ESCO LIFESCIENCES

Labculture® G4

Class II Type B2 Biological Safety Cabinets

The Most Advanced, Energy-efficient, Safe, and Ergonomic Biosafety Cabinet in the World

LABCULTURE® G4 (LB2 G4) CLASS II TYPE B2 CABINET,

Airflow Sensor

- Monitors real-time airflow for safety
- Alert the user if airflow is insufficient

USB Port

- Export Data Logging
- Software Update
- Wired data transaction to BMS

Zero Volt Relay Contact

- Free Relay Contact
- Exhaust Free Relay Contact

Centurion 7" Capacitive Touchscreen Controller

- Displays all safety information on one large screen
- Shows cabinet parameters with intuitive 3D illustration
- Easy to use menu, similar to Smart Phone Apps
- Large buttons, easy to operate when wearing gloves
- Self-guidance to users to deal with specific situations
- Centered and angled down for easy reach and viewing
- Optional: 21 CFR Part 11 Compliance

Single Piece Wall

- Easy to reach service fixtures and electrical outlets on sidewalls
- Large radius corners for easy cleaning

User-friendly Work Tray

- Largest useable area in the market
- Recessed to contain spillage
- Sloped perimeter for easy cleaning
- Large, easy to clean tray handle

Raised Arm Rest

- Prevent grille blocking
- Comfortable working posture
- Durable stainless steel construction

Esco Labculture® G4 Class II Type B2 Biosafety Cabinet
Available in 3 feet, 4 feet, 5 feet, and 6 feet models.

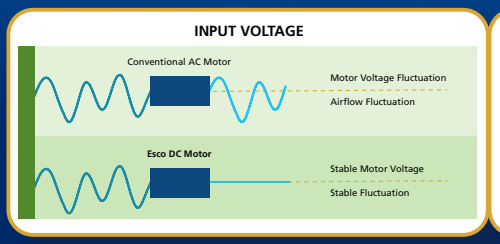
Ergonomic Work Zone

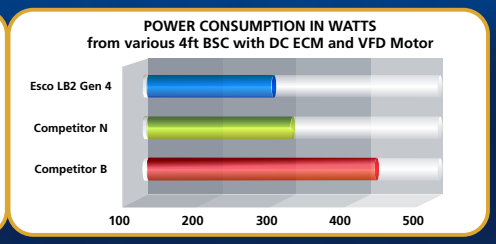
- 10° angle to optimize user comfort, reduce glare, and maximize reach into the work area
- Brightly illuminated with >1200 lux (111 ft. cd)
- Industry-leading dimmable LED for optimum work comfort
- Airtight seal port for cable/tube exit protected by a negative pressure side wall

FEATURING ADVANCED TOUCHSCREEN CONTROLLER

Energy-efficient DC ECM Blower

- The leading energy efficient Class II Type B2 Biosafety Cabinet in the world with 70% energy savings compared to AC motor
- Stable airflow despite building voltage fluctuations and filter loading





Advance Filtration System

- 10x Filtration efficiency of HEPA filter
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5
- Same 10 years filter life and replacement cost as HEPA filters
- LB2 G4 available in Bag-In Bag-Out System (BIBO) - integrated models

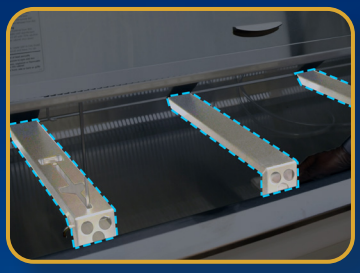
Note:
- *99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA*
- *99.999% at MPPS, H14 as per EN 1822 EU*

Dimmable LED

- Save energy and optimize work comfort

User Modified Pass-Through / Cable Port

- 3" Port with ¼" hole on rubber membrane inside
- Surrounded by negative pressure
- Allows cables and tubes to exit with fully closed sash

