



The handling and preparation of cytotoxic drugs for chemotherapy applications presents some unique process challenges.

Firstly, these processes must be carried out in a sterile environment to maintain product cleanliness and patient safety. Secondly, cytotoxic drugs are extremely hazardous compounds. Personnel involved in drug compounding and preparation must be adequately protected from exposure. Furthermore, service personnel who carry out cabinet maintenance should also be protected when carrying out operations such as changing filters.

Since cytotoxic drugs cannot be inactivated by chemical decontamination, conventional standard design Class II biological safety cabinets should not be used. **The Esco Labculture® Cytotoxic Safety Cabinet has been specifically designed for this application. Based on our EN12469 (European Standard for Microbiological Safety Cabinets) type-tested Labculture Class II Type A2 cabinets, this product features the same high degree of environment, operator, product and cross contamination protection as in a Class II type design.**

A key highlight of this product is the HEPA filter installed directly below the work surface. This allows filters to be changed safely without any hazards to laboratory and service personnel. This is accomplished by sealing off the contaminated side of the filter from inside the cabinet while the fan is operating. The contaminated filters can then be removed and all other contaminated areas are easily accessible for surface decontamination. This product meets the requirements of DIN 12980 and AS 2567 for cytotoxic drug safety cabinets.

Microprocessor-based cabinet control system allows for convenient access to all cabinet safety and control functions. Cabinet airflow is constantly displayed on the control's LCD screen throughout usage. Audible and visual alarms prompt the user in case of any unsafe conditions.

MAIN FILTRATION AGENTS

► **Tri-Filter Design: 2 ULPA (Secondary Exhaust and Downflow) filters with a typical efficiency of 99.9997% at MPPS, 99.9998% at both 0.3 and 0.12 microns and first Exhaust HEPA filter with a typical efficiency of 99.99% at 0.3 microns** provide the best product protection in the world; typical main HEPA/ULPA filter lifespan is more than 3 years depending on the operating conditions and the number of hours in usage.

► **ISO Class 3 air cleanliness within work zone as per ISO 14644.1 (equivalent to Class 1 as per US Federal Standard 209E, 100 times "cleaner"** than the usual Class 100 classification on cabinets offered by the competition). All materials used in the product are cleanroom compatible.

► **Mini-pleat separatorless HEPA/ULPA filter** technology reduces energy consumption and delivers increased laminar airflow uniformity for better product and cross-contamination protection. Downflow air uniformity is also enhanced by the stainless steel supply filter diffuser.

► **First exhaust HEPA filter (below work surface) can be changed safely without the need for prior cabinet decontamination.**

► Integral filter metal guard prevents accidental damage to HEPA/ULPA filter; aerosol (DOP/PAO) challenge test port included.

CONSTRUCTION FEATURES

► Industrial-grade main body constructed of electro-galvanised steel: **anti-microbial BioCote™ powder-coating of the main body** protects against surface contamination.

► Durable and easy to clean stainless steel work surface and interior will never rust, chip, or generate particles; single-piece inner liner makes cleaning a breeze.

► **Permanently lubricated direct drive centrifugal blower(s); energy efficient external rotor motor** type design which reduces operating costs and **compensates automatically for filter loading** over most of the filter's lifespan;

► **Built-in warm white, 5000k electronically ballasted** lighting offers excellent illumination throughout the work zone in order to reduce operator fatigue and is comfortable to the eyes. Light tubes are mounted out of the air stream for better airflow uniformity.

► Every product is individually factory-tested and commissioned after production; A comprehensive test report is included with every unit.

► Designed to meet the safety requirements of IEC 61010-1 / EN 61010-1 / UL 61010A-1 / CSA C22.2 No. 1010.1-92. Components are UL listed / recognised.

► **Extended warranty period of 3 years** excluding consumable parts and accessories.

