



TOTAL EXHAUST BIOSAFETY CABINET

Total Exhaust Biosafety Cabinet - ToronSafeCab™ TE

ToronSafeCab™ TE is a Class II Type B2 total-exhaust biological safety cabinet designed for laboratory applications that combine biological hazards with volatile toxic chemicals, radionuclides, or other substances that cannot be safely recirculated. Unlike Type A2 cabinets, the ToronSafeCab™ TE exhausts 100% of its work zone air through a dedicated HEPA filter and external exhaust system — eliminating any risk of chemical vapor accumulation inside the cabinet or recirculation into the laboratory.

This bio safety cabinet is built for demanding BSL-1 through BSL-2 applications where chemical fume protection is required alongside biological containment. Its split-style structure with a demountable, wheeled base stand allows flexible laboratory placement, while the built-in exhaust hood and external exhaust fan facilitate direct hard-duct connection to the building HVAC system. The ToronSafeCab™ TE shares the same intelligent control platform, stainless steel construction, and ergonomic front window design as the A2 series — making it the natural upgrade path when chemical volatility is a primary concern.

APPLICATIONS

Total Exhaust Biosafety Cabinet - ToronSafeCab™ TE Applications

The ToronSafeCab™ TE bio safety cabinet is designed and manufactured for those applications:

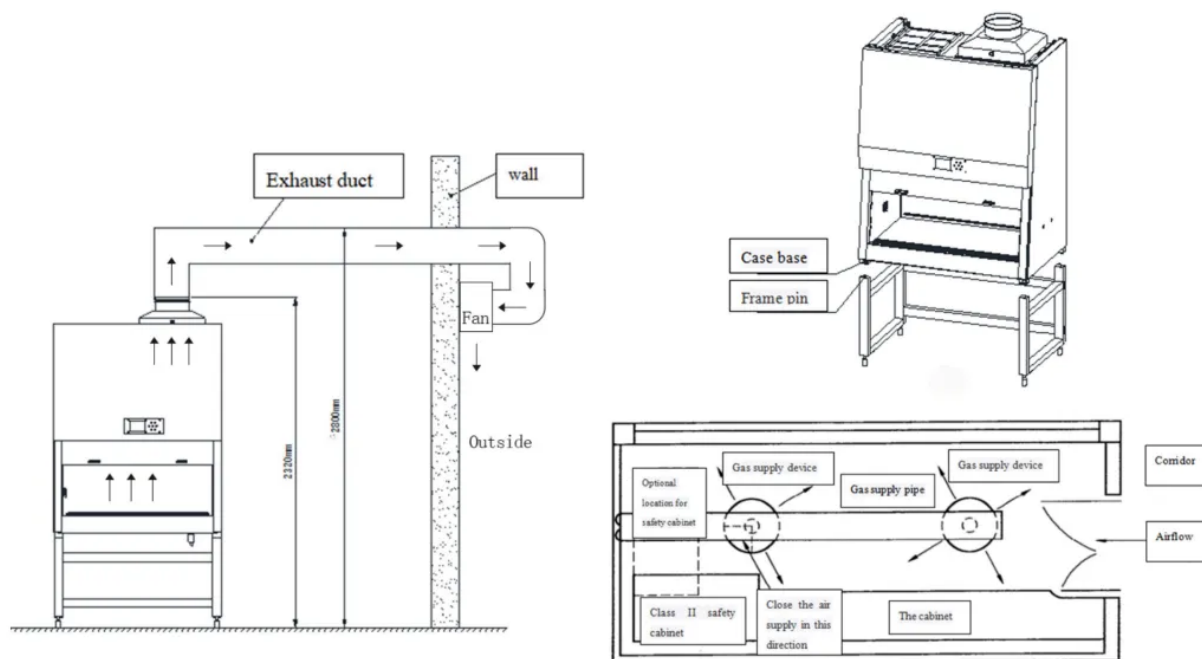
- Work involving BSL-1 or BSL-2 biological agents combined with volatile or toxic chemicals (e.g., formaldehyde, glutaraldehyde, cytotoxic drugs)
- Chemotherapy drug preparation and cytotoxic pharmaceutical compounding
- Radioisotope handling in biological research settings
- Tissue fixation and histopathology preparation requiring chemical fume control
- Infectious disease diagnostics requiring both pathogen containment and chemical vapor management

- Environmental testing involving solvent-based extraction and biological specimens
- Antineoplastic drug preparation under biological safety conditions
- Research requiring simultaneous HEPA and chemical fume protection



