ESCO
SCIENTIFIC

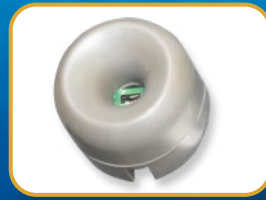# Labculture® G4

Class II Biological Safety Cabinets

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

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

USB Port, RJ45, and Zero Volt Relay Contact
- USB Port / RJ45 to send operational information to Building Management System (BMS)
- Zero Volt Relay Contact to turn ON/OFF exhaust blower and signal the building alarm

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

Motorized Window
- Aerosol tight window seal
- Window automatically stops at safe operating height
- Conveniently move the window by fingertip
- Tiltable Sash for easy glass cleaning

Unique Stainless Steel and Glass Hybrid Wall (E-Series)
- Large corner radius for easy cleaning
- Easy to reach service fixture and outlets
- Stainless steel side wall is available (S-Series)
- Hole-free side glass for increased safety

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
- V-shaped grill allowing efficient inflow

Raised Arm Rest
- Prevent grille blocking
- Comfortable working posture
- Durable stainless steel construction

Esco Labculture® Plus G4 Class II 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
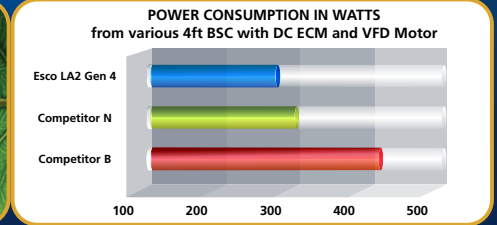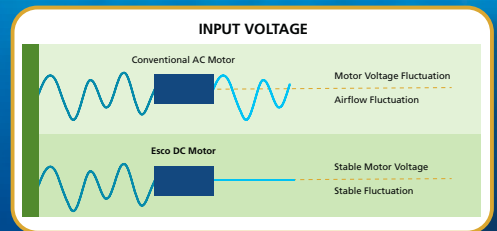
cen EN12469 **TÜV NORD**

Certified by TÜV NORD, Germany for compliance to DIN EN 12469

CABINET, FEATURING ADVANCED TOUCHSCREEN CONTROLLER

Dual Energy-efficient DC ECM Blower

- The leading energy efficient Class II Biosafety Cabinet in the world with 70% energy savings compared to AC motor
- Stable airflow despite building voltage fluctuations and filter loading
- Standby mode to further reduce power consumption by 80%

INPUT VOLTAGE

Conventional AC Motor
Motor Voltage Fluctuation
Airflow Fluctuation

Esco DC Motor
Stable Motor Voltage
Stable Fluctuation

POWER CONSUMPTION IN WATTS
from various 4ft BSC with DC ECM and VFD Motor

Esco LA2 Gen 4
Competitor N
Competitor B

100   200   300   400   500

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

Dimmable LED

- Save energy and optimize work comfort
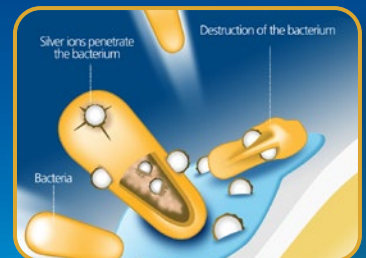
Removable Paper Catch

- Prevent objects from being pulled into blower plenum
- Removable for easy cleaning
- Optional pre-filter can be fitted

Tray Support Beams

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

ISOCIDE™ Powder Coat

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

Silver ions penetrate the bacterium
Destruction of the bacterium
Bacteria

Certification

Standards Compliance	Performance	Air Quality	Filtration	Electrical Safety
	EN 12469, TUV Nord, Germany	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	EN-61010-1, Europe IEC61010-1, Worldwide

