

Labculture®

Reverse Horizontal Flow Cabinets



Labculture Reverse Horizontal Flow Cabinet Model RHL-4A. Shown with optional support stand.

Introduction

The Labculture Reverse Horizontal Flow Cabinet (RHL) protects the operator and the laboratory environment from particles, aerosols, powders and allergens. The large volume of horizontal inward airflow provides equivalent protection with superior access into the work zone compared with Class I Biological Safety Cabinets, fume hoods or related containment devices. This cabinet does not provide protection against chemical vapors nor protect the product from exposure to contaminants. Suitable applications include animal handling (where product protection is not required), powder containment, sputum induction and others.

Designed and Built for Enhanced Usability

Esco Reverse Horizontal Flow Cabinets incorporate a number of features to ensure operator comfort and enhanced productivity.

- The cabinet interior is constructed of stainless steel, making the work zone easy to clean. The interior surface will not chip, rust or generate particles.
- The spillage-retaining work top design with a recessed central area ensures that all liquid spills are contained.
- The ergonomically designed work surface with a curved front edge is designed for maximum operator comfort. A raised edge at the back of the work zone prevents spills from damaging the filter.
- Built-in warm white, electronically ballasted, 5000k lighting provides excellent illumination of the work zone and reduces operator fatigue. The reliable lighting system is zero-flicker and instant start.
- The removable perforated filter diffuser provides protection to the filter and improves airflow uniformity. The diffuser provides additional protection in the event of an accidental spillage and is easy to clean.

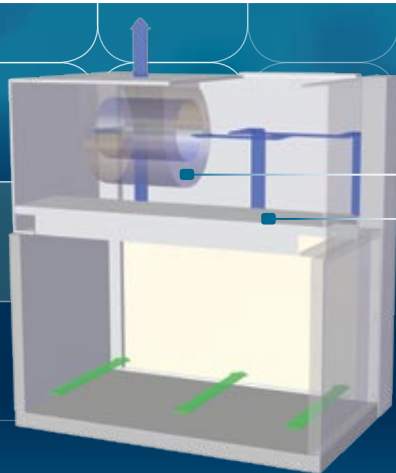
User-Friendly Control System

- The Esco Sentinel microprocessor-based control system supervises all cabinet functions. The controls are easily configurable to meet user requirements and come equipped with a number of enhanced features.
- Accurate true airflow velocity sensing technology, measures all critical cabinet airflow parameters allowing superior monitoring. Temperature compensated sensors ensure increased accuracy.
- Built-in solid state variable speed controller is superior to conventional "step" controllers and offers infinite adjustment from zero to maximum setting.
- Password-protected administration can be set to restrict access to the main menu.
- Audible and visual alarms ensure operator protection by alerting the user in the event of low airflow.
- The intelligent blower system automatically adjusts to maintain airflow as the filter becomes loaded with particulates, eliminating the need for constant adjustment and ensuring optimum performance and product protection.

Enhanced Filtration System

The enhanced filtration system is designed to provide the highest level of protection for the operator and the lab environment, meeting all relevant standards.

- High quality ULPA filters, utilizing an improved minipleated separation technique to maximize surface area (improving efficiency and extending the life of the filter), operate at a typical efficiency of >99.999% at 0.1 to 0.3 micron sizes, providing superior product protection over conventional HEPA filters.
- An additional disposable pre-filter traps large particles in the inflow air prior to reaching the main filter, protecting it against damage and prolonging its life.



Reverse Horizontal Flow Cabinet

- Blower
- ULPA Filter
- ULPA-filtered air
- Room air / Inflow Air

- Room air is drawn in from the front opening of the cabinet through a 99.999% efficient ULPA filter. All airborne contaminants from the workzone as well as the ambient surroundings are trapped and filtered.
- A nominal filter face velocity of 0.55 m/s (110 fpm) ensures that there is a sufficient number of air changes within the enclosed area of the cabinet in order to ensure protection to the operator and the environment.

The Highest Quality Cabinet Construction

All Esco products are manufactured for the most demanding laboratory applications.

- All components are designed for maximum chemical resistance and enhanced durability for a long service life.
- The main body of the cabinet is constructed of industrial-grade electrogalvanized steel.
- All cabinet components are clean room compatible.
- Isocide™ eliminates 99.9% of surface bacteria within 24 hours of exposure.

Blower Efficiency

The Labculture blower system is designed for high performance operation, maximum energy efficiency and minimal maintenance.

