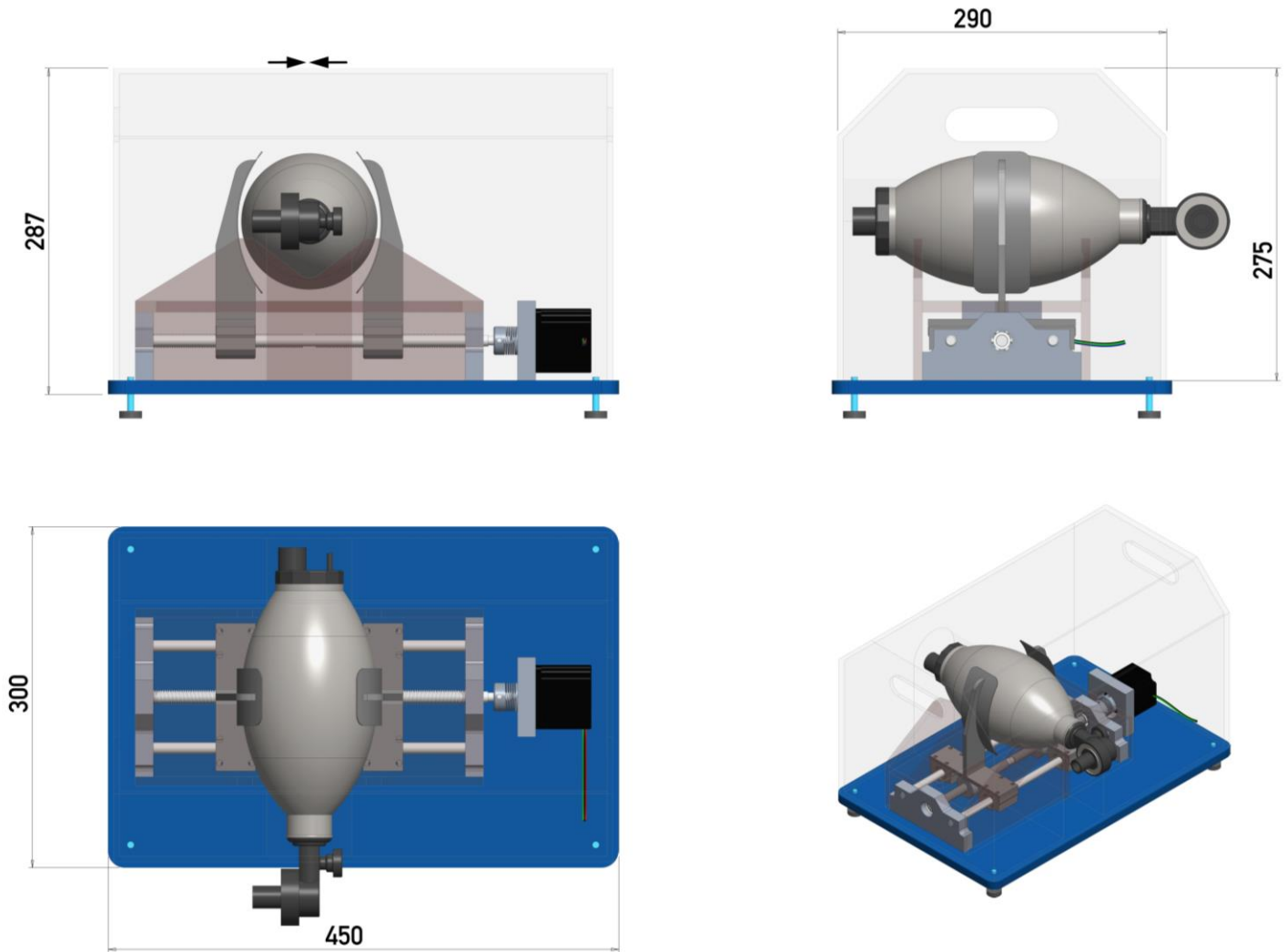
Emergency Portable Ventilator - EPV**Technical Details**

"Emergency Portable Ventilator - EPV" is low cost, reliable and performs basic functions of mechanical ventilation. The solution is targeted for rural and emergency use where current fully functional ventilator are either not affordable or available. The design closely follows MIT (USA) E-Vent Open Source guidelines and has many tweaks to make it suitable for Indian environment and working conditions.

Key Specification of Emergency Portable Ventilator (EPV)

Feature	Range	Remarks
BPM (breaths per minute)	8 – 40 BPM	Adjustable via electronic panel. By controlling the motor
Tidal Volume (TV) (air volume pushed into lung)	200 – 800 mL	Selectable based on patient weight
I/E Ratio (Inspiratory/Expiration time ratio)	1:2	Adjustable mechanically if required
Patient Pressure Monitoring	0-60 cm-H ₂ O	Analog Dial type Manometer connected in breathing circuit to read changes in PIP and PEEP.
Redundant safety valve	Fixed Set at 40 cm-H ₂ O	Pop Up type safety valve
FiO ₂ Adjustment	Optional	Resuscitator bag can be connected to Oxygen intake if facility is available at clinic
Safety Feature	Manual Override	Emergency Stop button, Fault Audio Alarm
Power Source	Dual Mode	It can work on 230 V AC Supply and can be connected to Battery also

Emergency Portable Ventilator (EPV) Working and Key Parts



Emergency portable ventilator delivers breaths by compressing a conventional bag-valve mask (BVM) or Manual Resuscitator. It mimics the hand motion with help of electromechanical drive comprising of two gripper arms, motorised linear actuator and guide bars.

The Air volume (TV) delivered is measured as a function of gripper stroke length which is approximately linear. The Breaths per Minute (BPM) and I/E ratio is function of reciprocating speed of gripper which can be controlled by regulating the motor.

Pressure is controlled by pop up safety valve along with analog dial type manometer connected in breathing circuit to read changes in PIP and PEEP. It has emergency stop push button; false audio alarm in case of motor not functioning or circuit failure. Manual override is instant by removing top cover and unlocking BVM for hand operation.

Device can directly run from normal 230 V AC Single Phase. It can be battery operated by 12 volt 5 Amps in case direct supply is not available. AC to DC toggle switch is provided.

Ventilator parts are mounted on base plate with top cover for safety of mechanical assembly. Electronic circuits are mounted inside plastic housing. A provision for small axial fan is provided on cover to release motor and circuit heat on prolong use. Hand grips on cover ensure easy movement of device.