Dynamic Chamber™

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

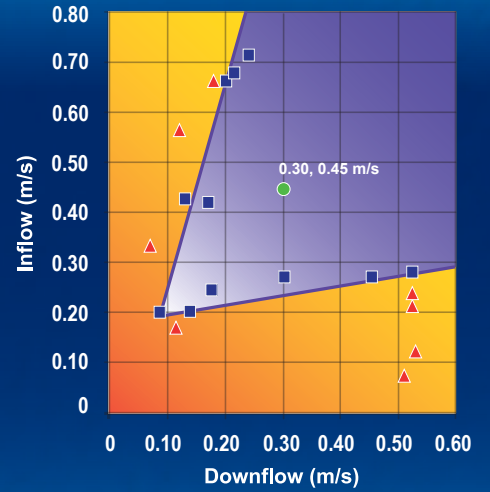*Positive Pressure*
Negative Pressure
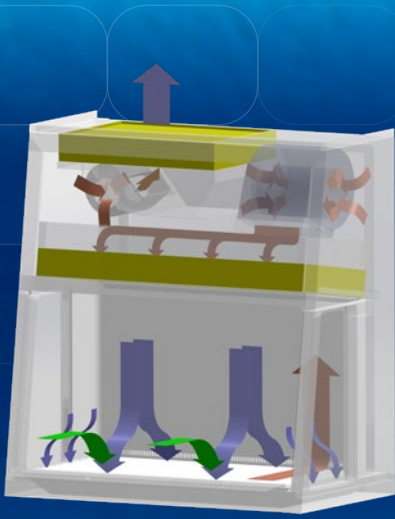
Cabinet Filtration System

- Ambient air is pulled through front grille to create inflow, without going into the work surface. Inflow is joined by half of the downflow, to create front air curtain that is fine-tuned to create a large performance envelope. The combined air stream travels through the back air column towards the blower.

- Approximately ⅓ of the air in the common plenum is exhausted through the ULPA filter to the room. The remaining ⅔ of the air is passed through the downflow ULPA filter and into the work area as a vertical laminar flow air to create ISO Class 3 work surface and prevents cross contamination.

- Near the work surface, the downflow splits. About half goes to the front grille, and half goes to the rear grille. A small portion enters the the side capture zones to prevent dead air corners (small blue arrows).

- The design was optimized to give large performance envelope, that provides operator and product protection at wide Inflow and Downflow variation from the Nominal point.
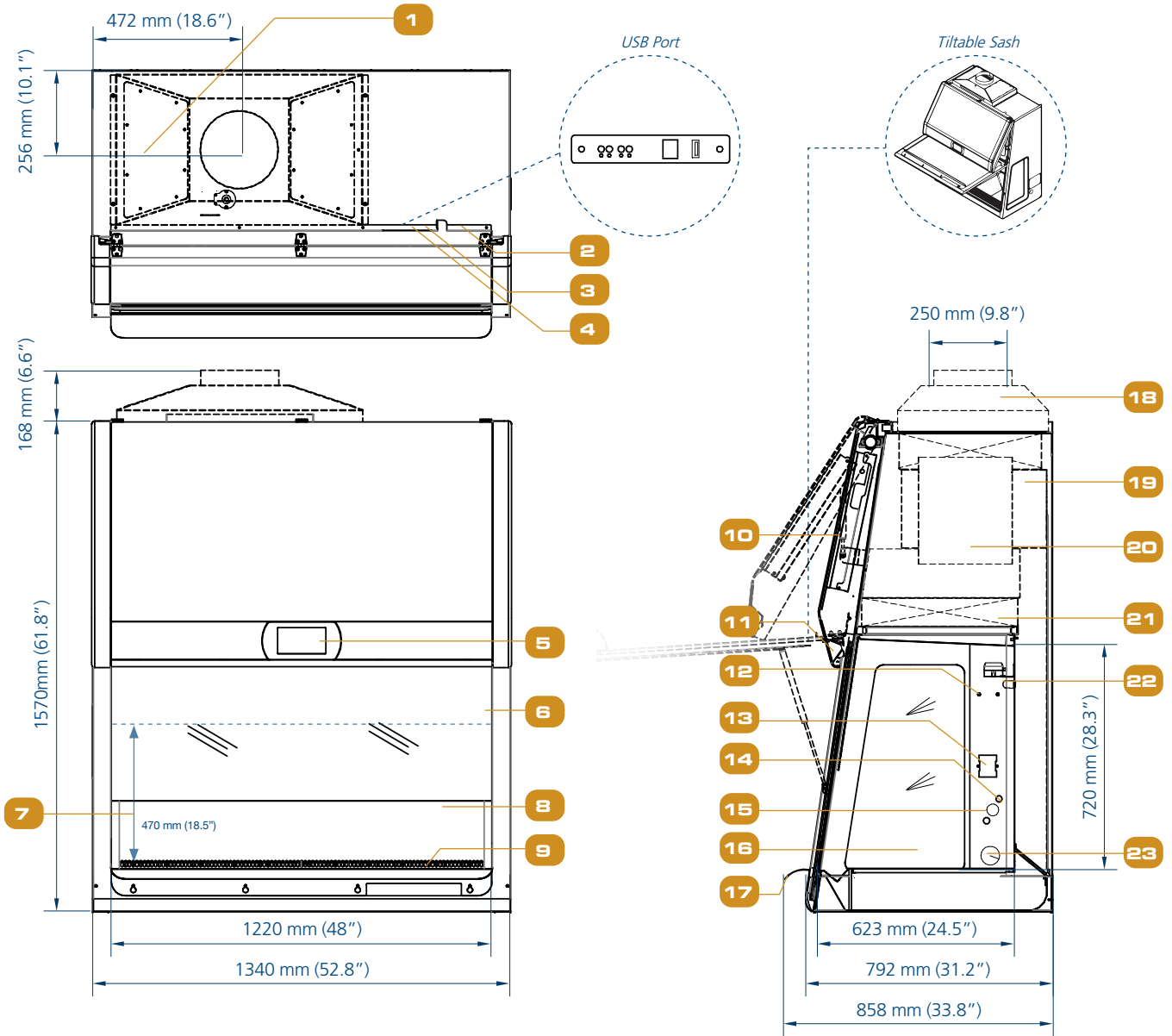
■ H14-filtered air
■ Unfiltered / potentially contaminated air
■ Room air / Inflow air