- The external rotor motor design allows for optimum cooling of the motor during extended operations and extends the motor bearing life.
- The permanently lubricated direct-drive external rotor motor/blower reduces operating costs.
- Built-in RFI and electrical noise filters eliminate interference with adjacent instrumentation.
- An integral blower hour meter tracks operating life for predictive maintenance planning.

Designed and Built to Exceed Safety Criteria

All components used in Esco products meet or exceed all applicable safety requirements.

- Each cabinet is individually factory tested for safety and performance in accordance with international standards.
- All electrical components are UL listed or UL recognized, ensuring superior electrical safety for the operator.
- All Esco Reverse Horizontal Flow Cabinets meet general safety requirements set by independent testing laboratories (see Technical Specifications for details).

Electrical Safety and Certification

All components meet or exceed applicable safety requirements.

- Each workstation is individually tested for electrical safety at factory.
- Documentation specific to each workstation serial number is maintained on file.
- Contact Esco or your Sales Representative for site preparation information; see Electrical Specifications.

Warranty

All Esco Labculture cabinets come with an extended 3 year warranty, excluding consumable parts and accessories. Contact your local representative for specific warranty details.

Accessories and Options

Esco offers a variety of options and accessories to meet local applications. Contact Esco or your local Sales Representative for ordering information.

- Support stands
- Germicidal UV lamp
- UV lamp interlock kit
- Transparent front cover for UV protection
- Electrical socket outlets
- Adjustable height lab chair
- Ergonomic foot rest
- Armrest with PVC padding



	Filtration	Electrical Safety
Standards Compliance	EN-1822 (H14), Europe IEST-RP-CC001.3, Worldwide IEST-RP-CC007.1, Worldwide IEST-RP-CC034.1, Worldwide	UL 61010-1, USA CAN/CSA-22.2, No. 61010-1 EN 61010-1, Europe IEC 61010-1, Worldwide

