

# PORTABLE OXYGEN CONCENTRATOR



# Portable Oxygen Concentrator - ToronPOC™ FDA 1000P

## Lightweight Pulse-Dose Portable Oxygen Concentrator for Home, Travel, and Outdoor Use

ToronPOC™ FDA 1000P portable oxygen concentrator is a compact, battery-powered medical oxygen device built for active patients who need supplemental oxygen on the move. The unit weighs only 1.98 kg (4.37 lb) including a single battery and fits easily into a shoulder bag, making the portable oxygen concentrator practical for daily errands, work, and travel.

The ToronPOC™ FDA 1000P portable oxygen concentrator delivers oxygen at 93% ( $\pm 3\%$ ) concentration through pulse dose delivery, with five flow settings calibrated to match continuous flow up to 5 L/min equivalent. A dual-mode configuration is available for users who need either continuous flow at 1–5 L/min or combined pulse dose plus 1 L/min continuous flow.

A removable molecular sieve bed and quick-swap battery keep the oxygen concentrator machine serviceable in the field. The standard 8-cell battery supports a typical activity period, and an optional 12-cell battery extends operation up to 7 hours per charge for longer outings, flights, and extended travel days.

The ToronPOC™ FDA 1000P ships with a charger, padded backpack carry bag, and a 12 V DC car charger, making it ready for home, vehicle, and air travel from the box. Patients with COPD, pulmonary fibrosis, post-COVID recovery, and altitude-induced hypoxia rely on the portable oxygen concentrator for travel, plateau living above 2,000 meters, and short emergency oxygen support.

|                                  |                                           |                       |                              |
|----------------------------------|-------------------------------------------|-----------------------|------------------------------|
| 5 L/min eq.<br>PULSE DOSE OUTPUT | 93% ( $\pm 3\%$ )<br>OXYGEN CONCENTRATION | 1.98 kg<br>NET WEIGHT | Up to 7 h<br>BATTERY RUNTIME |
|----------------------------------|-------------------------------------------|-----------------------|------------------------------|

## APPLICATIONS

# Portable Oxygen Concentrator - ToronPOC™ FDA 1000P Applications

The ToronPOC™ FDA 1000P portable oxygen concentrator covers an active patient lifestyle that stationary home oxygen concentrators cannot. The unit follows the user across travel, daily routine, outdoor activities, and short emergency situations without requiring mains power.

Here is the information formatted as a bulleted list:

- **Travel and Daily Errands:** Provides oxygen on the move for shopping, appointments, and short outings, making it a practical portable oxygen concentrator for travel for patients prescribed continuous oxygen therapy.
- **Air Travel and Commercial Flights:** Battery-powered operation and FAA acceptance criteria support in-flight use on commercial aircraft, allowing patients to maintain prescribed oxygen during long-haul travel.
- **High-Altitude and Plateau Use:** Supports activity and overnight stay at altitudes above 2,000 meters where lower partial pressure of oxygen reduces SpO<sub>2</sub> in healthy and oxygen-dependent users.
- **Long-Term Oxygen Therapy at Home:** Functions as a secondary home oxygen concentrator for patients on long-term oxygen therapy (LTOT), allowing free movement around the house without trailing tubing from a stationary unit.
- **Emergency and Backup Oxygen Supply:** Provides immediate oxygen during stationary device failure, power outages, or short-notice transit, supplementing the main household oxygen concentrator.
- **Post-COVID and Respiratory Recovery:** Supports outpatient recovery from viral pneumonia and post-COVID complications where mobility matters and traditional cylinder logistics are impractical.
- **Hiking, Camping, and Outdoor Recreation:** Allows oxygen-dependent patients to participate in outdoor activities, with battery operation freeing the user from mains power for the duration of a hike or excursion.
- **Workplace Mobility:** Keeps working professionals mobile across office, factory, and field environments, replacing tethered home oxygen concentrators during the workday.



## Compliant Standards

The ToronPOC™ FDA 1000P portable oxygen concentrator is designed to meet international medical device requirements for safety, performance, electromagnetic compatibility, home healthcare environment use, and air travel.

- FDA 21 CFR Part 868 - Anesthesiology Devices — Oxygen Generators (Portable): U.S. Food and Drug Administration classification and regulatory requirements covering portable oxygen generators marketed in the United States.

