

## Why HERSILL VITAE® 40 ventilator can help Covid-19 patients?

During these months of the pandemic, the vital and indispensable role that mechanical ventilation plays in the survival of a large number of Covid-19 patients has become apparent. The VITAE® 40 ventilator has become a key ally for health professionals by offering them a high-performance, compact, intuitive and versatile equipment for use in any field.

1. VITAE® 40 is an electronic ventilator designed to provide advanced respiratory support to patients during intrahospital transfers, from ICU unit to operating rooms or to diagnostic imaging areas. It is also designed to provide service in a mobile ICU.
2. VITAE® 40 can provide all respiratory needs for patients, whether they are diagnosed with Covid-19 or not: high-flow oxygen therapy, CPAP, Non-Invasive Ventilation and Invasive Ventilation with a performance and ventilation modes similar to those offered by ICU ventilators. Its multiple synchronized ventilation modes allow to carry out the weaning process. It also has specific ventilation modes for CPR maneuvers. The monitoring of respiratory parameters, graphs and alarms have a similar performance than ICU ventilators (for more information, please see technical datasheet).
3. VITAE® 40 has been used successfully with thousands of patients in Spain affected by Covid-19, many of them with very demanding mechanical ventilation require-



ments, typical of Acute Respiratory Distress Syndrome. The Spanish Government entrusted us with the manufacture of 5,000 units to fight the pandemic and establish a strategic reserve of mechanical ventilators.

4. VITAE® 40 is a compact, robust, intuitive and versatile ventilator. Its small size is especially interesting for ICU units with reduced space. With VITAE® 40 the patient will not need to be switched to another ventilator to be transferred. After Covid-19 pandemic it could still be used as ICU ventilator, or being used to renew intrahospital or mobile ICU units.



### Ventilator Selection Sequence

PRIORITY	DEVICE DESCRIPTION	POTENTIAL HAZARDS / THINGS TO CONSIDER
ONE	Intensive Care Ventilators	Ideally reserved for sickest patients
TWO	Advanced Transport/Sub-Acute/Home Care Ventilators	Full featured models should also be suitable for sickest patients
THREE	Anesthesia System	Anesthesiologist/Nurse Anesthetist required
FOUR	Basic Transport/Sub-Acute/Home Care Ventilators	Ideally used on non-Covid-19/non-ARDS patients
FIVE	Noninvasive Ventilators with modified circuit for intubation	e.g., Philips V60
SIX	Unmodified noninvasive ventilation (e.g., BIPAP)	Patients with hypoxia only. Careful monitoring required for improvement.
SEVEN	Splitting an ICU ventilator Among Several Patients	Last resort. Careful monitoring is required

VITAE® 40 ventilator is classified in the recommended group with Priority 2 according to the Ventilator Selection Sequence: <https://www.ecri.org/landing-covid-19-ventilator-shortages>

### VITAE® 40 KIT:

- VITAE® 40 LUNG VENTILATOR
- 10 DISPOSABLE ADULT PATIENT CIRCUITS
- 10 HME FILTERS
- POLE/BAR ADAPTER FOR THE VENTILATOR TO BE INSTALLED IN AN ICU
- AC/DC ADAPTOR



FROM THE IDEA  
TO THE PATIENT

## Emergency and Transport Ventilator

### Ventilation modes:

#### Volume:

- Volume Controlled ventilation:  
VCV, VCV-ACV, VCV-SIMV, VCV-SIMV-PS<sup>(1)</sup>
- Adaptive Pressure with Volume Guaranteed ventilation<sup>(1)</sup>:  
APVG, APVG-ACV, APVG-SIMV, APVG-SIMV-PS

#### Pressure:

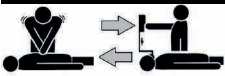
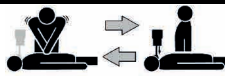
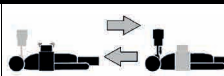
- Pressure Controlled ventilation (+NIV):  
PCV, PCV-ACV, PCV-SIMV, PCV-SIMV-PS (biPAP)<sup>(1)</sup>
- Continuous Positive Airway Pressure & Pressure Support Ventilation:  
CPAP (+NIV)  
CPAP-PS (+NIV and ventilation in apnea) (PSV)<sup>(1)</sup>
- Manual (Volume ventilation with manual trigger and configurable PEEP).