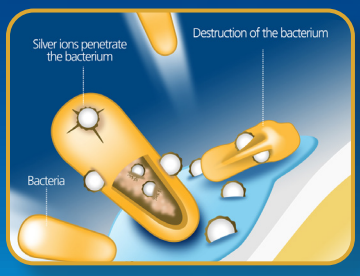


Tray Support Beams

- Support work tray evenly for less vibration
- Cleaning holder to easily wipe the drain pan

ISOCIDE™ Powder Coat

- Silver-ion impregnated powder coat
- Inhibits microbial growth to improve safety
- Prevents the plenum from becoming biohazard landfill



Certification

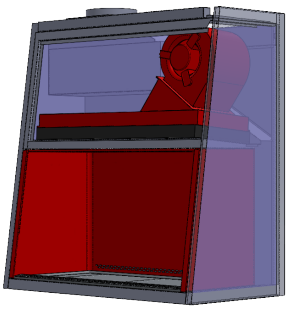
	Performance	Air Quality	Filtration	Electrical Safety
Standards Compliance	NSF / ANSI 49, USA EN 12469	ISO 14644.1, Class 3, Worldwide US Fed Std 209E, Class 1 USA JIS B9920, Class 3, Japan	EN-1822 (H14), Europe IEST-RP-CC001, USA	UL 61010-1 3rd Ed, USA CSA22.2, No.1010-192, Canada

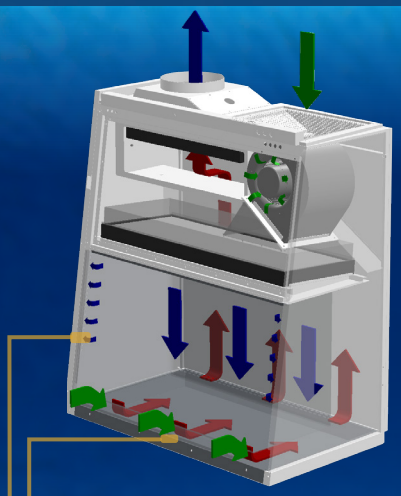
Note : All are NSF/ANSI 49 certified, except LB2-3ft G4 and LB2-5ft G4 including the corresponding 8/9 for power rating

Dynamic Chamber™

- ***Blower plenum and side walls are surrounded by negative pressure***
- ***Prevent contaminants from escaping outside***

