

# Cytoculture®

Cytotoxic Safety Cabinet

**The Premium Solution for  
Cytotoxic Drug Processing**

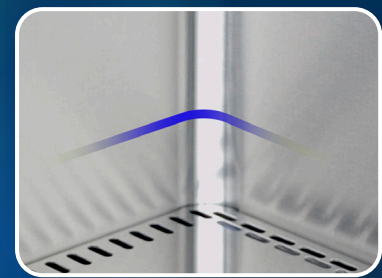


| Standards Compliance | General Requirements | Air Quality   | Filtration  | Electrical Safety  |
|----------------------|----------------------|---|---|--|
|                      | EN 12469, Europe     | ISO 14644.1, Class 3, Worldwide<br>IEST-G-CC1001, Worldwide<br>IEST-G-CC1002, Worldwide | EN-1822 (H14), Europe<br>IEST-RP-CC001.3, USA<br>IEST-RP-CC007.1, USA<br>IEST-RP-CC034.1, USA | UL-C-61010A-1, USA<br>CSA C22.2, No.1010-92, Canada<br>EN-61010-1, Europe<br>IEC61010-1, International |



### Sentinel™ Silver Microprocessor Controller

- Displays all safety information on one screen
- Centered and angled down for easy reach and viewing



### Curved Corner

- Large corner radius for easy cleaning
- Stainless steel 304 interior walls (with available option for SS 316)



### Multi-piece Work Tray

- Easy to lift and clean
- Stainless steel 304 work trays (with available option for SS 316)
- Customization to single-piece work tray is possible, please contact Esco



### Raised Arm Rest

- Helps prevent grills blocking
- Comfortable working posture

### Standard stand comes with casters and leveling feet

- Casters for easier moving/transfer of cabinet
- Leveling feet allows height adjustment in cases of uneven floors

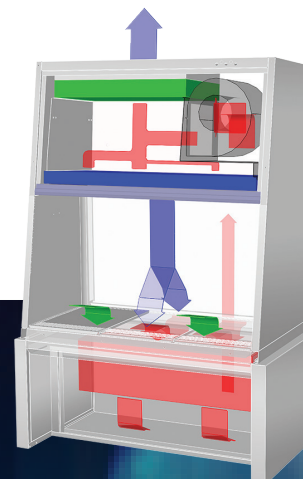


Available in 1.2 m and 1.8 m width (4' and 6' models)



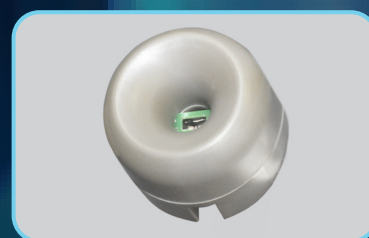
## Tri-filter System

- Equipped with 1 supply downflow filter and 2 exhaust filters
- Dual long life ULPA filters (as per IEST-RP-CC001.3 or H14 as per EN 1822) for supply and exhaust filters
- V-bank design ULPA filter as per IEST-RP-CC001.3 or H14 filter as per EN 1822 for below work zone exhaust filter



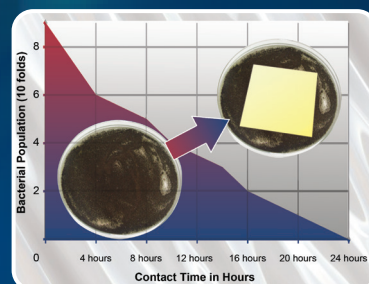
## Airflow Sensor

- Monitors real-time airflow for safety
- Alert the user if airflow is insufficient
- High-end Accusense sensor made by Degree C



## ISOCIDE™ Powder Coat

- Silver-ion impregnated powder coat
- Inhibit microbial growth to improve safety



## Motorized Sash

- Easier closing and opening of sash, just by pressing the button help simplify use of the cabinet

