TORONTECH

DUAL FLOW OXYGEN CONCENTRATOR

Dual Flow Oxygen Concentrator – ToronOC™ 10L-D

Dual-Flow 10 L/min Medical Oxygen Concentrator for Home and Clinical Use

ToronOC™ 10L-D oxygen concentrator is a dual-flow medical oxygen system that delivers up to 10 liters per minute of medical-grade oxygen, splittable across two independent patient outlets. The device supports two patients simultaneously or a single patient at high-flow rates, making it well suited for clinics, nursing homes, and household settings with multiple users.

The ToronOC™ 10L-D oxygen concentrator produces oxygen at 93% (±3%) concentration through pressure swing adsorption, drawing source gas directly from ambient room air. Two front-panel flowmeters and humidifier bottles allow each outlet to be set independently between 0.5 and 5 L/min, or combined into a single high-flow output of up to 10 L/min.

Designed for continuous 24/7/365 operation, the home oxygen concentrator runs from a standard wall outlet and incorporates innovative cooling technology that protects the compressor and molecular sieve through extended duty cycles. A clear LCD display, four-direction casters, and an integrated alarm package keep the unit straightforward to operate, monitor, and reposition.

The dual-outlet architecture makes the ToronOC™ 10L-D oxygen concentrator machine practical for shared therapy rooms, dual-bed home care arrangements, and clinical settings where one device must serve two patients on different prescriptions, lowering total equipment cost and simplifying inventory management.

0.5–10 L/min TOTAL OXYGEN FLOW	**2 Outlets** DUAL-FLOW DELIVERY	**93% (±3%)** OXYGEN CONCENTRATION	**≤52 dB** SOUND LEVEL

APPLICATIONS

Dual Flow Oxygen Concentrator – ToronOC™ 10L-D Applications

The ToronOC™ 10L-D oxygen concentrator covers both dual-patient and high-flow single-patient therapy across home, clinical, and specialty care environments. The split-outlet architecture extends one device to multiple use cases that would otherwise require separate oxygen concentrators.

Here is the information formatted as a bulleted list:

- Dual-Patient Home Oxygen Therapy: Supplies oxygen to two patients simultaneously through independent flow regulators, making one home oxygen concentrator practical for couples, multi-generational households, and shared care environments.
- Clinic and Nursing Home Use: Serves two beds from a single oxygen concentrator machine in outpatient clinics, dental offices, and long-term care facilities, lowering cylinder logistics and equipment count.
- High-Flow Single-Patient Therapy: Combines both outlets to deliver up to 10 L/min for patients requiring elevated oxygen flow, including post-surgical recovery and acute respiratory support.
- Pulmonary Fibrosis and COPD Management: Delivers stable medical-grade oxygen above 90% for long-term oxygen therapy (LTOT) of pulmonary fibrosis, COPD, emphysema, and chronic bronchitis patients.
- Post-COVID and Respiratory Recovery: Supports oxygen supplementation during recovery from viral pneumonia and post-COVID complications where extended duty cycles and stable concentration matter.
- Hyperbaric and HFNC Adjunct Therapy: Connects to high-flow nasal cannula (HFNC) circuits and hyperbaric chamber inlets for clinical and wellness oxygen sessions requiring elevated flow.
- Veterinary Practice: Supports oxygen delivery for two animals during anesthesia recovery, post-surgical care, and chronic respiratory treatment in veterinary clinics.
- Sports Recovery and Wellness: Equips wellness centers, sports recovery clinics, and altitude training facilities with stable high-purity oxygen for paired or sequential client sessions.

CAUTION
POWER
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ToronOC™ 10L-D
Dual Flow Oxygen Concentrator

FEATURES

Dual Flow Oxygen Concentrator – ToronOC™ 10L-D Key Features

The ToronOC™ 10L-D combines clinical-grade oxygen output with practical dual-outlet flexibility. The features below cover output stability, dual-patient capability, accessory compatibility, and continuous-duty reliability.

Here is the information formatted as a bulleted list:

- Dual-Outlet Architecture: Two independent oxygen outlets allow simultaneous therapy for two patients on different flow prescriptions, or combined high-flow delivery to a single patient at up to 10 L/min total.
- Wide Flow Range (0.5–10 L/min Total): Flow adjusts from 0.5 to 5 L/min on each outlet, covering low-flow nocturnal therapy through high-demand daytime and acute-care use across both lines.
- Medical-Grade Oxygen Output (93% ±3%): Stable oxygen concentration above 90% across the full flow range supports clinical treatment protocols for pulmonary fibrosis, COPD, and post-acute respiratory recovery.
- Quiet Operation (≤52 dB): Low operating sound level under 52 dB allows the home oxygen concentrator to run continuously in shared living spaces, bedrooms, and clinical environments without disturbing patients or staff.
- 24/7/365 Continuous Duty: Innovative cooling architecture allows uninterrupted dual-flow operation around the clock, supporting long-term oxygen therapy regimens without forced rest cycles.
- Energy-Aware Performance (≤880 W): Maximum power draw under 880 W keeps household running costs predictable and allows the device to run from common 120 V or 220 V mains circuits depending on the configured model.
- Easy-to-Read LCD Display: The front-panel LCD shows operating status, accumulated hours, and active alarms in clear large characters readable from across a room.
- Dual Front-Panel Flowmeters: Two calibrated flowmeters provide direct visual confirmation of flow on each outlet, simplifying setup, prescription verification, and routine monitoring.
- Dual Humidifier Bottles with 6 PSI Pressure Relief: Each outlet includes its own humidifier for patient comfort, with a 6 PSI relief valve that protects the airway in the event of tubing obstruction.

