ESCO
WORLD CLASS. WORLDWIDE.

OptiMAIR®

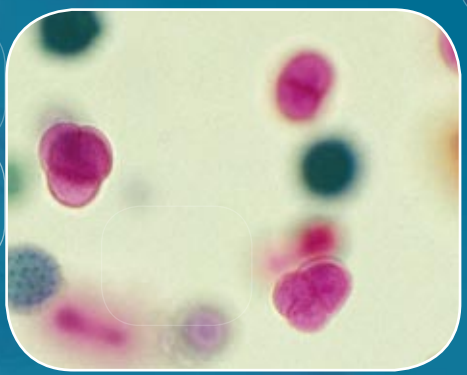
# Vertical Laminar Flow Clean Benches

## *The Leading Solution for Research Laboratories*

Esco is an industry leader in the development of professional quality laminar flow clean benches. With tens of thousands sold throughout the life sciences market worldwide, Esco continues to reinforce its reputation for dependability by providing reliable protection for samples and work processes in a multitude of applications.

Green Product


*OptiMair Vertical Laminar Flow Clean Bench, Available in 1.2 and 1.8 meter models (4' and 6'). Shown with optional stand.*



# OptiMair™ Vertical Laminar Flow Clean Benches

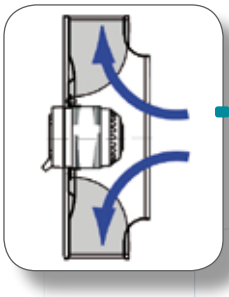
***Provide Product Protection***

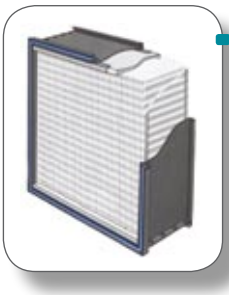
### High Performance Fan System

German made ebm-papst® permanently lubricated, centrifugal motor/fans with external rotor designs.

Motors selected for energy efficiency, compact design, and flat profile. Completely integrated assembly optimizes motor cooling.

All rotating parts balanced for smooth, quiet, vibration-free operation.





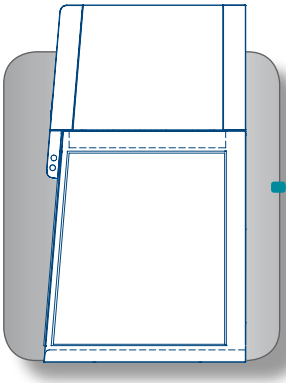
### HEPA Filtration System

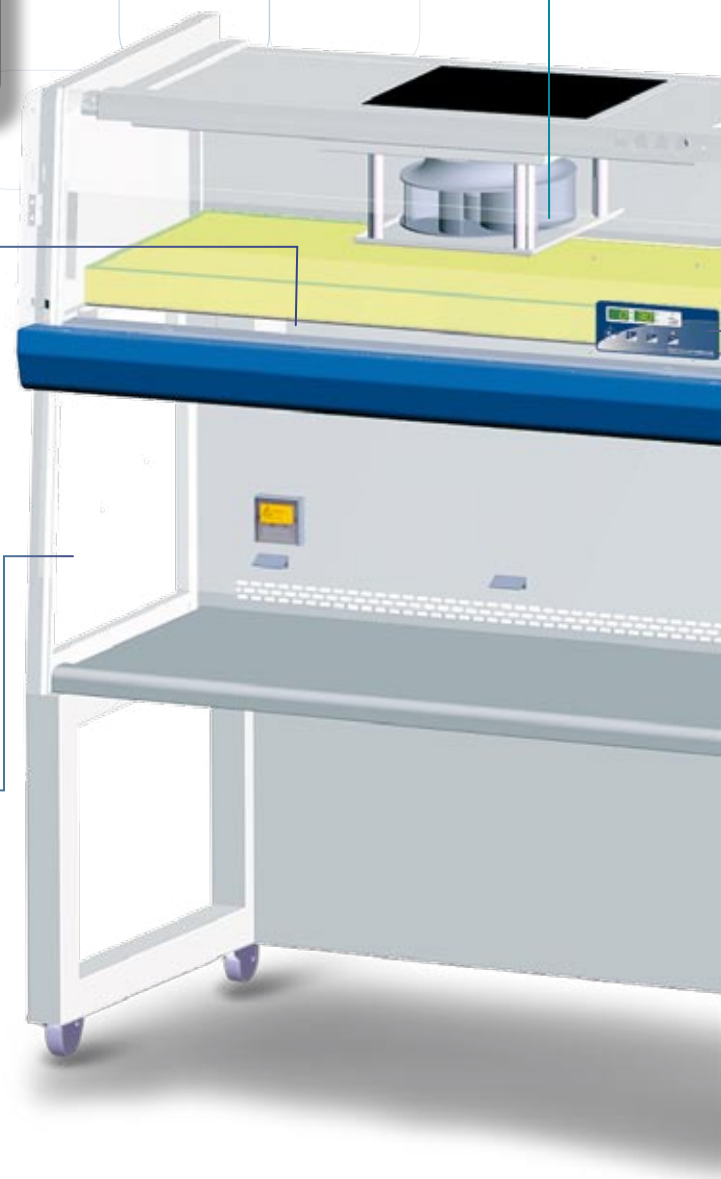
HEPA filters operate at a typical efficiency of >99.99% at 0.1 micron particulate size, providing superior product protection.