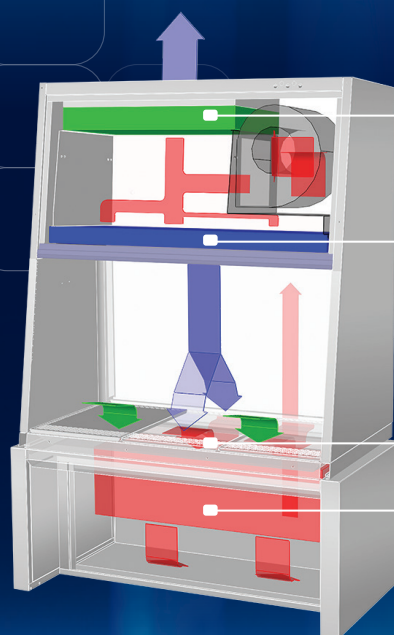


## Exhaust HEPA filter

- With additional V-bank HEPA filter below work zone



## Cytoculture® Cytotoxic Safety Cabinet Airflow



- Secondary exhaust filter
- Supply filter
- Dynamic air barrier, inflow and forward directed downflow air converge
- Primary exhaust filter

- ULPA-filtered air
- Unfiltered / potentially contaminated air
- Room air / Inflow air

- Air enters the cabinet through perforations located along the front of the work zone before mixing with used downflow air in a common chamber below the work zone (this inflow air does not mix with the filtered downflow air in the cabinet's main chamber). The mixed air then passes through the first stage exhaust filter located beneath the work zone.
- The filtered air then passes through internal ducting in the back wall of the cabinet to a common air plenum where ~30% is exhausted

through the second stage exhaust filter and ~70% is forced evenly through the supply filter. This sterilized air then passes through the main chamber as downflow air, flushing all contaminants from the work zone.

- At the work surface the downflow airstream splits and enters the common air chamber beneath the work zone through perforations located at the front and back of the main chamber, from where the cycle is repeated.

Touchpad data entry buttons permit control settings and access to diagnostics, default settings and hierarchical menus.

Color coded indicator lamps display green for primary function (fan operation); blue for secondary function (LED lights and electrical outlet); and orange for caution (UV lamp ON).

Programmable automatic UV light timer simplifies operation, enhances contamination control, extends UV lamp life and saves energy.

A graphical interface indicates cabinet performance.

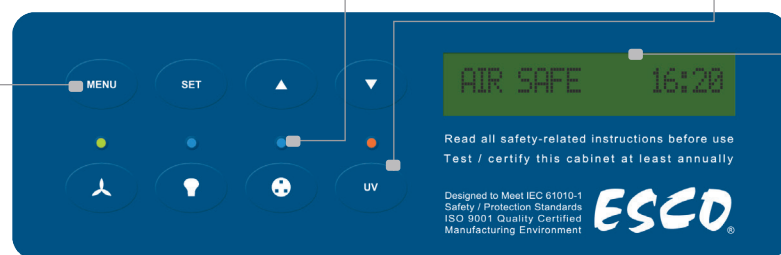
Digital read-out with alpha-numeric display indicates all input, status and alarm functions.

All functions can be user activated through touch-pad programming access; see Operations Manual.

Sentinel™ Silver Microprocessor Control System, Programmable

■ When programmed ON

- the start-up sequence confirms status with Air Safe and local time display.
- the Personal Identification Number (PIN) access restricts unauthorized adjustments.
- an airflow alarm warns of deviations from normal velocities.