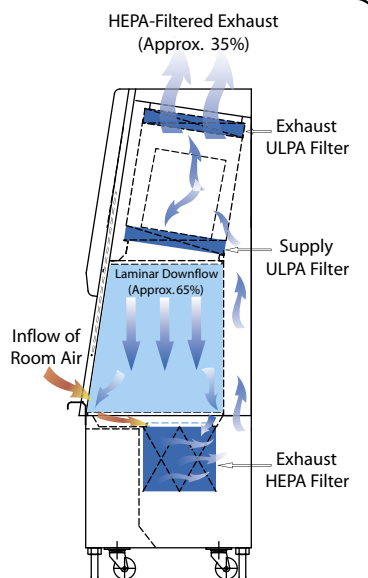
Cabinet Airflow Profile

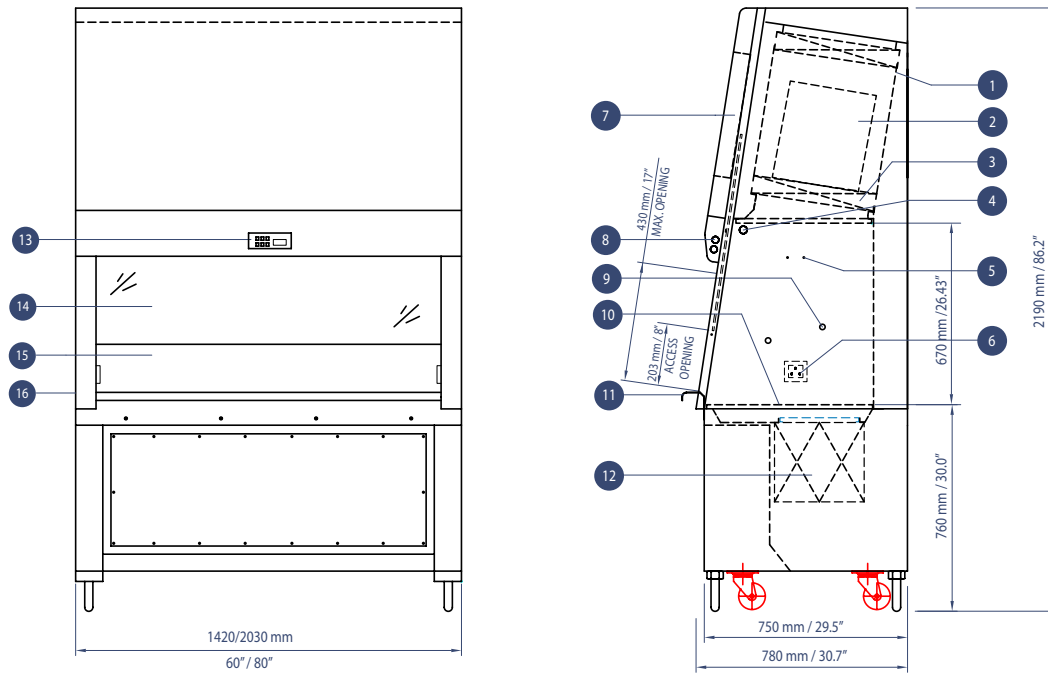
The inflow moves from the room into perforations located towards the front of the workzone (in order to prevent contamination of the product, the inflow does not mix with the clean air present in the cabinet workzone), and then is filtered through an exhaust HEPA filter located below the work surface.

An ULPA-filtered vertical laminar flow air stream within the cabinet (also referred to as the downflow) moves downwards from the top of the work zone towards the work surface.

Close to the work surface, the downflow air stream splits with a portion entering perforations towards the front and back of the work zone. The downflow is again HEPA-filtered

From the common air plenum, approximately 35% of the air is ULPA-filtered and exhausted, while approximately 65% is ULPA-filtered and recirculated into the work zone.





- 1. Exhaust ULPA Filter 2. Blower 3. Downflow ULPA Filter 4. Standard UV Light Retrofit™ Kit Provision
- 5. Standard IV-Bar Retrofit™ Kit Provision 6. Electrical Outlet Retrofit™ Kit Provision (Two Single Outlets in Workzone)
- 7. Electrical and Electronics Panel 8. Fluorescent Light 9. Plugged Service Fixture Provisions (2 on each side)
- 10. Stainless Steel Multi-piece Work Tray 11. Stainless Steel Armrest 12. Exhaust HEPA Filter
- 13. Esco Sentinel™ Microprocessor Control System 14. Laminated Glass Sliding Sash Window
- 15. Single-piece Stainless Steel Back Wall and Side Walls 16. Removable Side Panel for Plumbing Access

Optional Retrofit Kits™: IV bar with hooks, service fixtures, germicidal UV lamp, electrical socket outlets.