### User Interface

An angled front, curved work surface front edge, and glass sides promote ergonomics. The powder coated work zone rear wall eliminates harsh reflections which may be associated with conventional stainless steel interiors. The vertical air flow design minimizes direct airflow which may lead to dry eyes and fatigue on horizontal flow models.





*OptiMair Vertical Laminar Flow Clean Bench, Model ACB-4A1.*

**Air Cleanliness Standards**
(ISO 14644-1, Air Cleanliness Particle Limits (No. of Particles / $m^3$)

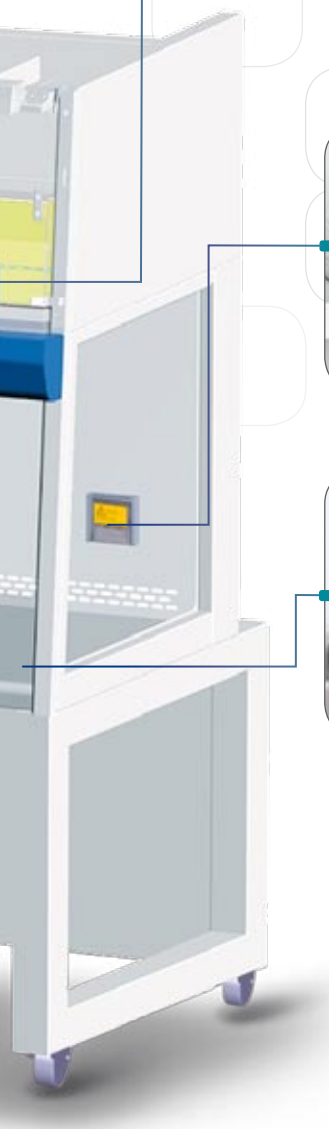
| Particle Size (µm) | Cleanliness Class | | | | | |
|---|---|---|---|---|---|---|
| | Class 1 | Class 2 | Class 3 | Class 4 | Class 5 | Class 6 |
| 0.1 | 10 | 100 | 1000 | 10000 | 100000 | 1000000 |
| 0.2 | 2 | 24 | 237 | 2370 | 23700 | 237000 |
| 0.3 | - | 10 | 102 | 1020 | 10200 | 102000 |
| 0.5 | - | 4 | 35 | 352 | 3520 | 35200 |
| 1.0 | - | - | 8 | 83 | 835 | 8320 |
| 5.0 | - | - | - | - | 29 | 293 |

### Superior Air Cleanliness

All Esco vertical laminar flow clean benches provide ISO Class 4 air cleanliness within the work zone as per ISO 14644.1, significantly cleaner than the usual Class 5 classification on clean benches offered by the competition.


### Sentinel™ Microprocessor Control System

Soft touch controls for blower, light, outlet and UV are easy to clean. A temperature-compensated air velocity sensor and real-time display allow airflow to be monitored more accurately compared with conventional pressure gauges.

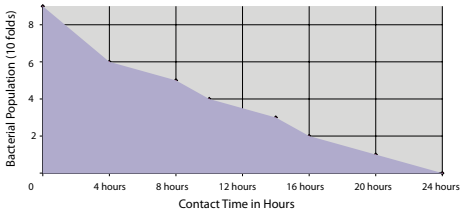


### Vertical Laminar Flow

Compared with horizontal flow models, vertical flow clean benches generate less turbulence when large instruments or items are placed in the work zone. Auto-Purge™ slots minimize airflow turbulence in the rear of the work space.

### Work Top

The raised front edge contains accidental liquid spills.




### Built-In Protection

External surfaces are powder coated with Esco ISOCIDE™ to eliminate 99.9% of surface bacteria within 24 hours of exposure.

## Key Features

- OptiMair Series Clean Benches are useful for mycology, food microbiology, plant and mammalian cell culture, clinical pharmacy and hospital protocols, cleanrooms, semiconductor assembly, pharmaceutical, aerospace and medical devices industries, where product protection is required.
- The backward curved wheel with external rotor motor delivers class-leading energy efficiency for lower operating costs.
- An additional disposable pre-filter traps large particles in the inflow air prior to reaching the main filter, protecting against damage and prolonging filter life.
- 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 clean bench is constructed of industrial-grade electrogalvanized steel.
- One piece formed stainless steel work surface with a curved front edge is designed for maximum operator comfort.
- 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.
- Esco Laminar Flow Clean Benches have been tested for cross-contamination and product protection using microbiological test methods specified in EN12469.
- Each clean bench is individually factory tested for safety and performance in accordance with international standards.
- Esco Laminar Flow Clean Benches are covered by a 3 year warranty, excluding consumable parts and accessories. Contact your local sales representative for specific warranty details.