### O<sub>2</sub> Flow (+ Capnography)

Suitable for standard oxygen-therapy and for HFOT (O<sub>2</sub> – Air blender: 3 - 80 L/min, 40 - 100 % FiO<sub>2</sub>) and/or capnography

### CPR (in accordance to ERC and AHA Guidelines):

- CPR ventilation:  
CPR-PCV
- CPR assistants:

CPR Semi-Auto	CPR Auto	CPR Auto-Compressor
Assistant 30-2 / 15-2 with manual ventilation trigger and metronome	Assistant 30-2 / 15-2 with automatic ventilation trigger and metronome	Assistant with automatic ventilation trigger synchronized with an automatic chest compressor
		

### Monitoring:

- Ventilation curves:  
Real time: Pressure/time, Flow/time, CO<sub>2</sub>/time<sup>(2)</sup>  
Loops: Volume- Flow, Pressure-Volume, Flow-Pressure, VCO<sub>2</sub> (SBCO<sub>2</sub>)<sup>(3)</sup>
- Ventilation trends:  
Pip, VMe, Cdyn, EtCO<sub>2</sub><sup>(2)</sup>, V'CO<sub>2</sub><sup>(3)</sup>, V'alv<sup>(3)</sup>
- Ventilation parameters:  
Pip, VT<sub>E</sub>, F, Fspont, VMe, VT<sub>I</sub>, InCO<sub>2</sub>, EtCO<sub>2</sub>, Pplat, Pavg, Cdyn, O<sub>2</sub> consumption, Leak rate (VT<sub>I</sub> vs VT<sub>E</sub>), Timer
- Volumetric capnography parameters<sup>(3)</sup>:  
ViCO<sub>2</sub>, VeCO<sub>2</sub>, VCO<sub>2</sub>, V'CO<sub>2</sub>, VDaw, VD<sub>alv</sub>, VD<sub>phys</sub>, VD/VT, PACO<sub>2</sub>, FECO<sub>2</sub>, PECO<sub>2</sub>, VD/VT (Bohr), Valv, V'alv
- FiO<sub>2</sub> (estimated)
- Alarms: Specific interface with dedicated buttons in the touchpad
- Battery level

### Ventilation settings:

- Tidal Volume: 5 to 3000 (50 to 1500 mL in Volume modes)
- Ventilation frequency: 3 to 80/min
- I:E relation: 2:1 to 1:8
- PEEP: 0 to 25 mbar
- Inspiratory pressure: 5 to 60 mbar
- Maximum pressure: 5 to 60 mbar
- Pressure support: 5 to 60 mbar
- FiO<sub>2</sub>: 40 to 100 % O<sub>2</sub> (increments 10%)
- Trigger: 1 to 15 L/min
- Inspiratory time: 0.4 to 5.0 s
- Inspiratory pause: 0 to 60%
- Ramp: 0.1 to 2.0 s
- Non invasive ventilation (NIV): No / Yes

Inspiratory flow: max. 120 L/min

Breathing circuits options: Reusable and single-patient, adult and pediatric

Power supply: 10 - 30 V<sub>DC</sub> (0.6 A)  
Optional: AC/DC power supply (100 - 240 V / 50 - 60 Hz)

Gas supply: O<sub>2</sub> : 2.7 - 6.9 bar (internal gas consumption <0.1 L/min)

Battery autonomy: Up to 12 hours (5 h internal batt.<sup>(\*)</sup> + 7 h Pluscel batt.<sup>(5)</sup>)

Screen: TFT color 4.3" (95 x 54 mm), with night vision options

Communications: Bluetooth, Wifi<sup>(4)</sup>

Enclosure protection: IP44

Size & Weight: 227 x 125 x 65 mm; 1.4 Kg (including battery)

Fresh air intake filter: 0.65 µm (> 98% at 95 L/min)

Maximum limited pressure protection device: 105 hPa (105 cmH<sub>2</sub>O)

Operation conditions: -20 to +50 °C, 0 - 95% humidity, up to 4000 m height (built in altimeter and thermometer for corrections)

Mechanical strength: 30g (compliant with mechanical vibrations and impact for helicopters, fixed aircrafts and ambulances)

EMC protection: Compliance with conducted and radiated test for helicopters, fixed wing aircrafts and ambulances

Airworthiness: According to standards IEC, ISO, EN and RTCA D0-160G

Lithium-free battery<sup>(\*)</sup> Internal battery in NiMH, free of reactive compounds compliant with new air transport regulations

#### Options

<sup>(1)</sup> Advanced ventilation modes • <sup>(2)</sup> Capnography (Masimo<sup>™</sup> main stream)

<sup>(3)</sup> Volumetric capnography • <sup>(4)</sup> Bluetooth and Wifi • <sup>(5)</sup> Pluscel battery (Lithium)

Designed in compliance with the new standard ISO 80601-2-84:2018 for emergency and transport ventilators.