Positive Pressure
Negative Pressure

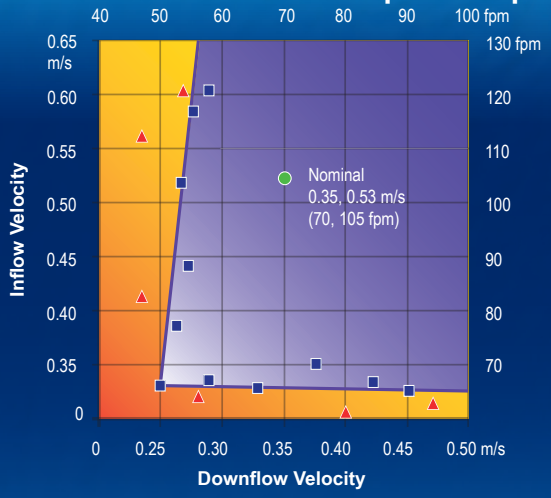




Cabinet Filtration System

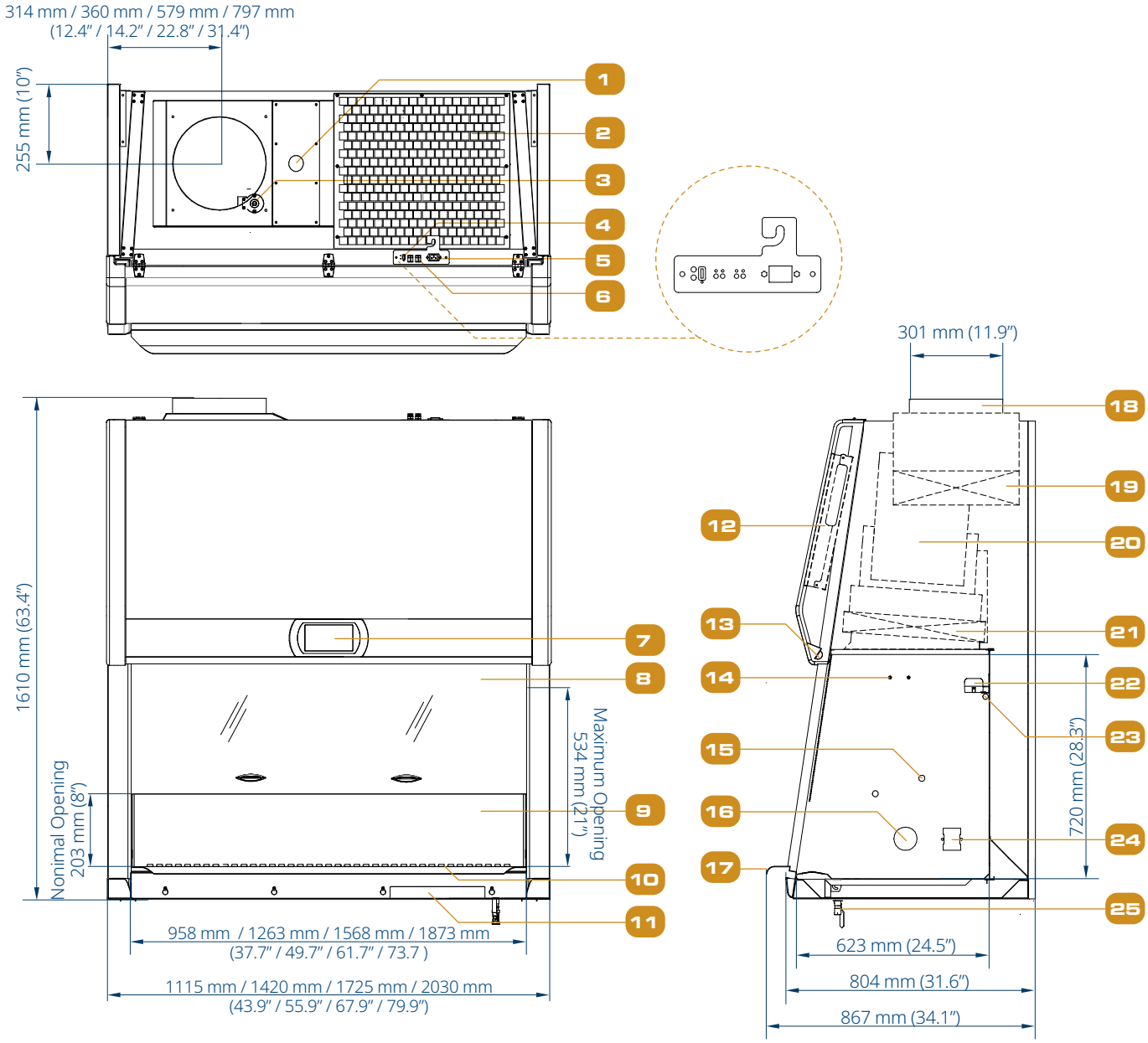
- Ambient air is pulled through the front grille to prevent contamination of the work surface and work product. The inflow does not mix with the clean air within the cabinet work zone.
- Ambient air is taken in through a pre-filter at the top of the cabinet, and passes through the downflow ULPA filter, entering the work zone as laminar flow. The uniform, non-turbulent air stream protects against cross contamination within and throughout the work area.
- Near the work surface, the downflow air stream splits with a portion moving toward the front air grille, and the remainder moving to the rear air grille. A small portion of the ULPA filtered downflow enters the intake perforations at the side capture zones at a higher
velocity (small blue arrows).
- A combination of inflow and downflow air streams forms an air barrier that prevents contaminated room air from entering the work zone, and prevents work surface emissions from escaping the work zone. The downflow combined with the inflow air enters the common air plenum.
- All air in the common plenum is HEPA-filtered and exhausted via a dedicated ducting system to the external environment.
- Fail-safe system ensures that in case of exhaust failure, the cabinet's main fan automatically shuts down to ensure safety to the user