## Accessories for Cytoculture® Cytotoxic Safety Cabinets

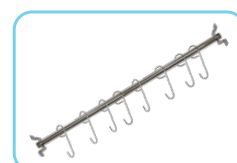
| Model                 |   | CYT-4A                     | CYT-6A                     |
|-----------------------|---|----------------------------|----------------------------|
| Exhaust Ducting       | Anti-blowback Valve   | ABBV-10P                   | 5170352                    |
|                       | Manual Volumetric Exhaust Damper                              | B2-Damper                  | 5170104                    |
|                       | Thimble Exhaust Collar (10 inches diameter)                   | ECO-LA24-Mk3-LH<br>5170099 | ECO-LA26-Mk3-LH<br>5170102 |
| Work Zone             | UV Lamp   | UV-30A                     | 5170255                    |
|                       | IV Bar  | IV-1260 5170277            | IV-1870 5170279            |
| Electrical Outlet     | Direct Mounted Electrical Outlet - Plug Code                  | EO-H                       |                            |
| Service Fixtures      | EU SF - Gas - 40 mm   | SF-1G40                    | 5170002                    |
|                       | EU SF - Vacuum - 40 mm  | SF-1V40                    | 5170003                    |
|                       | EU SF - Nitrogen - 40 mm                                      | SF-1N40                    | 5170011                    |
|                       | EU SF - Air - 40 mm   | SF-1A40                    | 5170006                    |
|                       | EU SF - Water - 40 mm   | SF-1W40                    | 5170017                    |
|                       | American Style Service Fixture - Universal - 40 mm            | SF-2U40                    | 5170018                    |
|                       | Copper Piping for Service Fixture (Must be Factory Installed) | CU-Pipe                    | 5170026                    |
| Carbon Filter Options |   | CYT-001 5080008            | CYT-002 5080009            |
| Misc                  | Solenoid Valve Fitting  | SL-Valve                   | 5070086                    |
|                       | IQ/OQ Protocol  | 9010179                    |                            |
|                       | Removable Granite Slab with SS304 Platform                    | 5260310                    |                            |



ABBV-10P



B2-DAMPER

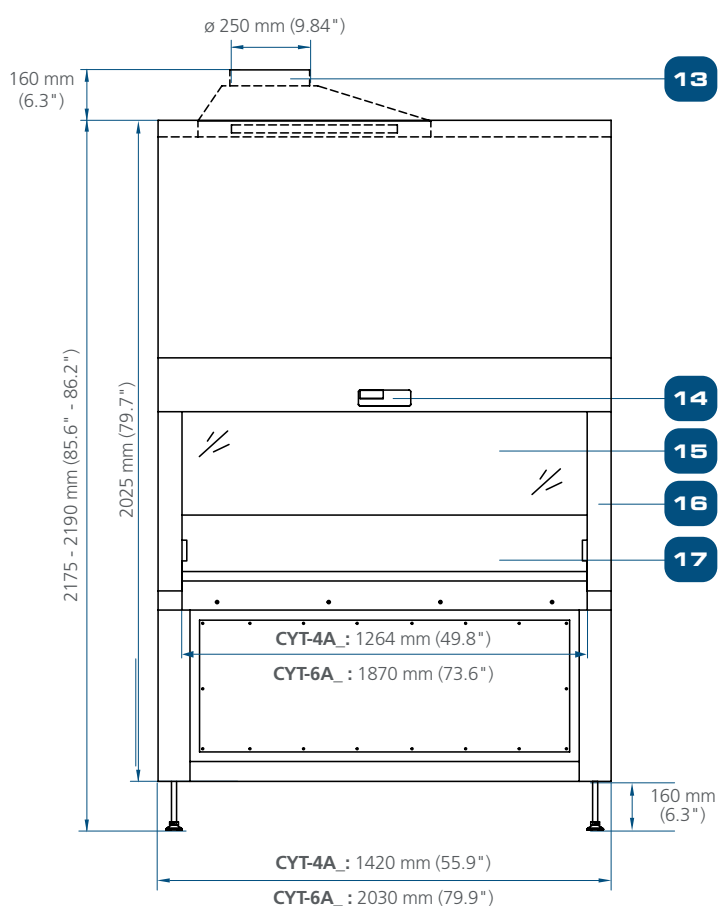
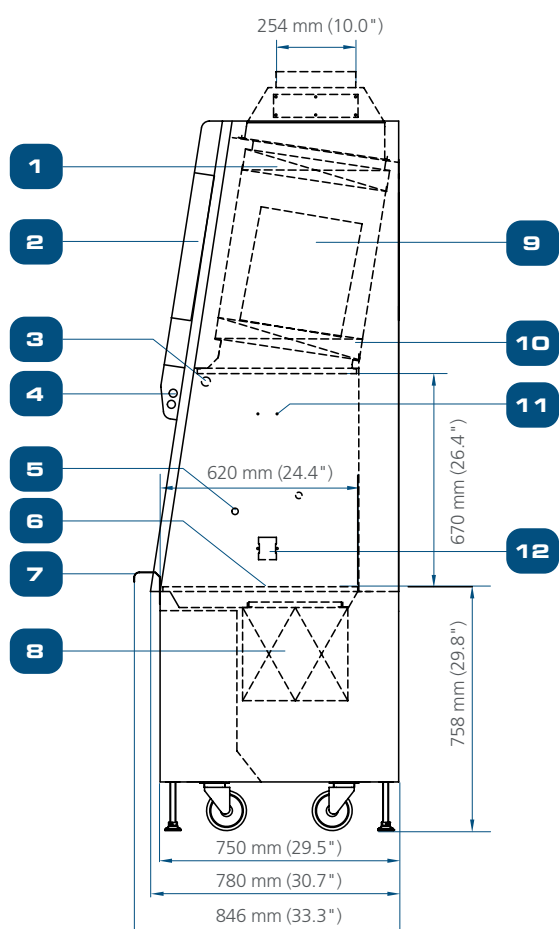
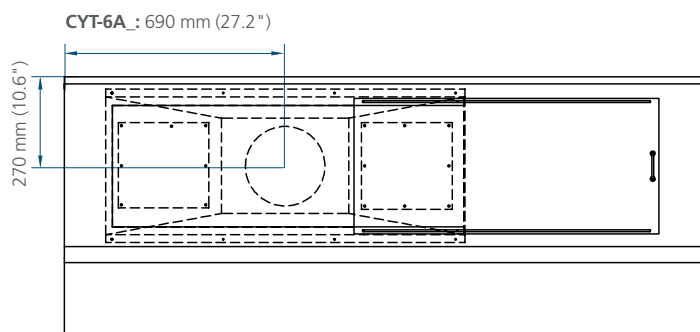
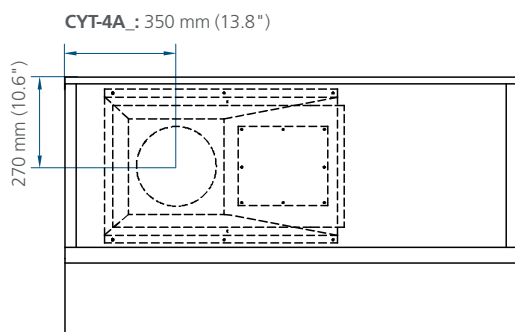


