



LAMINAR FLOW CABINET — CLEAN BENCH

Laminar Flow Cabinet — Clean Bench

Protecting samples, cultures, and precision components from airborne particulate contamination is a fundamental requirement across pharmaceutical, microbiological, electronics, and research laboratories. The ToronLFCab™ series is a comprehensive family of laminar flow cabinets and clean benches engineered to deliver ISO Class 5 (Class 100) particulate-free working environments — reliably, quietly, and with the operational flexibility to match a wide range of laboratory workflows.

Every model in the ToronLFCab™ family is built on the same core architecture: HEPA filtration achieving $\geq 99.97\%$ removal of airborne particles at $0.3\text{ }\mu\text{m}$ and larger, a medium-efficiency pre-filter upstream of the HEPA to extend primary filter service life, a low-noise centrifugal fan with six-stage wind speed control adjustable between 0.3 and 0.6 m/s, an LCD touch-panel controller managing fan speed and lighting from a single interface, an independently controlled UV germicidal lamp with a 0–999 minute programmable sterilization timer, and a durable SUS304 stainless steel work surface housed in a cold-rolled steel chassis with an electrostatic powder-coat finish.

What differentiates models within the ToronLFCab™ family is airflow geometry, operator configuration, and working width — three variables that determine which laminar air flow cabinet is the right fit for your protocol.

- Airflow geometry divides the family into two branches. Vertical-flow models direct HEPA-filtered air downward across the worktable from above, creating a positive-pressure curtain at the open front that resists ingress of unfiltered room air. This is the most commonly specified configuration for microbiological work, pharmaceutical compounding, cell culture, and electronics handling. Horizontal-flow models — the ToronLFCab™ H series — direct HEPA-filtered air horizontally from the rear of the cabinet toward the operator, providing an unobstructed, sash-free front opening suited to tall samples, optical instruments, and precision assembly tasks where vertical clearance is critical.
- Operator configuration ranges from single-operator single-side clean benches through two-person dual-side configurations. The SO-P, SO-S, and SO-E models serve individual operators or shared single-side access. The DO-V and DO-E dual-operator models accommodate two users simultaneously — from opposite sides in dual-access configurations, or side by side at the same open front — without compromising the Class 100 environment within the

working zone.

- Working width scales across the lineup from 830 mm to 1,800 mm for vertical-flow models and from 910 mm to 1,570 mm for horizontal-flow models, with rated power from 0.15 kW to 0.55 kW, allowing facilities to match cabinet footprint to bench space and throughput requirements without overpaying for capacity they do not need.

All ToronLFCab™ laminar flow cabinets and clean benches are product-protection devices. They protect samples, cultures, and components from environmental contamination. They do not provide operator protection from biological, chemical, or radiological hazards. Laboratories working with biohazardous agents, cytotoxic compounds, or volatile chemicals must use a certified biosafety cabinet rather than a laminar air flow cabinet.

All specifications subject to change without notice. Double-width H series weight and packaging data not provided by manufacturer. Contact your regional sales representative for current product documentation, installation requirements, and field certification support.

APPLICATIONS

Applications

The ToronLFCab™ series laminar flow cabinet and clean bench family is suited to a wide range of contamination-sensitive laboratory and production workflows. The appropriate model depends on airflow direction, working width, and operator configuration — but the underlying application categories are shared across the family.

- Microbiological and Cell Culture Work Aseptic transfer of microbial cultures, inoculation of agar plates, preparation of culture media, and handling of cell lines and primary tissue cultures all require a clean bench environment where airborne contamination is continuously excluded from the work zone. Vertical-flow models are the standard choice for these applications, directing filtered air downward away from cultures and samples.
- Pharmaceutical Compounding and Sterile Product Preparation Non-hazardous pharmaceutical compounding, sterile product handling, reagent preparation, and sterility testing benefit from the Class 100 environment of a laminar air flow

cabinet. The ToronLFCab™ series aligns with USP compounding environment requirements for non-hazardous preparations — noting that hazardous drug compounding requires a biological safety cabinet, not a clean bench.

