



TORONTECH



ECONOMICAL VERTICAL LAMINAR FLOW CABINET

Economical Vertical Laminar Flow Cabinet - ToronLFCab™ E

ToronLFCab™ E is a vertical laminar air flow cabinet engineered for two-person parallel operation in laboratories requiring ISO Class 5 / Class 100 particulate-free work environments. Available in single-width (ToronLFCab™ SO-E) and double-width (ToronLFCab™ DO-E) configurations, this clean bench combines HEPA filtration, six-stage airspeed control, independent UV sterilization timing, and a robust SUS304 stainless steel worktable into a quiet, stable platform for sample preparation, microelectronics, pharmaceutical compounding, and other contamination-sensitive tasks.

The ToronLFCab™ E is a vertical laminar air flow cabinet designed for two-person, dual-access laboratory workflows that demand a consistently particulate-free work zone. As a clean bench operating at ISO Class 5 (Class 100), it delivers unidirectional vertical airflow through a HEPA filter across the full working surface, creating a continuously swept, ultra-clean environment suited to sterile sample handling, sensitive analytical work, and precision assembly tasks.

The housing is constructed from cold-rolled steel with an electrostatic powder-coat finish, and the worktable surface is grade SUS304 stainless steel which is corrosion-resistant, easy to decontaminate, and compatible with standard laboratory cleaning agents. A centrifugal fan with steady rotational speed maintains consistent, low-noise airflow, while the six-stage wind speed control allows operators to fine-tune airflow velocity between 0.3 and 0.6 m/s to match the sensitivity of the work being performed.

An LCD control panel with touch-type switches provides clear, intuitive management of fan speed, work lamp, UV sterilization lamp, and sterilization timer (0–999 min). Both the work lamp and UV lamp are independently controlled, enabling UV sterilization cycles to be run before or after work sessions without illuminating the space unnecessarily.

A two-stage filtration system (a medium-efficiency pre-filter upstream of the HEPA) removes larger particles before they reach the primary filter, significantly extending HEPA service life and reducing maintenance costs. The quasi-closed vertical-flow table design ensures that downward air pressure in the work zone actively resists the ingress of room air, maintaining workspace cleanliness even during normal laboratory activity around the unit.

APPLICATIONS

Economical Vertical Laminar Flow Cabinet - ToronLFCab™ E Applications

The ToronLFCab™ E laminar flow cabinet and clean bench is suited to a wide range of contamination-sensitive two-operator workflows, including:

- Sterile pharmaceutical compounding & dispensing
- Cell culture media preparation
- Microbiological sample plating & handling
- Semiconductor & microelectronics assembly
- Optical component & precision instrument handling
- PCR & molecular biology reagent preparation
- Food science & quality-control sample preparation
- Cosmetic & personal care product formulation
- Two-operator collaborative laboratory procedures

Note: The ToronLFCab™ E is a laminar air flow cabinet (clean bench) that protects the product/sample from environmental contamination. It is not a biological safety cabinet and does not provide operator protection from biological or chemical hazards. Do not use with biohazardous, cytotoxic, or volatile chemical materials.



FEATURES

Economical Vertical Laminar Flow Cabinet - ToronLFCab™ E Key Features



- Cold-rolled steel housing with electrostatic powder-coat finish for long-term durability; grade SUS304 stainless steel worktable surface provides corrosion resistance and easy decontamination for clean bench workflows
- Centrifugal fan with stable rotational speed maintains consistent vertical laminar airflow across the full working surface with noise ≤ 67 dB and vibration half-peak value ≤ 5 μm in all three axes — minimizing operator fatigue during extended use
- LCD control panel with touch-type switches provides intuitive single-interface management of fan speed, work lamp, UV sterilization lamp, and sterilization timer — clearly displaying all operational parameters at a glance
- Six-stage wind speed control allows airflow velocity to be precisely adjusted between 0.3 and 0.6 m/s to match the contamination sensitivity and handling requirements of different sample types and procedures
- Independent control of work lamp and UV germicidal lamp with a sterilization timer range of 0–999 minutes — enabling UV decontamination cycles to run before or after work sessions independently of workspace illumination

- Vertical quasi-closed table design creates a positive-pressure clean-air curtain at the front opening that actively resists ingress of unfiltered room air, maintaining ISO Class 5 cleanliness within the laminar flow cabinet work zone (vertical airflow models only)
- Two-stage filtration system: a medium-efficiency pre-filter captures coarse particles upstream of the HEPA filter, substantially extending HEPA service life and reducing the total cost of filter maintenance over the unit's operational lifespan

THEORY & METHOD

Theory and Method

The ToronLFCab™ E operates on the principle of vertical unidirectional laminar airflow. Room air is drawn into the unit through a medium-efficiency pre-filter mounted at the intake, which captures larger dust particles and extends the service life of the downstream HEPA filter. The pre-filtered air then passes through the HEPA filter, which removes $\geq 99.97\%$ of airborne particles $\geq 0.3 \mu\text{m}$, achieving an ISO Class 5 (Class 100) cleanliness level within the work zone.

The HEPA-filtered air is directed vertically downward across the full working surface by a centrifugal fan running at a stable rotational speed — "laminar" referring to the smooth, non-turbulent, unidirectional nature of this airflow. The six-stage wind speed control allows the operator to set airflow velocity between 0.3 and 0.6 m/s depending on the sensitivity of the work being performed. The quasi-closed vertical table design creates a positive-pressure curtain of clean air at the front opening, which physically resists the ingress of unfiltered room air into the work zone, maintaining cleanliness even in active laboratory environments.

The integrated UV germicidal lamp provides surface and air decontamination of the interior work zone before and after use. The independent UV lamp circuit and sterilization timer (0–999 min) allow UV cycles to be run without turning on the work lamp, and vice versa. The LCD touch-panel controller provides a clear real-time display of operating status and enables adjustment of fan speed, lamp, and UV settings from a single interface.

TECHNICAL SPECIFICATIONS

Economical Vertical Laminar Flow Cabinet - ToronLFCab™ E Technical Specifications

Parameter	ToronLFCab™ DO-E	ToronLFCab™ SO-E
Airflow Direction	Vertical	Vertical
Working Sides	2 (front & back)	1 (front)
Persons per Side	1 / 1	1 / 2
Cleanliness Class	ISO Class 5 (Class 100)	
Wind Speed (m/s)	0.3 - 0.6	
Noise (dB)	≤67	
Vibration Half-Peak Value (X, Y, Z) (μm)	≤5	
Illuminance (Lux)	≥300	
Interior Dimensions W×D×H (mm)	830×650×520	1,570×480×570
Exterior Dimensions W×D×H (mm)	990×700×1,650	1,570×790×1,380
HEPA Filter Dimensions (mm)	780×565×50	600+815×575×50
Number of HEPA Filters	1	
Work Lamp (W × pcs)	20 × 1	40 × 1
UV Lamp (W × pcs)	20 × 1	40 × 1
Rated Power (kW)	0.15	3

Parameter	ToronLFCab™ DO-E	ToronLFCab™ SO-E
Voltage (V, Hz)	220 ±10, 50/60 (110V is also available)	
Net Weight / Gross Weight (kg)	140 / 162 145 / 167	90 / 146 146 / 198
Package Size (mm)	1,110×820×1,820	1,030×910×1,550



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