The Performance Envelope Concept



- Nominal Airflow
- Personnel / Product Protection
- Area of Personnel / Product Protection
- No Personnel / Product Protection
- Area of no Personnel / Product Protection

Engineering Drawing



1. VHP Out Provision (optional)
2. Pre-filter
3. Exhaust Airflow Sensor
4. USB Port
5. Power Inlet (single)
6. Zero Voltage Relay Contact
7. Centurion 7" Touch Screen Controller
8. Sash Glass
9. Single-piece Stainless Steel Backwall
10. Stainless Steel Work Tray
11. Data Plate
12. Electrical Panel
13. Dimmable LED Lamp
14. IV Bar Retrofit Kit Provision
15. Service Fixture Retrofit Kit Provision
16. Cable Port
17. Stainless Steel Armrest
18. Exhaust Collar
19. Exhaust Filter
20. DC ECM Blower
21. Downflow Filter
22. Downflow Sensor
23. UV Lamp Provision
24. Electrical Outlet
25. Drain Valve (optional)

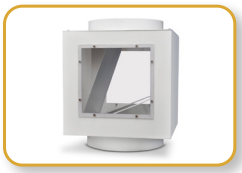
Class II Type B2 Biological Safety Cabinets (203 mm / 8” Opening)

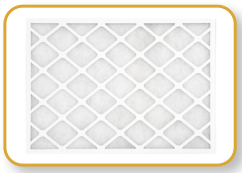
TECHNICAL SPECIFICATIONS						
Labculture® Class II Type B2	Stainless Steel Side Walls	220-240 VAC, 50/60 Hz	**LB2-3B8 G4 2011364**	**LB2-4B8 G4 2011365**	**LB2-5B8 G4 2011366**	**LB2-6B8 G4 2011367**
		110-130 VAC, 50/60 Hz	**LB2-3B9 G4 2011360**	**LB2-4B9 G4 2011361**	**LB2-5B9 G4 2011362**	**LB2-6B9 G4 2011363**
Labculture® Class II Type B2 with BIBO		220-240 VAC, 50/60 Hz	**LB2-3B8-BIBO G4 2011377**	**LB2-4B8-BIBO G4 2011378**	**LB2-5B8-BIBO G4 2011379**	**LB2-6B8-BIBO G4 2011380**
		110-130 VAC, 50/60 Hz	**LB2-389-BIBO G4 2011373**	**LB2-489-BIBO G4 2011374**	**LB2-5B9-BIBO G4 2011375**	**LB2-6B9-BIBO G4 2011376**
Nominal Size			0.9 meter (3')	1.2 meter (4')	1.5 meter (5')	1.8 meter (6')
External Dimensions (W x D x H)	Without Optional Base Stand		1115 x 867 x 1610 mm (43.9” x 34.1” x 63.3”)	1420 x 867 x 1610 mm (55.9” x 34.1” x 63.3”)	1725 x 867 x 1610 mm (67.9” x 34.1” x 63.3”)	2030 x 867 x 1610 mm (79.9” x 34.1” x 63.3”)
Internal Dimensions (W x D x H)			958 x 623 x 720 mm (37.7” x 24.5” x 28.3”)	1263 x 623 x 720 mm (49.7” x 24.5” x 28.3”)	1568 x 623 x 720 mm (61.7” x 24.5” x 28.3”)	1873 x 623 x 720 mm (73.7” x 24.5” x 28.3”)
Usable Work Area			0.45 m^2 (4.8 sq.ft.)	0.60 m^2 (6.5 sq.ft.)	0.75 m^2 (8.1 sq.ft.)	0.90 m^2 (9.7 sq.ft.)