| | Cabinet Performance | Air Quality | Filtration | Electrical Safety |
|---|---|---|---|---|
| Standards Compliance | AS 1386.5, Australia<br>IEST-RP-CC002.2, Worldwide | ISO 14644.1, Class 4, Worldwide<br>IEST-G-CC1001, Worldwide<br>IEST-G-CC1002, Worldwide | EN-1822 (H13), Europe<br>IEST-RP-CC001.3, Worldwide<br>IEST-RP-CC007.1, Worldwide<br>IEST-RP-CC034.1, Worldwide | UL 61010-1, USA<br>CAN/CSA-22.2, No.61010-1<br>EN 61010-1, Europe<br>IEC 61010-1, Worldwide |

## General Specifications, OptiMair Vertical Laminar Flow Clean Benches

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

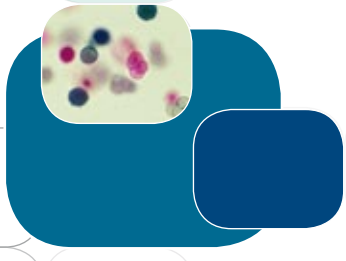
| Model | | ACB-4A_ | ACB-6A_ |
|---|---|---|---|
| Nominal Size | | 1.2 meters (4') | 1.8 meters (6') |
| External Dimensions (W x D x H) | Without Base Stand | 1340 x 629.5 x 983 mm (52.8" x 24.8" x 38.7") | 1950 x 629.5 x 983 mm (76.8" x 24.8" x 38.7") |
| | Without Optional Base Stand, 711 mm (28") type | 1340 x 629.5 x 1694 mm (52.8" x 24.8" x 66.7") | 1950 x 629.5 x 1694 mm (76.8" x 24.8" x 66.7") |
| Internal Work Area, Dimensions (W x D x H) | | 1270 x 544 X 570 mm (50.0" x 21.4" x 22.4") | 1880 x 544 x 570 mm (74.0" x 21.4" x 22.4") |
| Usable Work Zone | | 0.69 $m^2$ (7.43 sq.ft.) | 1.02 $m^2$ (11 sq.ft.) |
| Initial Airflow Velocity | | 0.30 m/s (60 fpm) | |
| Air Volume | | 678 $m^3$/h (399 cfm) | 1004 $m^3$/h (590 cfm) |
| HEPA Filter Typical Efficiency | | 99.99% for particles size at 0.3 microns | |
| Sound Emission Per IEST-RP-CC002.2* | | <61 dBA | <63 dBA |
| Fluorescent Lamp Intensity At Zero Ambient | | >800 Lux (74 foot candles) | |
| Cabinet Construction | Main Body | 1.2 mm / 0.05"/ 18 gauge electro-galvanized steel with white oven-baked epoxy powder-coated finish. | |
| | Work Zone | 1.2 mm (0.05") 18 gauge stainless steel, grade 304, 4B finish | |
| | Side Walls | Tempered glass | |
| Electrical | 220-240V, AC, 50Hz, 1Ø | ACB-4A1 | ACB-6A1 |
| | Cabinet Full Load Amps (FLA) | 5.8 A | 6.5 A |
| | Optional Outlets FLA | 5 A | 5 A |
| | Cabinet Nominal Power | 165 W | 280 W |
| | Cabinet BTU | 563 | 955 |
| | 220-240V, AC, 60Hz, 1Ø | ACB-4A3 | ACB-6A3 |
| | Cabinet Full Load Amps (FLA) | 5.8 A | 6.5 A |
| | Optional Outlets FLA | 5 A | 5 A |
| | Cabinet Nominal Power | 198 W | 297 W |
| | Cabinet BTU | 676 | 1013 |
| Net Weight** | | 140 kg (308 lbs) | 182 kg (400 lbs) |
| Shipping Weight** | | 178 kg (392 lbs) | 236 kg / 520 lbs |
| Shipping Dimensions, Maximum (W x D x H)** | | 1450 x 750 x 1150 mm ( 57.1" x 29.5" x 45.2" ) | 2050 x 750 x 1150 mm ( 80.7" x 29.5" x 45.2") |
| Shipping Volume, Maximum** | | 1.25 $m^3$ (44 cu.ft.) | 1.77 $m^3$ (63 cu.ft.) |

** Noise reading in open field condition/ anechoic chamber.*
*** Cabinet only; excludes optional stand.*

## Accessories for OptiMair Vertical Laminar Flow Clean Benches

| Model | Description |
|---|---|
| SPC-4A | Fixed Height Stand 711 mm (28") with Casters, Shipped Flat |
| SPC-6A | Fixed Height Stand 711 mm (28") with Casters, Shipped Flat |
| SF-2U | Universal Service Fixture Kit, Suitable for Air / Gas / Vac, Field Installed |
| IV-XXX-XXX | IV Bar Kit, Includes 6 Hooks, *Specify Model When Ordering*, Field Installed |

*Note: 2 Universal (European/ American/ Japanese/ Asia-Pacific) electrical outlets are standard on all OptiMair clean benches.*



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