- Semiconductor and Electronics Component Handling Particulate contamination on the surfaces of semiconductor wafers, optical elements, PCBs, sensors, and precision electronic assemblies causes functional failures that cannot be corrected downstream. The low vibration specification of the ToronLFCab™ family ($\leq 5 \mu\text{m}$ half-peak value in all three axes) is particularly relevant for precision assembly and inspection tasks where fan-induced vibration could affect measurement accuracy or component positioning.
- Optical and Precision Instrument Calibration Microscopes, spectrometers, calibration instruments, and other precision optical assemblies often exceed the vertical clearance available inside standard downflow clean benches. The ToronLFCab™ H horizontal laminar air flow cabinet series addresses this directly — its rear-to-front horizontal airflow configuration provides a fully open, sash-free front access with no overhead obstruction, making it the preferred clean bench for tall-sample and instrument-based workflows.
- PCR and Molecular Biology Setup Prevention of pre-analytical contamination in PCR template preparation, mastermix assembly, and molecular reagent handling. Clean bench environments isolate reagents from environmental nucleic acid contamination during the setup phase.
- Food Science and Quality-Control Sample Preparation Aseptic preparation of microbiological test samples, sterile reagent handling, and culture plate inoculation in food safety testing, environmental monitoring, and quality-control laboratories.
- Collaborative and Multi-Operator Workflows The DO-V and DO-E dual-operator models provide the workspace width and two-person access capacity for collaborative sample handling, co-inoculation, and synchronized multi-step protocols that single-operator models cannot accommodate without compromising throughput.
- Academic and Multi-User Research Facilities General-purpose laminar flow cabinet applications across multi-user research environments where diverse protocols share a common clean bench platform — from undergraduate teaching laboratories to advanced research institutes.

FEATURES

Why Choose ToronLFCab™ for Your Laminar Flow Cabinet?

Choosing a laminar flow cabinet or clean bench is more consequential than it may appear. The wrong airflow geometry invalidates your contamination control strategy. Insufficient working width creates bottlenecks that slow critical workflows. Poor vibration performance introduces measurement error in precision applications. And a cabinet that is difficult to decontaminate or expensive to maintain adds hidden costs to every year of operation. Here is why the ToronLFCab™ series addresses all of those considerations systematically.

- One family, every airflow geometry: the ToronLFCab™ series is the only clean bench product line that covers vertical downflow single-operator, vertical downflow dual-operator, and horizontal laminar air flow cabinet configurations under a unified platform with identical core control systems, filtration architecture, and performance specifications. Whether your protocol requires the positive-pressure front barrier of a vertical laminar flow cabinet or the unobstructed front access of a horizontal flow clean bench, you are working with the same LCD controller, six-stage fan speed control, independent UV sterilization timer, and two-stage filtration system across the entire lineup.
- ISO Class 5 performance, confirmed by international standards: every ToronLFCab™ laminar flow cabinet achieves ISO Class 5 (Class 100) cleanliness — no more than 3,520 particles per cubic meter at 0.5 µm or larger — validated through HEPA filtration at ≥99.97% efficiency for particles at 0.3 µm and above. The design is aligned with ISO 14644-1 and ISO 14644-3, providing the documented performance baseline that laboratory quality systems and regulatory inspectors require.
- Two-stage filtration that protects your HEPA investment: a single-stage HEPA configuration exposes the primary filter directly to unfiltered room air, loading it with large particles and shortening its service life. Every ToronLFCab™ clean bench positions a medium-efficiency pre-filter upstream of the HEPA as standard — not as an accessory. This two-stage approach captures coarse particles before they reach the HEPA, meaningfully extending primary filter service life and reducing the frequency and cost of filter replacement over the unit's operational lifespan.
- Quiet enough for precision work: at ≤67 dB across all models and all fan speed settings, the ToronLFCab™ laminar air flow cabinet lineup is quiet enough for extended daily use without operator fatigue. More importantly, the vibration half-peak value of ≤5 µm in all three axes (X, Y, and Z) means that fan-induced vibration will not affect gravimetric measurements, optical alignment, pipetting accuracy, or the stability of precision electronic assemblies performed

within the clean bench working zone.

