

# CCV | COMPREHENSIVE CARE VENTILATOR



Gradian Health Systems

The Gradian CCV is built to ventilate critically-ill patients wherever they present—with a 7-hour internal battery, the option for a 14-hour external battery, and portability features to enable ease of use throughout the continuum of critical care.



## PORTABILITY FEATURES

Bed hooks, handle, and shoulder strap for bedside use and transportation, plus a sturdy rolling cart for intra-hospital transfers.

## USER-FRIENDLY INTERFACE

Tactile, straightforward interface with programmable ventilation profiles for specific disease states.

## GAS SOURCE FLEXIBILITY

Integrated compressor and gas mixer, plus hoses and adapters for most oxygen and air sources

## OXYGEN RESERVOIR

External oxygen reservoir that allows for use with an oxygen concentrator or flowmeter, if high-pressure oxygen sources are not available.

## INTERNAL BATTERY & EXTERNAL OPTION

Internal battery that enables 7-hours of operation without mains power and the option for a 14-hour external battery.

**CE-marked & FDA cleared**

The Gradian CCV fulfills or exceeds most of the essential specifications recommended by the World Health Organization for ICU, transport, and sub-acute ventilators for COVID-19 care.

# SPECIFICATIONS

## PATIENT RANGE

Infant/Pediatric ( $\geq 5$  kg) – Adult

## BREATHING CIRCUITS

Single-limb, reusable (Adult and Pediatric)

## MODES

- Ventilation Modes:**
- Volume Assist Control
  - Pressure Assist Control
  - CPAP & BiPAP
  - Volume SIMV
  - Pressure SIMV
- Quick Start Modes:**
- Adult & Child (programmable)
- Custom Modes:**
- Three (3) programmable ventilation setting profiles available for quick recall

## ENVIRONMENT

- Shock:** 100 G-Force
- Vibration:** IEC 60068-2-6
- Operating:**  $-18^{\circ}\text{C} - 50^{\circ}\text{C}$   
5 – 95% RH
- Storage :**  $-40^{\circ}\text{C} - 60^{\circ}\text{C}$
- Ingress :** IP22

## CONTROL SETTINGS

- Tidal Volume:** 40 – 2000 mL
- Respiratory Rate:** 0 or 5 – 60 BPM
- Inspiratory Time:** 0.5 – 2.0 sec
- PEEP/CPAP:** 0 – 25 cmH<sub>2</sub>O
- Pressure Support:** 0 – 25 cmH<sub>2</sub>O\*
- Flow:** 5 – 60 L/min ( $\geq 80$  L/min possible in some modes)
- Target Pressure:** 15 – 55 cmH<sub>2</sub>O
- Trigger Sensitivity:** -5 – -1 cmH<sub>2</sub>O
- Pressure Relief:**  $\leq 85$  cmH<sub>2</sub>O
- Set %O<sub>2</sub>:** 21% – 100%
- Flow Wave Pattern:** Square or descending
- Settings Lock:** On/Off

## MONITORED PARAMETERS

- | Measured:                 | Calculated:        |
|---------------------------|--------------------|
| • Airway Pressure         | • I:E Ratio        |
| • Delivered Tidal Volume  | • Flow rate        |
| • Spontaneous Breath Rate | • FiO <sub>2</sub> |

## ALARMS

- High Airway Pressure:** 10 – 55 cmH<sub>2</sub>O
- Low Airway Pressure:** 5 – 15 cmH<sub>2</sub>O
- Apnea:** After 20 sec, enters apnea mode
- Low Source O<sub>2</sub> / Air:** Triggers at 40 psi
- System Failure:** Malfunction alert
- Critical Battery:** Approx. 20 min battery remaining
- Audible Alarm:**  $\geq 70$  dB
- Silence/Reset:** 110 sec

## GAS SOURCES

- Oxygen Input:**
- High pressure port (0 – 80 psi)
  - Low pressure barb ( $< 10$  psi)
  - Oxygen reservoir for low-flow sources
- Air Input:**
- Room air entrainment (internal compressor)
  - High pressure port (40 – 80 psi) DISS
- Gas Mixing:**
- Integrated oxygen/air mixer

## BATTERY PARAMETERS

- Internal Battery:** Up to 7 hours
- External Battery:** Up to 14 hours
- Battery Type:** Sealed lead acid

## POWER REQUIREMENTS

- Mains:** 110 – 240 VAC, 50/60 Hz,  $< 1\text{A}$

## HUMIDIFICATION

- Active:** Heated humidifier with reusable accessories
- Passive:** Compatible with heat/moisture exchanging filters

## ACCESSORIES

- Rolling Stand:** Two baskets, handle, locking wheels
- Portability Features:** Handle, hooks, shoulder strap
- Pulse Oximeter:** Hand-held (adult and pediatric probes)
- HME Filters:** Starter kit (adult and pediatric)
- Gas Source Adapters:** BS, AFNOR, NIST (oxygen and air)

## DIMENSIONS (no stand)

- Width:** 34 cm (13.3 in)
- Depth:** 13 cm (5.3 in)
- Height:** 35 cm (13.8 in)
- Weight:** 8.5 kg (18.8 lb)

## GUARANTEED WITH EVERY PURCHASE

### 3-YEAR WARRANTY:

- Annual preventive maintenance checks
- Local storage of spare parts for easy access
- 60+ Gradian-certified technicians
- Managed from Nairobi service hub

### HIGH-QUALITY TRAINING:

- Covers product & clinical refresher topics
- Utilizes high-fidelity simulation, real-world clinical scenarios
- Is offered in-person & online through the Gradian Training Resource Center