



# ESV-R200

Automatic ventilator



INTENSIVE CARES



# ESV-R200

## Automatic ventilator



- Portable
- Collapsible screen
- Up to 6h battery backup
- Neonatal module
- IV & NIV
- O2 therapy
- Multi-function trolley



### Intuitive display

- TFT touch screen (1280x800)
- The projector can be connected via HDMI
- Collapsible display design
- 360° visible alarming lamp



### Micronel blower

- NO.1 blower supplier in the world
- 20,000h before maintenance is required
- A 210L/min peak flow at patient end
- Pressure up to 80 cmH<sub>2</sub>O



### Flat designed UI

- A flat designed UI
- Up to 4 channel waveform
- One click to view waveform, loop and value page
- All available modes are presented on main screen



### Alarm management

- Smart alarm setting protocol
- Different color to indicate the differences of alarm

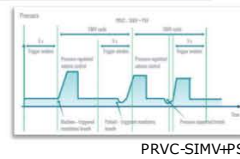


### Neonatal ventilation

Entire iHope series critical care ventilator can support full range patient type, including: adult, infant, pediatric and new neonatal. For neonatal ventilation, system can support a minimum tidal volume @ 2ml.

To set up a neonatal ventilation maneuver, total 4 parts need to be done:

- Neonatal module software
- Neonatal expiratory valve ①
- Resvent neonatal flow sensor ②
- Neonatal breathing circuit ③



### Total solution in ventilation

- **Control modes**  
PCV, VCV
- **Support modes**  
VSIMV, V+SIMV, PSIMV, PRVC, APRV
- **Spontaneous modes**  
CPAP/PSV, BPAP, APRV
- **Trend & Record**  
72 h trend and 20000 event log  
500 qty screen capture  
Data export through pen-drive (USB)
- **Weaning indicator**  
P0.1, RSBI, NIF



### Monitoring parameters

Up to 23 monitoring parameters brings a full overall perspective on patient's from each and every aspect.

Different type of parameters are presented in different color for better & faster info. capturing.



### Single limb NIV

- Better synchronization
- Faster response on flow & pressure control
- More comfortableness for patient
- Less complication during ventilation

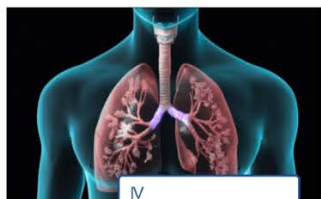


### O<sub>2</sub> therapy

O<sub>2</sub> therapy is a method to increase O<sub>2</sub> concentration in the airway at normal pressure through simple tube connections, which comes as standard configuration in entire iHope series. O<sub>2</sub> therapy is a way for hypoxia prevention or treatment, providing O<sub>2</sub> concentration higher than that in the air.

#### O<sub>2</sub> therapy setting:

- O<sub>2</sub> %
- Flow/(L/min)



### PV tool

PV tool setting parameters:

- P-start
- P-stop
- End PEEP
- T-pause
- Ramp speed

PV tool is an advanced maneuver on ventilator, to help doctor to identify the optimal PEEP(positive end expiratory pressure) of patient. Without PV tool, doctor can only set the PEEP as per the experience, which should be personalized indeed.



Main stream module



Side stream module

CO<sub>2</sub>

### EtCO<sub>2</sub> module

iHope series ventilator supports main stream EtCO<sub>2</sub> monitoring and side stream EtCO<sub>2</sub> monitoring.

A forth EtCO<sub>2</sub> waveform (with pressure, flow, volume presenting) can give a full perspective to doctor on patient's metabolism during ventilation.



### Multi-function Trolley

Trolley and supporting arm are optional configuration of iHope ventilator. An ergonomic design keep the daily work flow with ease and efficiency.

- ① Hand draw
- ② Multi-function pillar
- ③ 1 or 2 E size cylinder compatible design
- ④ Independent wheel braking



Exp. Valve



Insp. valve

### Ergonomic valve design

- One hand operative valve
- Both inspiration & expiration valves are autoclavable
- Minimum quantity of parts after disassembling valve



### iHope RV

- Less than 10kg
- Handle design for carrying transportation
- Up to 6h battery backup