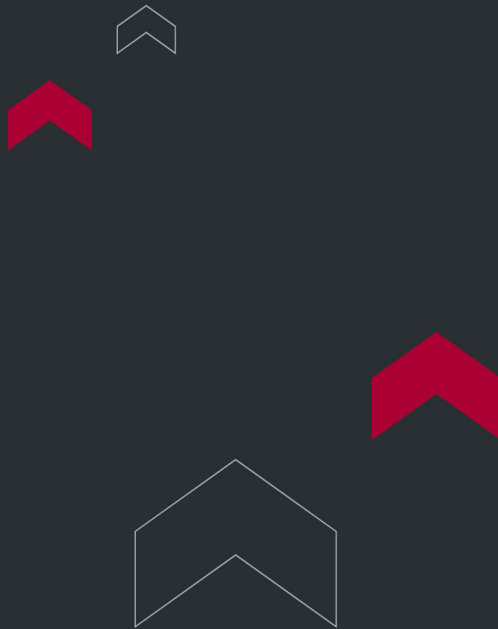
- Scalable width for every throughput requirement: the ToronLFCab™ vertical laminar flow cabinet range spans 830 mm to 1,800 mm interior working width across single-operator models, with dual-operator configurations available for shared workflows. The horizontal laminar air flow cabinet H series covers 910 mm to 1,570 mm. With nine distinct models across the family, you can match the cabinet footprint exactly to your bench space and workflow volume — paying only for the capacity you need, without the maintenance overhead of an oversized unit.
- UV sterilization that works around your schedule: the independently controlled UV germicidal lamp with a 0-999 minute programmable timer means pre-session surface decontamination and post-session sterilization cycles can be programmed to run without requiring the work lamp to be on — and without requiring operator presence during the cycle. This flexibility is particularly valuable in multi-shift laboratories where clean bench preparation time must be minimized without compromising decontamination protocol rigor.
- Construction built for the laboratory environment: the combination of a cold-rolled steel housing with electrostatic powder-coat finish and a grade SUS304 stainless steel worktable is not an aesthetic choice — it is a functional one. The stainless steel worktable resists the chemical cleaning and disinfection agents used in pharmaceutical and microbiological laboratories, supports straightforward surface decontamination between sessions, and maintains its surface integrity across years of daily use. The powder-coat exterior resists corrosion and is easy to wipe down during routine cleaning.
- A clean bench for every budget tier: the ToronLFCab™ SO-P premium series, ToronLFCab™ SO-S standard series, ToronLFCab™ E economical series, ToronLFCab™ DO-V dual-operator series, and H horizontal series address different combinations of feature depth and budget, all sharing the same ISO Class 5 core performance. Organizations can right-size their laminar flow cabinet investment to their protocol requirements without accepting a performance compromise at any tier.

Important safety notice: All models in the ToronLFCab™ series are laminar air flow cabinets and clean benches designed to protect products and samples from environmental particulate contamination. They are not biological safety cabinets and do not provide operator protection from biological, chemical, cytotoxic, or radiological hazards. Do not use any ToronLFCab™ model with biohazardous agents, hazardous drugs, volatile chemicals, or radioactive materials. Consult your institutional biosafety officer to confirm the correct cabinet type for your specific application before purchase.

TECHNICAL SPECIFICATIONS

Product Comparison

Parameter	ToronLFCab™ SO-P Series	ToronLFCab™ E Series	ToronLFCab™ SO-S	ToronLFCab™ DO-V	ToronLFCab™ H Series
Airflow Direction	Vertical				Horizontal
Working Sides	1	1	2	2	1
Persons per Side	1	1 / 1 or 1 / 2	1 / 1	2 / 2	1 or 2
Cleanliness Class	ISO Class 5 / Class 100				
Wind Speed (m/s)	0.3 – 0.6				
Noise (dB)	≤67				
Vibration Half-Peak (µm)	≤5				
Illuminance (Lux)	≥300				
Number of HEPA	1				
Work Lamp (W × pcs)	30×1	20×1 or 40×1	20×1	0×1	20×1 or 40×1
UV Lamp (W × pcs)	20×1 - 30×1	20×1 or 40×1	20×1	20×1	20×1 or 40×1
Rated Power (kW)	0.20 - 0.55	0.15 - 3.0	0.15	0.30	0.15 - 3.0
Voltage (V, Hz) (110V is also available)	220 ±10V, 50/60	220 ±10, 50/60	220 ±10, 50/60	220 ±10%, 50/60	220 ±10, 50/60
Package Size (mm)	1,210×900×1,130	1,030×910×1,550	1,110×820×1,820	1,580×820×1,820	1,030×910×1,550
UV Timer Range (min)	0 – 999				



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