Performance Envelope Test of LA2-EU

Inflow (m/s) vs Downflow (m/s)

0.30, 0.45 m/s

● Nominal Airflow
□ Personnel / Product Protection
■ Area of Personnel / Product Protection
▲ No Personnel / Product Protection
■ Area of no Personnel / Product Protection

Engineering Drawing

USB Port

Tiltable Sash

472 mm (18.6")
256 mm (10.1")
1
2
3
4
168 mm (6.6")
1570mm (61.8")
5
6
7
470 mm (18.5")
8
9
1220 mm (48")
1340 mm (52.8")

250 mm (9.8")
18
19
10
20
11
21
12
22
13
14
15
16
17
720 mm (28.3")
623 mm (24.5")
792 mm (31.2")
858 mm (33.8")
23

1. Exhaust Airflow Sensor
2. Power Inlet
3. Zero Volt Relay Contact
4. USB Port
5. Centurion Touchscreen Controller
6. Angled Sash Glass Window
7. Max. Sash Opening
8. Single-piece Stainless Steel Back Wall
9. Single-piece Stainless Steel Work Tray
10. Electrical Panel
11. Dimmable LED Lamp
12. IV Bar Retrofit Kit Provision
13. Electrical Outlet Provision
14. Service Fixture Retrofit Kit Provision
15. VHP Port In (Optional)
16. Tempered Side Glass
17. Stainless Steel Arm Rest
18. Exhaust Collar (optional)
19. Exhaust Filter
20. DC-ECM Blower
21. Downflow Filter
22. UV Lamp Provision
23. Cable Port (right side only)

Labculture® G4

Class II • Biological Safety Cabinets

TECHNICAL SPECIFICATIONS					
Labculture® Class II 220-240 VAC, 50/60 Hz	Glass Side Walls	**LA2-3E8-EU G4** 2011682	**LA2-4E8-EU G4** 2011684	**LA2-5E8-EU G4** 2011686	**LA2-6E8-EU G4** 2011688
	Stainless Steel Side Walls	**LA2-3S8-EU G4** 2011683	**LA2-4S8-EU G4** 2011685	**LA2-5S8-EU G4** 2011687	**LA2-6S8-EU G4** 2011689
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	1035 x 858 x 1570 mm (40.7" x 33.8" x 61.8")	1340 x 858 x 1570 mm (52.8" x 33.8" x 61.8")	1645 x 858 x 1570 mm (64.7" x 33.8" x 61.8")	1950 x 858 x 1570 mm (76.8" x 33.8" x 61.8")
Internal Dimensions (W x D x H)		915 x 623 x 720 mm (36.0" x 24.5" x 28.3")	1220 x 623 x 720 mm (48.0" x 24.5" x 28.3")	1525 x 623 x 720 mm (60.0" x 24.5" x 28.3")	1830 x 623 x 720 mm (72.0" x 24.5" x 28.3")
Usable Work Area		0.45 m² (4.8 sq.ft.)	0.62 m² (6.7 sq.ft.)	0.76 m² (8.2 sq.ft.)	0.93 m² (10.0 sq.ft.)
Sash opening		200 mm (8")			
Maximum Sash Opening		470 mm (18.5")			
Average Airflow Velocity	Inflow	0.45 m/s (88.5 fpm)			
	Downflow	0.32 m/s (63 fpm)			
ULPA Filter Typical Efficiency		99.999% efficiency at 0.3 to 0.1 µm			
Sound Emission (dBA)*		54.8	55.0	57.5	58.0
Light Intensity	LED Lamp Intensity	>1000 Lux (>93 foot-candles)			
	Optional UV Lamp	253.7 nm			
Electrical Requirements**	Nominal Power Consumption	167 W	178 W	285 W	315 W
	Heat Load	570 BTU/ Hr	607 BTU/Hr	972 BTU/Hr	1075 BTU/Hr
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			
	Side Walls — E Series	UV absorbing tempered glass, 6 mm (0.2"), colorless and transparent			
	Side Walls — S Series	1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish			
Net Weight		300 Kg (661 lbs)	330 Kg (727.5 lbs)	370 Kg (816 lbs)	460 Kg (1014 lbs)