## Technical Features

Physical Specifications		
Dimensions (LxWxH)	336x330x345mm (664x600x1310mm with Trolley)	
Weight	Approximately 9.9kg Main Unit, Approximately 41.0kg with Trolley	
Display		
Display Size/Resolution (H)x(V)	12.1inch TFT Touch Screen / 1280x800pixels - Adjustable Brightness	
Ventilation Specifications		
Patient Type	Adult, Pediatric, Neonatal	
Invasive Ventilation Mode	<ul style="list-style-type: none"> <li>• VCV (Volume Control Ventilation)</li> <li>• PCV (Pressure Control Ventilation)</li> <li>• VSIMV (Volume Synchronized Intermittent Mandatory Ventilation)</li> <li>• PSIMV (Pressure Synchronized Intermittent Mandatory Ventilation)</li> <li>• Apnea Ventilation</li> </ul>	<ul style="list-style-type: none"> <li>• CPAP/PSV (Continuous Positive Airway Pressure / Pressure Support Ventilation)</li> <li>• PRVC (Pressure Regulated Volume Control)</li> <li>• V+SIMV (PRVC+SIMV)</li> <li>• BPAP (Bilevel Positive Airway Pressure)</li> <li>• APRV (Airway Pressure Release Ventilation)</li> </ul>
Non-invasive Ventilation Mode	<ul style="list-style-type: none"> <li>• PCV (Pressure Control Ventilation)</li> <li>• CPAP/PSV (Continuous Positive Airway Pressure/Pressure Support Ventilation)</li> <li>• BPAP (Bilevel Positive Airway Pressure)</li> </ul>	<ul style="list-style-type: none"> <li>• APRV (Airway Pressure Release Ventilation)</li> <li>• PSIMV (Pressure Synchronized Intermittent Mandatory Ventilation)</li> </ul>
Controlled Parameters		
	Adult / Pediatric	Neonatal
O <sub>2</sub> %	21-100%	21-100%
VT (Tidal Volume)	100-2000mL (Adult) / 20-300mL (Pediatric)	20-300mL (Neonatal)
f	1-80bpm	1-150bpm
f-SIMV	1-80bpm	1-150bpm
I:E	1:10 -4:1	1:10 -4:1
T-insp.	0.2-10s	0.2-10s
T-slope	0-2s	0-2s
T-high/ T-low	0.2-30s	0.2-3s
T-pause	5%-60% , Off	5%-60% , Off
ΔP-insp.	5-60cmH <sub>2</sub> O	3-60cmH <sub>2</sub> O
ΔP-supp.	0-60cmH <sub>2</sub> O	0-60cmH <sub>2</sub> O
P-high	0-60cmH <sub>2</sub> O	0-60cmH <sub>2</sub> O
P-low	0-45cmH <sub>2</sub> O	0-25cmH <sub>2</sub> O
PEEP	1-45cmH <sub>2</sub> O , Off	1-25cmH <sub>2</sub> O , Off
Flow Trigger	0.5-15L/min	0.1-5L/min
Pressure Trigger	-10 -(-0.5)cmH <sub>2</sub> O	/
Exp%	10-85%, Auto	10-85%, Auto