## FEATURES

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### Portable Oxygen Concentrator - ToronPOC™ FDA 1000P Key Features



The ToronPOC™ FDA 1000P combines clinical-grade oxygen output with the form factor and runtime needed for active mobile use. The features below cover delivery flexibility, portability, battery system, and field serviceability.

Here is the information formatted as a bulleted list:

- Pulse Dose Delivery, Five Settings: Five pulse dose settings deliver oxygen only on inhalation, scaled to match continuous flow output up to 5 L/min equivalent. Pulse delivery extends battery runtime and reduces oxygen waste compared to constant flow.
- Optional Continuous Flow Mode (1–5 L/min): Configurable continuous flow output from 1 to 5 L/min covers patients whose prescription requires constant oxygen delivery rather than breath-triggered pulse dose.
- Medical-Grade Oxygen Output (93%  $\pm$  3%): Stable oxygen concentration above 90% across all pulse and continuous settings supports clinical treatment protocols for COPD, pulmonary fibrosis, and altitude-related hypoxemia.

- Compact Form Factor (1.98 kg / 4.37 lb): A 199 × 183 × 86 mm cabinet at under 2 kilograms with battery installed makes the portable oxygen concentrator easy to carry over a shoulder, in a backpack, or under an airline seat.
- Long Battery Runtime (Up to 7 Hours): The optional 12-cell rechargeable battery delivers up to 7 hours of operation per charge, covering long flights, full work shifts, and extended travel days.
- Field-Replaceable Battery: Swap-out lithium-ion batteries allow the user to carry spares for outings that exceed single-charge runtime, removing the need to wait for recharge between activities.
- Field-Replaceable Molecular Sieve Beds: Sieve bed cartridges remove and reinstall in seconds without tools, simplifying long-term maintenance and extending the operational life of the oxygen concentrator machine.
- Multi-Source Charging: Included AC charger and 12 V DC car charger allow the unit to recharge from wall outlets at home or hotels and from vehicle accessory ports during road travel.
- Travel-Ready Carry Solutions: A padded shoulder bag and backpack carry option ship with the unit, supporting hands-free transport during walking, hiking, and air travel.
- Quiet Operation for Public Use: Low operating sound level allows the portable oxygen concentrator to be used in quiet environments such as restaurants, theaters, conference rooms, and aircraft cabins without disturbing others.
- Air Travel Acceptance: Battery-powered operation and design conformity to FAA acceptance criteria support use during commercial flights, subject to airline-specific approval procedures.
- Multi-Use Versatility: One device covers home secondary oxygen therapy, daily errands, travel, hiking, and emergency backup, replacing several single-use oxygen concentrators with one mobile platform.

## **THEORY & METHOD**

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### **Theory and Method**

The ToronPOC™ FDA 1000P portable oxygen concentrator generates medical-grade oxygen using pressure swing adsorption (PSA), the same separation principle applied in stationary home oxygen concentrators. Ambient room air contains roughly 78% nitrogen and 21% oxygen; the PSA cycle isolates the oxygen fraction and vents the nitrogen back to the surrounding

air.

Inside the device, a miniature oil-less compressor pressurizes filtered ambient air and feeds it through a pair of compact zeolite molecular sieve beds. The zeolite preferentially adsorbs nitrogen at elevated pressure, allowing oxygen-enriched gas to pass through to a small product reservoir. The two sieve beds alternate between adsorption and regeneration, producing a continuous source of 93% ( $\pm 3\%$ ) oxygen.

Pulse dose delivery monitors the patient's breathing through a pressure-sensing nasal cannula and triggers a metered oxygen bolus at the start of each inhalation. The portable oxygen concentrator delivers oxygen only during the inspiratory phase, conserving energy and extending battery runtime compared to constant-flow operation.

Five pulse dose settings scale the bolus volume to approximate continuous flow rates from 1 L/min through 5 L/min equivalent. A second configuration supports continuous flow at 1–5 L/min for users whose prescription requires constant delivery, with the dual-mode variant covering both pulse and 1 L/min continuous output.

The integrated lithium-ion battery powers the compressor, valve manifold, and onboard electronics. The standard 8-cell battery handles routine outings, while the optional 12-cell battery extends runtime to roughly 7 hours per charge, depending on flow setting and breathing pattern. AC and 12 V DC chargers allow the unit to recharge from wall outlets or vehicle accessory ports.