*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 an measurement of new unit with clean filter operated within nominal setpoint. Result per unit may vary.

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Options and Accessories

Anti-blowback Valve 10 inches	304 Stainless Steel	ABBV-10S 5170354			
Exhaust Collar		ECO-F-LA2-3-G4 5171097	ECO-F-LA2-4-G4 5171098	ECO-F-LA2-5-G4 5171099	ECO-F-LA2-6-G4 5171100
UV Lamp		UV-15A 5170251	UV-30A 5170255		
IV Bar		IV-910 5170499	IV-1215 5170231	IV-1520 5170500	IV-1825 5170501
Electrical Outlet	Direct Mounted	EO-HC 5170035			
	GFCI	EO-GFCI 5170071			
Service Fixtures	EU SF-Gas-20 mm	SF-1G20 5170410			
	Solenoid Valve	SOLENOID GAS VALVE 230 VAC 5070086			
	EU SF-Vacuum-20 mm	SF-1V20 5170457			
	EU SF-Air-20 mm	SF-1A20 5170502			
	EU SF-Nitrogen-20 mm	SF-1N20 5170503			
	EU SF-Water-20 mm	SF-1W20 5170458			
	US SF-Universal-20 mm	SF-2U22 5170504			
	Copper Piping for SF	CU-Pipe 5170026			
SPEU-A & SPEU-B	Support Stand 28" Height	SPEU-3A0 5131343	SPEU-4A0 5131344	SPEU-5A0 5131455	SPEU-6A0 5131456
	Support Stand 36" Height	SPEU-3B0 5131457	SPEU-4B0 5131458	SPEU-5B0 5131459	SPEU-6B0 5131460
Pipette Storage Shelf		5260327			
Arm Rest Padding		MEWREST 5170127			
Foot Rest		FT-REST 5170492			
Laboratory Chair		ME-LD-AR360 1150006			
IQ OQ Protocol		9010179			

ABBV-_

UV-_A-L

IV-_

EO-H_

EO-GFCI

SF-1_

SF-2U_

SPEU

Pipette Storage Shelf

MEWREST

FT-REST

ME-LD-AR360

IQOQ

Labculture® G4

Class II • **Biological Safety Cabinets**

ESCO
LIFESCIENCES GROUP

Improving Lives through Science

ESCO SCIENTIFIC

- Animal Research Workstation
- Biological 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
- Powder Weighing Balance Enclosure
- Thermal Cycler
- Ultra-low Temperature Freezer

ESCO MEDICAL

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

ESCO Healthcare | "Discovery to Delivery"