Apnea Ventilation					
VT-apnea	Adult: 100-2000mL / Pediatric: 20-300mL / Neonatal: 2-300mL				
$\Delta P$ -apnea	5-60cmH <sub>2</sub> O				
f-apnea / Apnea T-insp.	1-80bpm / 0.2-10s				
Sigh					
Sigh Switch / Interval	On, Off / 20s-180min				
Cycles Sigh / $\Delta$ int.PEEP	1-20 / 0-45 cmH <sub>2</sub> O , Off				
Synchronized Tube Resistance Compliance					
Tube Type	ET Tube, Trach Tube, Disable STRC				
Tube I.D.	Adult: 5.0-12.0mm / Pediatric: 2.5-8.0mm				
Expiration Compensation Switch	On, Off / compensate 0-100%				
Monitored Parameters					
Numeric					
<ul style="list-style-type: none"> <li>• Paw</li> <li>• Vte</li> <li>• Ri</li> <li>• P-peak</li> </ul>	<ul style="list-style-type: none"> <li>• VTi</li> <li>• C-dyn.</li> <li>• P-plat.</li> <li>• VTe-spn.</li> </ul>	<ul style="list-style-type: none"> <li>• C-stat.</li> <li>• P-mean</li> <li>• VTe/IBW</li> <li>• RC-exp.</li> </ul>	<ul style="list-style-type: none"> <li>• PEEP</li> <li>• FiO<sub>2</sub></li> <li>• WOB</li> <li>• MV</li> </ul>	<ul style="list-style-type: none"> <li>• f-total</li> <li>• RSBI</li> <li>• MV-leak</li> <li>• I:E</li> </ul>	<ul style="list-style-type: none"> <li>• Continuous Flow (O<sub>2</sub> Therapy)</li> <li>• MV-spn.</li> <li>• Re</li> </ul>
Real Time Graphics					
Pressure-time Waveform	Pressure-volume Loop				
Flow-time Waveform	Flow-time Loop				
Volume-time Waveform	Pressure-flow Loop				
Alarm Settings					
	Type	Adult	Pediatric	Neonatal	
Tidal Volume	High	110-4000mL, Off	25-600mL, Off	4-600mL, Off	
	Low	50-4000ml, Off	10-600mL, Off	1-590mL, Off	
Minute Volume	High	0.2-100.0L/min	0.2-60.0L/min	0.12-50.0L/min	
	Low	0.1-50.0L/min	0.1-30.0L/min	0.02-30.0L/min	
Airway Pressure	High	10-65cmH <sub>2</sub> O	10-65cmH <sub>2</sub> O	10-65cmH <sub>2</sub> O	
	Low	10-63cmH <sub>2</sub> O, Off	Off, 10-63cmH <sub>2</sub> O	Off, 10-63cmH <sub>2</sub> O	
Frequency	High	1- 90bpm, Off	1- 90bpm, Off	1~160bpm, Off	
	Low	1- 88bpm, Off	1- 88bpm, Off	1~158bpm, Off	
O <sub>2</sub> Concentration	High	20-100%	20-100%	20-100%	
	Low	18-98%	18-98%	18-98%	
Apnea Alarm Time	Low	5-60s	5-60s	5-60s	
O <sub>2</sub> Therapy					
	O <sub>2</sub> %	Flow			
Controlled Parameters	21-100% (Increments of 1%)	4-60L/min			
Controlled Accuracy	± (3vol.% +1% of Setting)	±(2L/min+10% of Setting) (BTSPS)			
Trend & Record					
Monitor Parameters Type / Length	Tabular, Graphic / 72 hours				
Environmental Specifications					
	Operating	Storage and transport			
Temperature	5-40°C	-20 - 60°C , O <sub>2</sub> Sensor: -20 - 50°C			
Relative Humidity	10-95%	10-95%			
Barometric Pressure	62-106kPa	50-106kPa			
Gas Supply					
Gas Supply Pressure	Medical-grade Oxygen 280-600kPa				
Power & Battery Backup					
External AC Power Supply	100-240V / 50/60Hz / 2.5A Max				
Number of Batteries	One or Two (Optional)				
Battery Type	Build-in Lithium-ion Battery, 14.4VDC, 6900mAh				
Battery Running Time	3 hours (1 Qty Battery) / 6 hours (2 Qty Battery)				
Communication interface					
Communication Interface	HDMI, RS232, USB, Nurse call, CO Module Connector, SPO Module Connector				
Value Added Funtions					
<ul style="list-style-type: none"> <li>• 100%O<sub>2</sub></li> <li>• Suction</li> </ul>	<ul style="list-style-type: none"> <li>• Nebulization</li> <li>• Manual Breath</li> </ul>	<ul style="list-style-type: none"> <li>• Inspiratory Hold</li> <li>• Expiratory Hold</li> </ul>	<ul style="list-style-type: none"> <li>• PEEPi</li> <li>• P0.1</li> </ul>	<ul style="list-style-type: none"> <li>• NIF</li> <li>• PV Tool</li> </ul>	
Standard configuration					
Main Machine, Screen, Oxygen Sensor, Battery, Pipeline					
IV Modes: V CV, PCV, PRVC, SIMV, SIMV+PRVC, CPAP/PSV, ARPV, BPAP					
Oxygen treatment, Automatic Intubation Compensation, 100%O <sub>2</sub> , Suction, Nebulizer, Manual Operation, Exhale Hold, Inhale Hold, NIP, P0.1 , PEEPi, P-V Tool, and Apnea Backup Ventilation					
Optional					
<ul style="list-style-type: none"> <li>• Reusable Circuit Adult/Pediatric</li> <li>• Disposable Circuit Adult/Pediatric</li> <li>• NIV Circuit (Single Pipe Line)</li> <li>• NIV Face Mask</li> </ul>	<ul style="list-style-type: none"> <li>• Artificial Lung</li> <li>• Supporting Arm</li> <li>• Humidifier</li> <li>• Trolley</li> </ul>	<ul style="list-style-type: none"> <li>• Pediatric sensor</li> <li>• 2ml tidal volume</li> <li>• Infant outlet</li> <li>• CO<sub>2</sub> Module</li> </ul>			



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