Sash Opening			203 mm (8”)			
Maximum Sash Opening			534 mm (21”)			
Average Airflow Velocity	Inflow		0.53 m/s (105 fpm)			
	Downflow		0.31 m/s (60 fpm)			
Airflow Volume	Inflow		376 m^3/h (223 cfm)	493 m^3/h (292 cfm)	608 m^3/h (361 cfm)	724 m^3/h (429 cfm)
	Downflow		628 m^3/h (363 cfm)	822 m^3/h (476 cfm)	1016 m^3/h (588 cfm)	1210 m^3/h (700 cfm)
	CBV Exhaust Air Volume*		1111 m^3/h (662 cfm)	1455 m^3/h (867 cfm)	1798 m^3/h (1072 cfm)	2142 m^3/h (1277 cfm)
	Minimum Exhaust Static Pressure		350 Pa / 1.4 in H_2O	325 Pa / 1.3 in H_2O	285 Pa / 1.2 in H_2O	325 Pa / 1.3 in H_2O
	CBV Exhaust Static Pressure*		523 Pa / 2.1 in H_2O	498 Pa / 2.0 in H_2O	473 Pa / 1.9 in H_2O	498 Pa / 2.0 in H_2O
Supply and exhaust ULPA Filter Efficiency			>99.999% at 0.1 to 0.3 micron, ULPA as per IEST-RP-CC001.3 USA			
			>99.999% at MPPS, H14 as per EN 1822 EU			
Sound Emission**	NSF / ANSI 49		57 dBA	58 dBA	59 dBA	60 dBA
	EN 12469		54 dBA	55 dBA	56 dBA	57 dBA
Light Intensity	LED Lamp		≥1200 Lux (≥111 foot-candles)			
	Optional UV Lamp		253.7 nm			
Electrical Requirements*** (230 VAC, 50-60Hz)	Nominal Power Consumption		128 W	174 W	207 W	230 W
	Heat Load		436 BTU/Hr	593 BTU/Hr	707 BTU/Hr	785 BTU/Hr
	Full Load Amps		9.5 A	10 A	10.5 A	11 A
Electrical Requirements*** (115 VAC, 50-60Hz)	Nominal Power Consumption		160 W	167 W	202 W	225 W
	Heat Load		546 BTU/Hr	570 BTU/Hr	690 BTU/Hr	768 BTU/Hr
	Full Load Amps		13 A	13.1 A	13.2 A	13.3 A
Cabinet Construction	Main Body		Electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish, 1.5 mm (0.06”) / 16 gauge thick			
	Work Zone		Stainless steel Type 304 with No.4 finish, 1.5 mm (0.06”) / 16 gauge thick			
	Sash Window		6 mm UV-absorving Tempered Glass			
Net Weight			279 Kg (615 lbs)	317 Kg (699 lbs)	359 Kg (791 lbs)	438 Kg (966 lbs)
Shipping Weight			318 Kg (701 lbs)	370 Kg (816 lbs)	402 Kg (884 lbs)	491 kg (1082 lbs)
Shipping Dimensions, Maximum (W x D x H)			1210 x 950 x 1950 mm (47.6” x 37.4” x 76.8”)	1520 x 950 x 1950 mm (59.8” x 37.4” x 76.8”)	1900 x 950 x 1950 mm (74.8” x 37.4” x 76.8”)	2150 x 950 x 1950 mm (84.7” x 37.4” x 76.8”)
Shipping Volume Dimensions (W x D x H)			2.24 m^3 (79.1 cu.ft.)	2.82 m^3 (99.6 cu.ft.)	3.52 m^3 (124.3 cu.ft.)	3.98 m^3 (140.6 cu.ft.)