IV-<sub>—</sub>



SF-1\_

## Model CYT Cytotoxic Safety Cabinet Engineering Drawing



1. Exhaust filter
2. Electrical Panel
3. UV Lamp Retrofit Kit Provision
4. LED lamp
5. Service Fixture Retrofit Kit provision
6. Stainless steel multi-piece work tray
7. Stainless Steel Arm Rest

8. Exhaust V-bank filter
9. DC ECM Blower
10. Downflow Filter
11. IV Bar Retrofit VKit Provision
12. Electrical Outlet Retrofit Kit Provision (two on each side)
13. Exhaust Collar (Optional)

14. Esco Sentinel™ Silver Microprocessor Controller
15. Motorized Sash Window
16. Removable Side Panel
17. Single-piece stainless steel back wall and side walls

## General Specifications, Cytotoxic Safety Cabinets

*Note to customer: Insert electrical voltage number into last model number digit \_ when ordering*

| Cytoculture® Cytotoxic Safety Cabinet     |                                       | CYT-4A_   | CYT-6A_   |
|---|---------------------------------------|---|---|
| Nominal Size                              |                                       | 1.2 meters (4')   | 1.8 meters (6')                                 |
| External Dimensions (W x D x H)           |                                       | 1420 x 846 x 2190 mm<br>(55.9" x 33.3" x 86.2")   | 2030 x 846 x 2320 mm<br>(79.9" x 33.3" x 91.3") |
| Internal Work Area Dimensions (W x D x H) |                                       | 1264 x 620 x 670 mm<br>(49.8" x 24.4" x 26.4")  | 1870 x 620 x 670 mm<br>(73.6" x 24.4" x 26.4")  |
| Usable Work Area                          |                                       | 0.60 m <sup>2</sup> (6.4 sq.ft.)  | 0.90 m <sup>2</sup> (9.7 sq.ft.)                |
| Tested Opening                            |                                       | 203 mm (8.0")   | 203 mm (8.0")                                   |
| Maximum Sash Opening                      |                                       | 440 mm  | 440 mm  |
| Average Airflow Velocity                  | Inflow                                | 0.45 m/s (90 fpm)   |   |
|   | Downflow                              | 0.30 m/s (60 fpm)   |   |
| Exhaust Volume with Ducting               | Inflow                                | 0.45 m/s (90 fpm)   |   |
|   | Downflow                              | 0.30 m/s (60 fpm)   |   |
|   | CBV Exhaust Volume                    | 611 m <sup>3</sup> / h (360 cfm)  | 931 m <sup>3</sup> / h (548 cfm)                |
|   | Static Pressure at CBV Exhaust Volume | 39 Pa / 0.15 in H <sub>2</sub> O  | 63 Pa / 0.25 in H <sub>2</sub> O                |
| Filter Typical Efficiency                 | Downflow                              | >99.995% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA<br>>99.995% at MPPS, H14 as per EN 1822 EU |   |
|   | Exhaust                               |   |   |
| V-bank Filter Typical Efficiency          | Exhaust                               | >99.995% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA<br>>99.995% at MPPS, H14 as per EN 1822 EU |   |
| Sound Emission per EN 12469*              |                                       | 61 dBA  | 63 dBA  |
| LED Lamp Intensity at Zero ambient        |                                       | >1300 Lux (>121 foot candles)   | >1000 Lux (>93 foot candles)                    |
| Cabinet Construction                      | External                              | 1.5 mm (0.06") 16 gauge electrogalvanized steel with Isocide white oven-baked epoxy powder-coating        |   |
|   | Internal                              | Stainless steel Type 304 with No.4 finish, 1.5 mm (0.06") / 16 gauge thick                                |   |
| Electrical**                              | <b>220-240V, AC, 50 Hz, 1Ø</b>        | <b>CYT-4A1</b>  | <b>CYT-6A1</b>                                  |
|   | Cabinet Full Load Amps (FLA)          | 8A  | 9A  |
|   | Optional Outlets FLA                  | 5A  | 5A  |
|   | Cabinet Nominal Power                 | 429W  | 568W  |
|   | Cabinet BTU                           | 1464 BTU/hr   | 1938 BTU/hr                                     |
|   | <b>110-120V, AC, 60 Hz, 1Ø</b>        | <b>CYT-4A2</b>  | <b>CYT-6A2</b>                                  |
|   | Cabinet Full Load Amps (FLA)          | 11A   | 11.5A   |
|   | Optional Outlets FLA                  | 5A  | 5A  |
|   | Cabinet Nominal Power                 | 653W  | 793W  |
|   | Cabinet BTU                           | 2228 BTU/hr   | 2706 BTU/hr                                     |
|   | <b>220-240V, AC, 60 Hz, 1Ø</b>        | <b>CYT-4A3</b>  | <b>CYT-6A3</b>                                  |
|   | Cabinet Full Load Amps (FLA)          | 9A  | 9.5A  |
|   | Optional Outlets FLA                  | 5A  | 5A  |
|   | Cabinet Nominal Power                 | 549W  | 778W  |
|   | Cabinet BTU                           | 1873 BTU/hr   | 2655 BTU/hr                                     |
| Net Weight                                |                                       | 383 kg (844 lbs)  | 500 kg (1102 lbs)                               |
| Shipping Weight                           |                                       | 415 kg (915 lbs)  | 578 kg (1274 lbs)                               |
| Shipping Dimensions, Maximum (W x D x H)  |                                       | 1560 x 930 x 2230 mm<br>(61.4" x 36.6" x 87.8")   | 2170 x 930 x 2230 mm<br>(85.4" x 36.6" x 87.8") |
| Shipping Volume, Maximum                  |                                       | 3.26 m <sup>3</sup> (115 ft <sup>3</sup> )  | 4.49 m <sup>3</sup> (158.6 ft <sup>3</sup> )    |

\* Noise as measured in open field / anechoic chamber.