## Operating Method Steps

- **Battery Installation** — Slide the lithium-ion battery into the rear compartment until it clicks into place. Confirm the battery indicator shows sufficient charge for the planned outing, or connect the AC or DC charger to power the unit directly.
- **Cannula Connection** — Attach a single-lumen pulse-dose nasal cannula to the front oxygen outlet. The cannula provides both the oxygen path and the breath-detection pressure signal that triggers each pulse.
- **Power-On and Self-Test** — Press the power button. The portable oxygen concentrator runs an internal self-test, then begins delivering oxygen at the last-used flow setting.

- Flow Setting Selection — Select pulse dose setting 1 through 5 to match the prescribed equivalent flow rate. Dual-mode variants also offer continuous flow at 1-5 L/min through the mode selector.
- Active Use — Carry the unit using the included shoulder or backpack bag. Breathe normally through the cannula; the device detects each inhalation and delivers a metered oxygen bolus at the start of the breath.
- Battery Swap or Recharge — Swap to a charged battery for extended outings, or connect the AC charger at home and the 12 V DC car charger in vehicles to keep the device running indefinitely.
- Sieve Bed Service — Remove the molecular sieve bed cartridge per the maintenance schedule in the user manual. Field-replaceable sieve beds keep the unit serviceable without sending the entire device for repair.

TECHNICAL SPECIFICATIONS

Portable Oxygen Concentrator - ToronPOC™ FDA 1000P Technical Specifications

The complete technical specification of the ToronPOC™ FDA 1000P portable oxygen concentrator is summarized below by subsystem.

| Oxygen Output          |                                                                  |
|------------------------|------------------------------------------------------------------|
| Delivery Mode          | Pulse dose delivery (primary); optional continuous flow          |
| Pulse Dose Settings    | 5 settings, equivalent to 1-5 L/min continuous flow              |
| Continuous Flow Option | Option 1: Continuous flow 1-5 L/min                              |
| Dual Mode Option       | Option 2: Pulse dose (1-5 settings) plus continuous flow 1 L/min |
| Oxygen Concentration   | 93% (±3%) across all flow settings                               |
| Power and Battery      |                                                                  |

|                                 |                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------|
| Battery Type                    | Rechargeable lithium-ion                                                            |
| Standard Battery                | 8-cell battery                                                                      |
| Optional Battery                | 12-cell battery                                                                     |
| Maximum Battery Runtime         | Up to 7 hours (12-cell battery, lower flow setting)                                 |
| AC Charger                      | Included, for home and indoor charging                                              |
| DC Car Charger                  | Included, DC 12 V vehicle accessory port                                            |
| <b>Physical and Portability</b> |                                                                                     |
| Net Weight                      | 1.98 kg (4.37 lb), including single battery                                         |
| Dimensions (H × L × W)          | 199 × 183 × 86 mm                                                                   |
| Carry Solution                  | Padded shoulder bag and backpack carry bag (included)                               |
| Operating Environment           | Indoor and outdoor use; altitudes up to 2,000 m and beyond                          |
| <b>User Interface</b>           |                                                                                     |
| Controls                        | Power button, flow setting selector                                                 |
| Indicators                      | Battery status, flow setting, and alarm indicators                                  |
| Patient Interface               | Single-lumen pulse-dose nasal cannula                                               |
| <b>Serviceability</b>           |                                                                                     |
| Molecular Sieve Beds            | Field-replaceable cartridges                                                        |
| Battery                         | Tool-free, hot-swappable                                                            |
| <b>Included Accessories</b>     |                                                                                     |
| Standard Package                | AC charger, DC 12 V car charger, padded backpack carry bag, single battery          |
| Optional Accessories            | Spare batteries, 12-cell extended-runtime battery, replacement sieve bed cartridges |

| Regulatory and Quality |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| Safety Certification   | ISO 80601-2-69, IEC 60601-1, IEC 60601-1-2, IEC 60601-1-11, IEC 60601-1-12      |
| Air Travel             | Designed to FAA SFAR 106 / 14 CFR 121.574 acceptance criteria for in-flight use |
| Quality Management     | ISO 13485 manufacturing system                                                  |
| Risk Management        | ISO 14971 framework                                                             |
| Market Clearances      | CE marking under EU MDR 2017/745; U.S. FDA listing under 21 CFR Part 868        |



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