Disclaimer: Technical Specifications may be subjected to further changes without further notice.
**This Concurrent Balance Value (CBV) Exhaust Volume (per Pitot Duct Traverse) and Static Pressure at cabinet exhaust connection should be used when sizing the HVAC exhaust and supply.*
***Noise reading in open field condition / anechoic chamber. Noise reading in normal room varies by room size, layout, and background noise, but may reach roughly 3-4 dBA above these values.*
****Electrical power consumption is a measurement of new unit with clean filter operated within nominal setpoint. Result per unit may vary.*

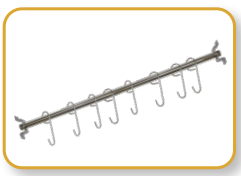
Options and Accessories

Anti-blowback Valve 10 inches	EG Powder-Coated	ANTI-BLOW BACK VALVE 12" ABBV-12P (5170353)			
	304 Stainless Steel	ANTI-BLOW BACK VALVE 12" ABBV-12S (5170355)			
Inlet Collar LB2-A		ICO-LB23 5170320	ICO-LB24 5170263	ICO-LB25 5170316	ICO-LB26 5170322
Prefilter, 565 x 500mm		PF-2 (5090001)			
UV Lamp		UV-15A-L (5170251)	UV-30A-L (5170255)		
IV Bar		IV-955 (5170276)	IV-1260 (5170277)	IV-1565 (5170278)	IV-1870 (5170279)
Electrical Outlet	Direct Mounted	EO-_			
	GFCI	EO-GFCI 5170071			
Service Fixtures	EU SF-Gas-40 mm	SF-1G40 (5170002)			
	EU SF-Vacuum-40 mm	SF-1V40 (5170003)			
	EU SF-Air-40 mm	SF-1A40 (5170006)			
	EU SF-Nitrogen-40 mm	SF-1N40 (5170011)			
	EU SF-Water-40 mm	SF-1W40 (5170017)			
	SF-Nitrogen/Gas/Vaccum-40 mm	SF-2U40 (5170018)			
	Copper Piping for SF	CU-Pipe (5170026)			
Support Stand (705 to 915 mm with 50 mm increment / 28.0" to 36.0" with 2" increment, combination of caster wheels and leveling feet with lock)		STA-3A0 5131340	STA-4A0 5131341	STA-5A0 5131427	STA-6A0 5131389
VHP-OUT PORT KIT WITH COVER		5171398	5171397		
Top Decon Cover W/VHP		ALL SIZE LB2 G4 (5171399)			
Front Decon cover with VHP IN PORT		5171341	5171342	5171343	5171344
Drain Valve		5142493			
Anti Blowback Valve (EG Powder Coated)		ABBV-12P (5170353)			
Manual Volumetric Exhaust Damper 12"		Damper 12" (5170105)			
Stainless Steel Pipette Storage Shelf		5260327			
Arm Rest Padding		MEWREST (5170127)			
Foot Rest		FT-REST (5170073)			
Laboratory Chair		ME-LD-AR360 (1150006)			
IQOQ Protocol		9010179			


ABBV-_


PF-2_

UV-_A-L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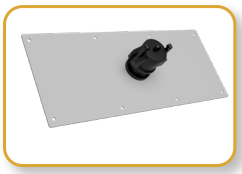
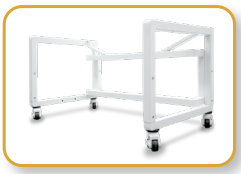
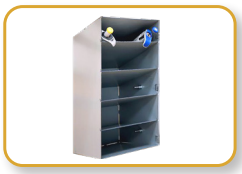

VHP OUT

SF-1_

SF-2U_


STA-_


SS Pipette Storage Shelf

MEWREST

FT-REST

ME-LD-AR360

IQOQ

ESCO®
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Improving Lives Through Science

DIRECT MANUFACTURER

- Animal Research Workstation
- Biosafety Safety Cabinet
- CO_2 Incubator
- Ducted Fume Hood
- Ductless Fume Hood
- Filtered Storage Cabinet
- Laboratory Centrifuge
- Laboratory Oven and Incubator
- Laboratory Refrigerator and Freezer
- Laboratory Shaker
- Laminar Flow Cabinet
- PCR Cabinet
- PCR Thermal Cycler
- Powder Weighing Balance Enclosure
- Ultra-low Temperature Freezer