General Specifications, Labculture Reverse Horizontal Flow Cabinets

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

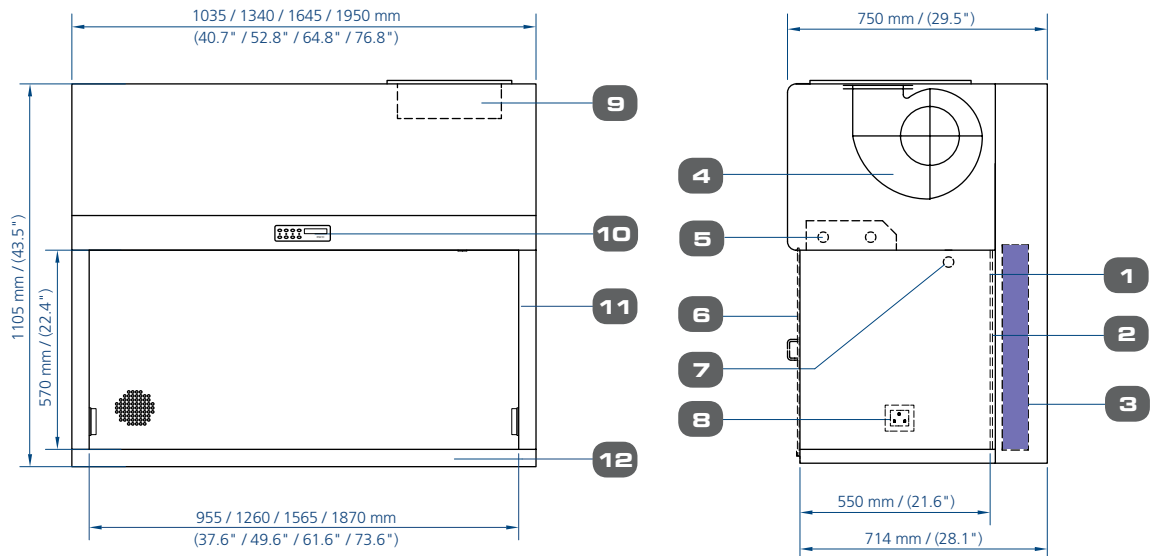
Model		RHL-3A_	RHL-4A_	RHL-5A_	RHL-6A_
Nominal Size		0.9 meters (3')	1.2 meters (4')	1.5 meters (5')	1.8 meters (6')
External Dimensions (W x D x H)	Without Base Stand	1035 x 750 x 1105 mm 40.7" x 29.5" x 43.5"	1340 x 750 x 1105 mm 52.8" x 29.5" x 43.5"	1645 x 750 x 1105 mm 64.8" x 29.5" x 43.5"	1950 x 750 x 1105 mm 76.8" x 29.5" x 43.5"
	With Base Stand 711 mm / (28") Type	1035 x 750 x 1816 mm 40.7" x 29.5" x 71.5"	1340 x 750 x 1816 mm 52.8" x 29.5" x 71.5"	1645 x 750 x 1816 mm 64.8" x 29.5" x 71.5"	1950 x 750 x 1816 mm 76.8" x 29.5" x 71.5"
Internal Work Area, Dimensions (W x D x H)		955 x 550 x 570 mm 37.6" x 21.6" x 22.4"	1260 x 550 x 570 mm 49.6" x 21.6" x 22.4"	1565 x 550 x 570 mm 61.6" x 21.6" x 22.4"	1870 x 550 x 570 mm 73.6" x 21.6" x 22.4"
Average Airflow Velocity		0.55 m/s (110 fpm)			
Pre-Filter		Disposable and non-washable polyester fibers with 85% arrestance / EU3 rated			
ULPA Filter Typical Efficiency		>99.999% at 0.1 to 0.3 microns as per IEST-RP-CC001.3 USA >99.995% at MPPS as per EN 1822 (H-14) EU			
Sound Emission Per IEST-RP-CC002.2*		58.5 dBA	61 dBA	62.5 dBA	64 dBA
Fluorescent Lamp Intensity At Zero Ambient		2200 Lux (204 ft.candles)	2550 Lux (236 ft.candles)	1800 Lux (167 ft.candles)	1800 Lux (167 ft.candles)
Cabinet Construction	Main Body	1.2mm (0.05") 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester powder-coated finish			
	Work Zone	1.2mm (0.05") 18 gauge stainless steel grade 304			
Electrical**	220-240V, AC, 50Hz, 1Ø	RHL-3A1	RHL-4A1	RHL-5A1	RHL-6A1
	Cabinet Full Load Amps (FLA)	2A	2A	3A	5A
	Optional Outlets FLA	5A	5A	5A	5A
	Cabinet Nominal Power	249 W	306 W	415.3 W	690 W
	Cabinet BTU	850	1044	1417	2354
	110-120V, AC, 60Hz, 1Ø	RHL-3A2	RHL-4A2	RHL-5A2	RHL-6A2
	Cabinet Full Load Amps (FLA)	7A	7 A	7A	10.5 A
	Optional Outlets FLA	5A	5A	5A	5A
	Cabinet Nominal Power	320.3 W	393.3 W	534 W	865 W
	Cabinet BTU	1093	1342	1822	2952
Net Weight***		144 kg (317 lbs)	178 kg (392 lbs)	205 kg (451 lbs)	231 kg (508 lbs)
Shipping Weight***		164.5 kg / 363 lbs	228.3 kg / 503 lbs	250 kg / 551 lbs	290 kg / 639 lbs
Shipping Dimensions, Maximum (W x D x H)***		1130 x 850 x 1610 mm 44.5" x 33.5" x 63.4"	1450 x 850 x 1610 mm 57.1" x 33.5" x 63.4"	1750 x 850 x 1610 mm 68.9" x 33.5" x 63.4"	2050 x 850 x 1610 mm 80.7" x 33.5" x 63.4"
Shipping Volume, Maximum***		1.55 m ³ (55 cu.ft.)	1.98 m ³ (70 cu.ft.)	2.39 m ³ (84 cu.ft.)	2.81 m ³ (99 cu.ft.)

* Noise reading in open field condition/ anechoic chamber.

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

*** Cabinet only; excludes optional stand.

Model RHL (A-Series) Labculture Reverse Horizontal Flow Cabinet Technical Specifications



1. Removable filter diffuser
2. Pre-filter
3. ULPA filter
4. Blower
5. Fluorescent lamps

6. Optional front cover
7. UV lamp Retrofit Kit™
8. Electrical outlet Retrofit Kit™
(2 on each sidewall)
9. Electrical panel

10. Esco Sentinel™ microprocessor
11. Internal stainless steel side panels
12. Stainless steel work surface

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- Biological Safety Cabinets
- Cleanroom Products
- Compounding Pharmacy Equipment
- Containment / Pharma Products
- CO₂ Incubators
- Ductless Fume Hoods
- In-Vitro Fertilization Workstations
- Lab Animal Research Products
- Laboratory Fume Hoods
- Laboratory Ovens and Incubators
- Laminar Flow Clean Benches
- PCR Products
- Ultralow Freezers

Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and cleanroom 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. www.escoglobal.com.

Biological Safety Cabinets and Laminar Flow • Laboratory Fume Hoods • Laboratory Ovens
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