\*\* Additional voltages may be available; contact Esco for ordering information.



# After-Sales Services

## Parts Availability

Whenever service is needed and parts are required, minimizing downtime is a critical objective. Statistical usage analysis helps Esco to predict parts life, permitting Esco to manage logistics and stage proper inventories around the world. The combination of predictive maintenance, historical data, and geospecific proximity assures our customers that parts and labor are available whenever service is scheduled through the local sales organization.

## Registration, Documentation, and Instruction

Quality control at Esco extends from research and development through engineering, manufacturing, shipment, delivery, and customer feedback. Esco maintains an aggressive program to encourage warranty card registration by mail, email or online submission so that we know where Esco products are located and how they are being used. Rest assured that all information disclosed from warranty registrations will be kept confidential. All Esco products include unique serial numbers for identification. Documentation for all performance tests is archived and maintained for customer reference with all the backup procedures.

## Online Technical Information

Site preparation instructions are useful before product arrival and installation. Installation and start-up manuals, operation manuals and quick reference guides are available anytime from the Esco resources online.

## NSF International Accreditations and TÜV Nord Certification

The National Sanitation Foundation (NSF) International is an independent, non-profit organization that provides standards development, product certification, auditing, education, and risk management for public health and the environment.

The NSF mark is your assurance that the product complies with all the standard requirements, tested by one of the most respected independent certification organizations in existence today. NSF conducts periodic unannounced inspections and product testing to verify that the product continues to comply with the standard. It is valued by consumers, manufacturers, retailers, and regulatory agencies worldwide.

TÜV NORD GS certification has been helping to minimize risks and hence ensure maximum safety and quality. TÜV NORD's recognised certifications stand worldwide for an exemplary level of safety and make a valuable contribution to the continuing improvement of products and processes.

Esco has passed the stringent requirements during testing and inspection and has given the TÜV NORD approval mark that confirms compliance of the product with the provisions of the Product and Equipment Safety Act as regards health and safety.

In line with Esco's commitment in providing world-class services worldwide, Esco as a manufacturer feels the impact of providing the best after-sales service through our competent service engineers. Thus, Esco is the only manufacturer in the world with the most number of NSF accredited certifiers across the globe. In addition, Esco enhances the capacity to the highest quality of service by providing TÜV NORD GS certified service engineers with expertise to ensure timely preventive and corrective maintenance of the laboratory equipment. These accreditations make Esco not only an **Excellent Standards Company** but also an **Excellent Service Company**, which exemplifies Esco's collective quest of being an **Eternally Successful Company**.



## References and Links

To know more about the services we offer, visit [www.escolifesciences.com](http://www.escolifesciences.com)

## Customized to Meet Your Specific Needs

Esco CYT cabinets can be configured to meet unique needs including:

- Lead shielding for nuclear medicine applications.
- An optional carbon filter impregnated with KI (potassium iodide) in place of the additional HEPA filter (this configuration does not protect service technicians when changing contaminated filters).