ESCO®
LIFESCIENCES

- Airflow Containment
- Cross-Contamination Facility Integrated Barrier
- Isolation Containment
- Ventilation Containment
- Radiopharmacy
- Adherent Cell Bioreactors
- Adherent Automated Cell Harvesting System
- Cell Culture Monitoring Tools
- Single-use Consumables for Bioprocessing

ESCO®
MEDICAL

- Time-Lapse Incubator
- Benchtop Incubator
- ART Workstation
- CO_2 Incubator
- Anti-Vibration Table
- Gas Analyser
- Centrifuges

ESCO®
ASTER

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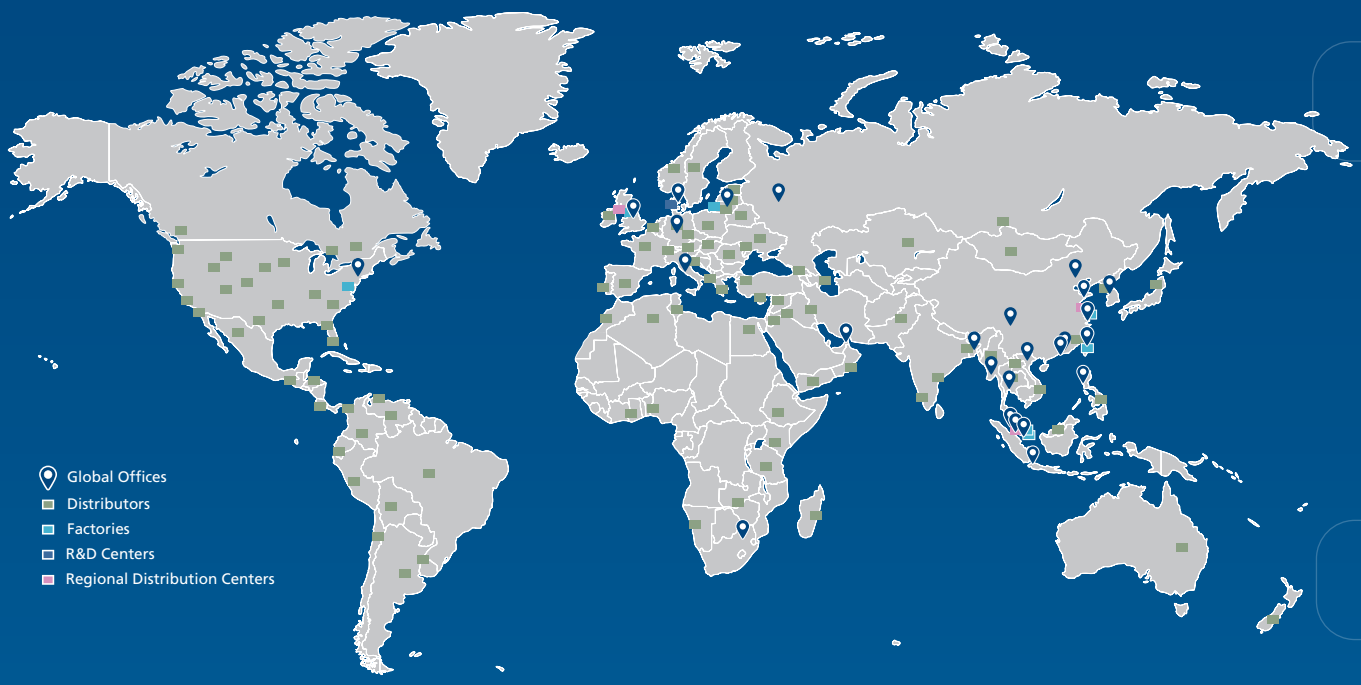
42 LOCATIONS IN 21 COUNTRIES ALL OVER THE WORLD



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