FEATURES

Total Exhaust Biosafety Cabinet - ToronSafeCab™ TE Key Features



- Split-style modular structure with a fully demountable base stand equipped with lockable casters and leveling screw rods — enables independent transport and positioning of the cabinet body and stand
- Total-exhaust (100%) Type B2 airflow configuration with integrated exhaust hood and external exhaust fan for hard-duct connection to building HVAC — essential for volatile chemical, cytotoxic drug, and radioisotope applications
- Air-clean intelligent control system with full-color HD LCD display showing real-time inflow and downflow air velocities, filter remaining lifespan, fan status, lighting, UV lamp, power interface, and active alarm notifications
- Intelligent constant-wind-speed technology with high-performance anemometric sensors that continuously adjust blower output to maintain target air velocities as filters load throughout their service life

- Calendar clock with UV sterilization appointment scheduling and countdown timer; UV lamp and working light interlocking protection prevents simultaneous UV and light operation
- Front sash limit protection suspends fan operation if sash is raised beyond the safe working height; 10-degree ergonomically tilted front viewing window reduces operator fatigue during prolonged work sessions
- HEPA filtration rated $\geq 99.995\%$ for particles $\geq 0.3 \mu\text{m}$ (ISO Class 5); optional ULPA upgrade achieving $\geq 99.9995\%$ (ISO Class 4) for applications requiring the highest level of particulate filtration
- Preset filter integrity alarm with filter failure and damage detection; low-energy standby mode conserves power during idle periods without full system shutdown
- All-SUS304 stainless steel interior chamber walls and removable SUS304 brushed stainless steel work surface for superior chemical resistance, ease of cleaning, and autoclave-compatible decontamination
- Standard splash-proof AC power outlet inside the work zone; reserved plumbing ports for water and gas service connections

THEORY & METHOD

Theory and Method

The ToronSafeCab™ TE operates as a Class II Type B2 biological safety cabinet with total-exhaust airflow, the critical operational distinction from Type A2 designs. Room air is drawn inward at the front sash at a controlled inflow velocity of 0.55 m/s to form the personnel protection air curtain. All air entering the work zone (100%) is then directed downward at 0.35 m/s through a supply HEPA filter providing product protection, collected, and exhausted entirely through the exhaust HEPA filter to the external building duct system.

Because no air is recirculated inside the cabinet, any volatile chemicals, toxic vapors, or radionuclides introduced into the work zone are continuously swept away and expelled from the building not returned to the laboratory environment. The external exhaust fan, provided as part of the cabinet system, draws air through the hard-duct connection and maintains the correct static pressure differential. This ensures the negative pressure containment zone is maintained even during filter

loading.

The intelligent constant-wind-speed system monitors both inflow and downflow velocities via high-performance sensors, automatically compensating for filter resistance as the HEPA filters accumulate particulates over their service life. The color HD LCD control panel provides real-time velocity readouts, filter life tracking, alarm management, and UV sterilization scheduling giving operators full situational awareness of cabinet performance at all times.

TECHNICAL SPECIFICATIONS

Total Exhaust Biosafety Cabinet - ToronSafeCab™ TE Technical Specifications

Parameter	ToronSafeCab™ 10TE-1	ToronSafeCab™ 13TE-2
Applicable Persons	1	2
Cleanliness Class	ISO Class 5 / Class 100	ISO Class 5 / Class 100
Inflow Air Velocity	0.55 m/s	0.55 m/s
Downflow Air Velocity	0.35 m/s	0.35 m/s
Exhaust Configuration	Total exhaust (100%) via hard duct	Total exhaust (100%) via hard duct
Noise Level	≤ 67 dB(A)	≤ 67 dB(A)
Vibration Half Peak Value	≤ 5 μm	≤ 5 μm
Illuminance	≥ 650 Lux	≥ 650 Lux
Ambient Temperature	10 – 30 °C	10 – 30 °C

Parameter	ToronSafeCab™ 10TE-1	ToronSafeCab™ 13TE-2
Relative Humidity (at 25°C)	≤ 70%	≤ 70%
Atmospheric Pressure	80 – 105 kPa	80 – 105 kPa
Internal Dimensions (W×D×H)	1060×580×595 mm	1360×580×595 mm
Housing Dimensions (W×D×H)	1200×770×2320 mm	1500×770×2320 mm
Height of Rack	630 mm	630 mm
Inflow HEPA Dimensions	1095×475×70 mm	1395×475×70 mm
Exhaust HEPA Dimensions	500×460×70 mm	650×460×70 mm
Lamp (Power × Qty)	20 W × 1	30 W × 1
UV Light (Power × Qty)	20 W × 1	30 W × 1
Total Power Consumption	1,800 W	2,000 W
Voltage	220 V ± 10%, 50/60 Hz (110V is also available)	
Net Weight	198 kg	243 kg
Gross Weight	236 kg	275 kg
Package Size	1460×970×1880 mm	1760×970×1880 mm

Toron Scientific | Bio Safety Cabinet Product Series | Specifications subject to change without notice.



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