## Comprehensive Performance Testing At Esco

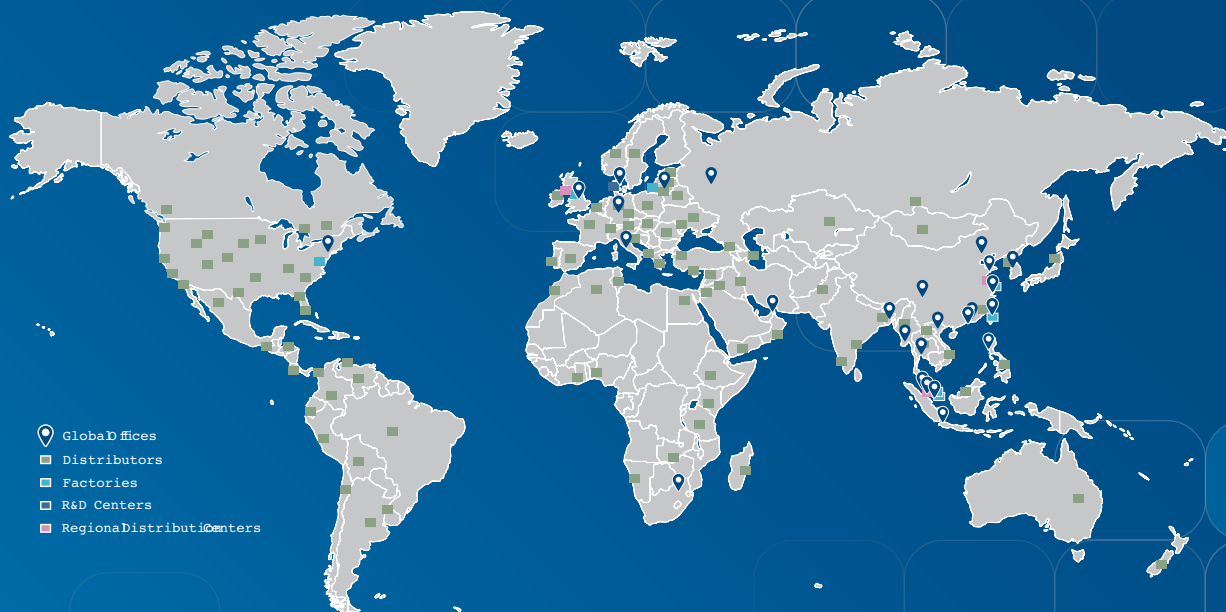


*Every Cytoculture™ CYT model manufactured by Esco is individually tested, documented by serial number and validated with the following test methods.*

- Inflow / downflow velocity
- PAO aerosol challenge for filter integrity
- Airflow pattern visualization
- Electrical safety to IEC61010-1
- Additional KI-Discus containment and microbiological testing is performed on statistical sampling basis.

## ESCO LIFESCIENCES GROUP NETWORK

42 Locations in 24 Countries All Over the World



- Global Offices
- Distributors
- Factories
- R&D Centers
- Regional Distribution Centers



Air Shower  
 Aseptic Containment Isolator (ACTI)  
 Ceiling Laminar Airflow Units  
 Cleanroom Transfer Hatch  
 Containment Barrier Isolator (CBI)  
 Downflow Booth (DFB)  
 Dynamic Floor Laminar Hatch  
 Dynamic Pass Box  
 Evidence Drying Cabinet  
 Garment Storage Cabinet  
 General Processing Platform Isolator (GPPI)  
 Laminar Flow Horizontal Trolley  
 Laminar Flow Straddle Units, Single and Double  
 Laminar Flow Vertical Trolley  
 Pass Box  
 Soft Wall Cleanroom  
 Sputum Booth  
 Ventilated Balance Enclosure (VBE)  
 Weighing and Dispensing Containment Isolator (WDCI)

Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions. Products sold in more than 100 countries include biological safety cabinets, fume hoods, ductless fume hoods, laminar flow clean benches, animal containment workstations, cytotoxic cabinets, hospital pharmacy isolators, and PCR cabinets and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community.

# ESCO

LIFESCIENCES



**Esco Micro Pte. Ltd.**  
 19 Changi South Street 1,  
 Singapore 486779  
 Tel: +65 65420833  
 Email: mail@vaccixcell.com

**Esco Technologies, Inc.**  
 2512 Metropolitan Drive, Suite 120 B  
 Feasterville- Trevose, PA 19053-6738  
 Tel: +1 215 322 2155  
 Email: eti.pharma@escolifesciences.com

**Esco GB Ltd**  
 Unit 2 R-evolution @ Gateway 36, Kestrel  
 Way, Barnsley, S70 5SZ  
 Tel: +44 (0) 1226 360 799  
 Email: egb.info@escolifesciences.co

**Esco Lifesciences Offices:** Bangladesh | China | Denmark | Germany | Hong Kong | Indonesia | Italy | Lithuania | Malaysia | Myanmar | Philippines | Russia | Singapore | South Africa | South Korea | Taiwan | Thailand | UAE | UK | USA | Vietnam

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