ESCO PHARMA   ESCO TaPestle Rx   ESCO VACCIXCELL

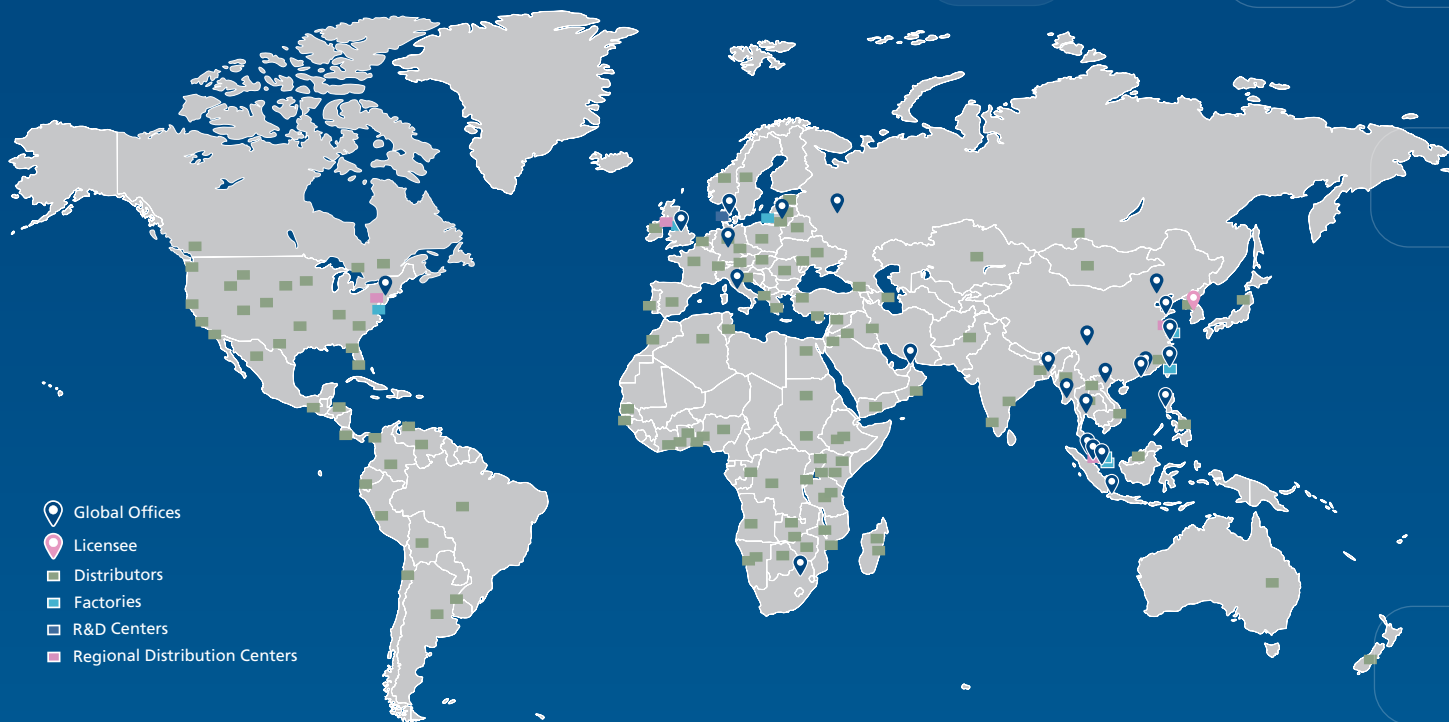**Pharmaceutical Manufacturing, Pharmacy Compounding, and Bioprocessing Tools**

ESCO ASTER
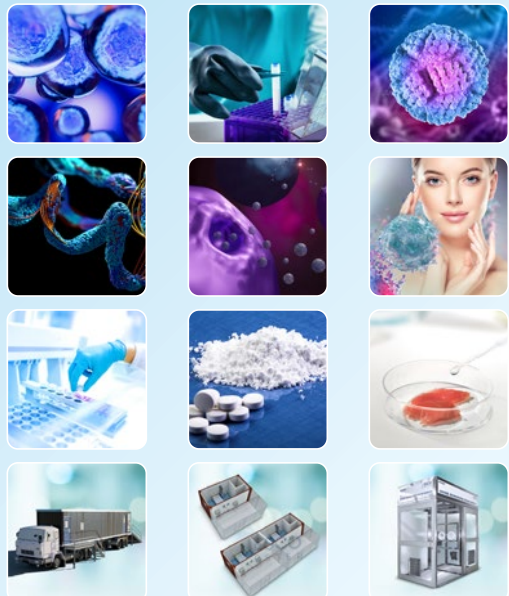
CRDMO Services

ESCO LIFESCIENCES GROUP
42 LOCATIONS IN 21 COUNTRIES ALL OVER THE WORLD

- ⦿ Global Offices
- ⦿ Licensee
- ▪ Distributors
- ▪ Factories
- ▪ R&D Centers
- ▪ Regional Distribution Centers

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LIFESCIENCES GROUP

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