- Four-Direction Castors: Heavy-duty casters allow the oxygen concentrator for home use to be repositioned easily between rooms, beds, or patient stations without lifting.
- Comprehensive Alarm Package: Standard alarms cover power failure, high or low pressure, and low oxygen concentration, with optional low-flow and high-temperature alarms available for clinical configurations.
- Compact Footprint for Capacity: A 365 × 375 × 600 mm cabinet and 27 kg net weight package full dual-flow capability into a footprint that fits naturally beside a clinic bed or shared home care station.

THEORY & METHOD

Theory and Method

The ToronOC™ 10L-D oxygen concentrator generates medical-grade oxygen through pressure swing adsorption (PSA), the established separation method for producing enriched oxygen from atmospheric air. Ambient air contains roughly 78% nitrogen and 21% oxygen; the PSA cycle isolates the oxygen fraction while venting nitrogen back to the surrounding environment.

An oil-less compressor pressurizes filtered room air and feeds it into a column packed with zeolite molecular sieve. The sieve preferentially adsorbs nitrogen at elevated pressure, allowing oxygen-enriched gas to pass through to a product reservoir. A second column desorbs the captured nitrogen at lower pressure, regenerating the sieve for the next adsorption cycle.

Two columns alternate continuously between adsorption and regeneration to produce a steady output of oxygen at 93% (±3%) concentration. The product gas then flows into a manifold that splits into two independent outlets, each with its own flow regulator and humidifier bottle. Each outlet may be set anywhere from 0.5 to 5 L/min, with a combined maximum of 10 L/min across both lines.

Front-panel flowmeters provide direct visual confirmation of delivered flow on each outlet. Both humidifier bottles include a 6 PSI pressure relief valve that protects the patient circuits from over-pressurization in case downstream tubing becomes

blocked.

Onboard sensors monitor oxygen concentration, output flow, internal pressure, and temperature continuously. Audible and visual alarms activate if mains power fails, output flow drops below the prescribed setting, oxygen concentration falls out of specification, or internal temperature exceeds the safe operating envelope, protecting both patients and the device.

Operating Method Steps

- Site Preparation — Place the oxygen concentrator on a flat, stable surface in a well-ventilated area, clear of curtains, walls, and heat sources by at least 30 cm. Confirm that the rear air intake and side exhaust vents are unobstructed.
- Humidifier Setup — Fill both humidifier bottles with distilled water between the minimum and maximum lines, then secure each to its outlet port. The 6 PSI pressure relief design protects each patient circuit if downstream tubing becomes blocked.
- Cannula Connection — Attach a nasal cannula or supply tube to each humidifier outlet. Either outlet may be used independently, or both may be connected to a single patient circuit for high-flow delivery.
- Power-On and Self-Test — Connect the unit to a grounded mains outlet and switch it on. The LCD displays the boot sequence and the oxygen concentrator runs an internal self-test before delivering oxygen at the default flow rates.
- Flow Adjustment — Set the prescribed flow rate on each outlet using its flow control knob, reading the value from the calibrated flowmeter. Each outlet adjusts independently from 0.5 to 5 L/min, with a total combined output of up to 10 L/min.
- Operation and Monitoring — Monitor the LCD for treatment time, flow status, and any active alarms during therapy. The audible alarms for power failure, high or low pressure, low oxygen concentration, low flow, and high temperature alert the user to any deviation from the prescribed setpoint.
- Shutdown and Maintenance — After therapy, switch off the unit, disconnect both cannulas, and empty the humidifier bottles. Clean the external air filter on the schedule defined in the user manual to maintain output purity and airflow.

TECHNICAL SPECIFICATIONS

Dual Flow Oxygen Concentrator – ToronOC™ 10L-D Technical Specifications

The complete technical specification of the ToronOC™ 10L-D dual-flow oxygen concentrator is summarized below by subsystem.

Oxygen Output	
Total Flow Rate Range	0.5 – 10 L/min, continuously adjustable
Per-Outlet Flow Range	0.5 – 5 L/min on each outlet
Number of Outlets	2 independent outlets (dual-flow)
Oxygen Concentration	93% (±3%) across full flow range
Outlet Pressure	0.04 – 0.07 MPa
Output Mode	Continuous flow
Acoustic and Power	
Sound Level	≤ 52 dB(A)
Power Consumption	≤ 880 W
Voltage	AC 110 V / 60 Hz or AC 220 V / 50 Hz (configurable)
Physical and Environmental	
Net Weight	27 kg
Dimensions (W × D × H)	365 × 375 × 600 mm
Mobility	Four-direction castors
Operating Environment	Indoor home and clinical use

Duty Cycle	24/7/365 continuous operation
User Interface	
Display	LCD display with flow status, treatment time, and alarm status
Flowmeters	Two front-panel calibrated flowmeters, 0.5 – 5 L/min each
Controls	Power switch and dual flow adjustment knobs
Humidification	
Humidifier Bottles	Two integrated, refillable with distilled water
Pressure Relief Valves	6 PSI safety relief on each humidifier
Alarms	
Standard Alarms	Power failure, high pressure, low pressure, low oxygen concentration
Optional Alarms	Low flow alarm, high temperature alarm
Alarm Type	Audible and visual
Compatibility	
Accessory Connections	HFNC (high-flow nasal cannula), HBOC (hyperbaric oxygen chamber)
Patient Interface	Standard nasal cannula, oxygen mask, HFNC circuit on either or both outlets
Regulatory and Quality	
Safety Certification	ISO 80601-2-69, IEC 60601-1, IEC 60601-1-2, IEC 60601-1-11
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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