General Specifications		CYT-4AX	CYT-6AX
External Dimensions (L x W x H)		1420 x 780 x 2190 mm / 55.9" x 30.7" x 86.2"	2030 x 780 x 2190 mm / 79.9" x 30.7" x 86.2"
Internal Work Zone (L x W x H)		1260 x 603 x 670 mm / 49.6" x 21.3" x 26.4"	1870 x 603 x 670 mm / 73.6" x 21.3" x 26.4"
Standards Compliance		Designed to comply and exceed the requirements of: DIN12980: Laboratory Equipment Cytostatic Workbenches: Requirements, Testing EN12469: Performance Criteria for Microbiological Safety Cabinets Air cleanliness: ISO 14664.1 Class 3, IEST-G-CC1001, IEST-G-CC1002 and other equivalent requirements Filter performance: IEST-RP-CC034.1, IEST-RP-CC007.1, IEST-RP-CC001.3 and EN1822 Electrical safety: IEC 61010-1 / EN 61010-1 / UL 61010A-1 / CSA C22.2 No. 1010.1-92	
Average Airflow Velocities	Inflow	Initial setpoint: 0.50 m/s or 100 fpm (audible / visual alarm will activate at 0.45m/s or 90fpm)	
	Downflow	Initial setpoint range: 0.3 - 0.35 m/s or 60 - 70 fpm	
Airflow Volumes At Initial Airflow Velocity Setpoints	Inflow	460 cmh / 270 cfm	680 cmh / 400 cfm
	Downflow (70%)	780 - 910 cmh / 460 - 535 cfm	1160 - 1350 cmh / 680 - 794 cfm
	Exhaust (30%)	460 cmh / 270 cfm	680 cmh / 400 cfm
Cleanliness Within Working Area		ISO14644.1 Class 3, US Federal Standard 209E Class 1 / M1.5, AS1386 Class 1.5, JIS B9920 Class 3, BS5295 Class C, Class M10,000 as per KS27030.1 and equivalent classes of VDI2083 and AFNOR X44101	
Exhaust HEPA Filter Type		HEPA filter with integral metal guards and filter frame gaskets; fully compliant with EN 1822 and IEST-RP-CC001.3 requirements. Typical efficiency: 99.99% at 0.3µm	
Downflow ULPA Filter Type		ULPA filter with integral metal guards and filter frame gaskets; fully compliant with EN 1822 and IEST-RP-CC001.3 requirements. Typical efficiency: 99.9999% at MPPS, 0.3 and 0.12µm	
Exhaust ULPA Filter Type		ULPA filter with integral metal guards and filter frame gaskets; fully compliant with EN 1822 and IEST-RP-CC001.3 requirements. Typical efficiency: 99.9999% at MPPS, 0.3 and 0.12µm	
Noise Level	According to EN12469	<61 dBA	<65 dBA
	The above measurements were taken at initial blower speed setting (figures subject to acoustic properties of test environment)		
Light Intensity		>1000 Lux / >93 foot candles, measured at work surface level (zero background) as per NSF49 test grid	
Maximum Usable Workzone Depth		510 mm / 20" (does not include the 110 mm / 4.3" front air grille)	
Maximum Usable Work Area (excludes front air grille)		0.64 sqm / 6.89 sqf	0.95 sqm / 10.22 sqf
Main Body Construction		1.5mmt / 0.06" / 16 gauge electro-galvanised steel with white oven-baked epoxy powder-coated finish	
Maximum Power Consumption / Current	220-240VAC / 50Hz 1Ph	1595W / 6.93A	1631W / 7.09A
	110-130VAC / 60Hz 1Ph	1630W / 13.6A	1666W / 13.88A

ESCO® Esco Biotechnology Equipment Division

Esco Biotech is a highly focused manufacturer of laminar flow, biohazard safety and other HEPA-filtered cabinets for the laboratory with a history of quality cabinets since 1978. We are predominantly oriented towards the international marketplace, with sales in more than 60 countries and 90% of turnover exported. Our products have been independently tested to standards such as AS1807.5 and EN12469. Products are manufactured under an ISO 9001 registered quality system.



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