

NEW!



**EN 12469 TUV NORD**

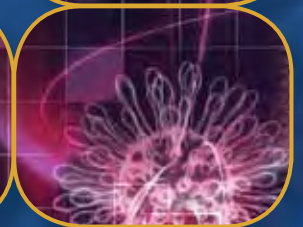
eSafe Class II, Biosafety Cabinet,

Model EC2-4L8.

eSafe®

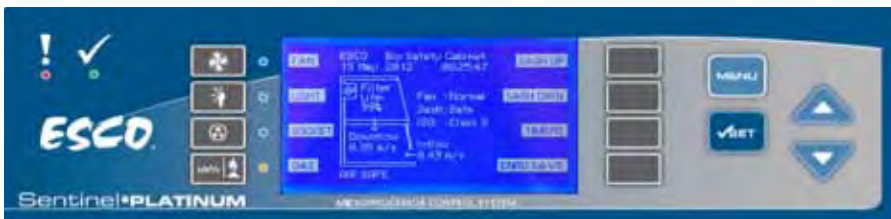
## Class II, Biological Safety Cabinets

Probably the Most Advanced Energy-Efficient, Safe, and Ergonomic Biosafety Cabinet in the World



**ESCO**

WORLD CLASS. WORLDWIDE.



### Airflow Sensor

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

### Sentinel™ Platinum Microprocessor Controller

- Large graphical LCD to illustrate cabinet operating parameters
- Displays all safety information on one screen
- Centered and angled down for easy reach & viewing



### Unique Stainless Steel and Glass Hybrid Wall (L-Series)

- Large corner radius for easy cleaning
- Glass side walls to improve visibility
- Electrical outlets, service fixtures VHP / HPV ports on the side wall



### Motorized Window

- Conveniently move the window by fingertips
- Window automatically stops at safe operating height



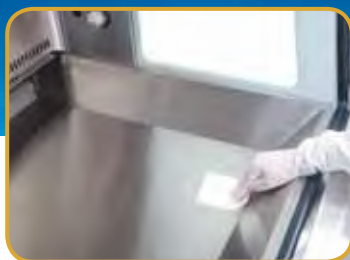
### Multi-pieces Work Tray (L-Series)

- Easy to be lifted for cleaning
- Simple design, without support beams



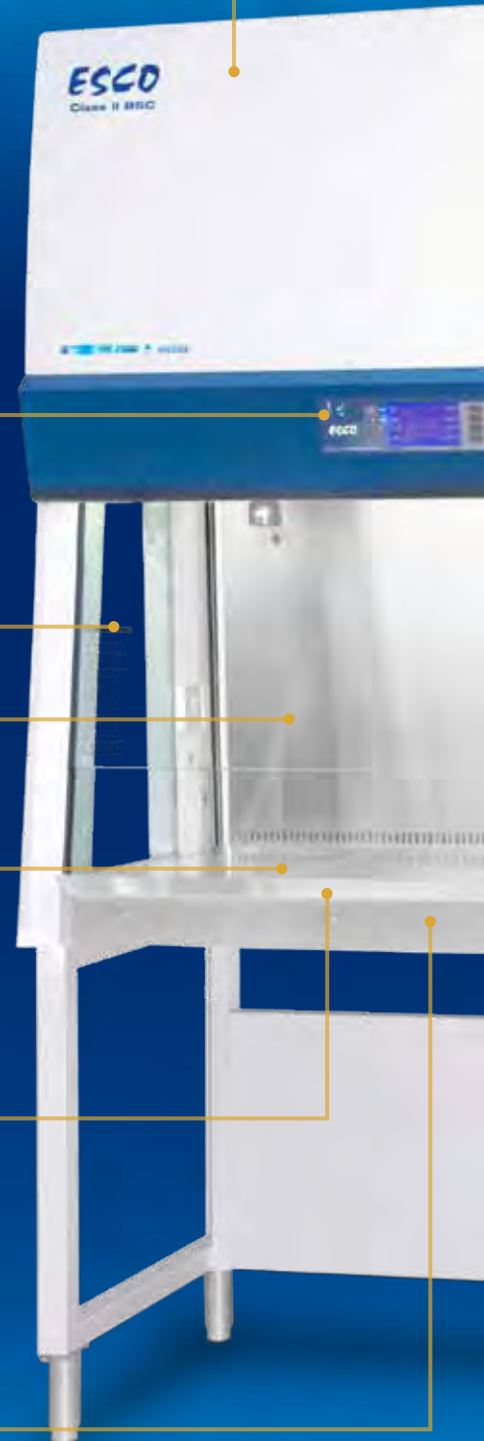
### Raised Arm Rest

- Helps prevent grille blocking
- Comfortable working posture
- Horizontal and angled arm placement



### Angled Drain Pan

- Easy to clean
- Does not harbor contaminants



Available in 1.2, 1.5, and 1.8 meter width



EN 12469



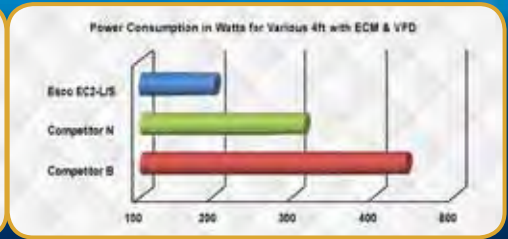
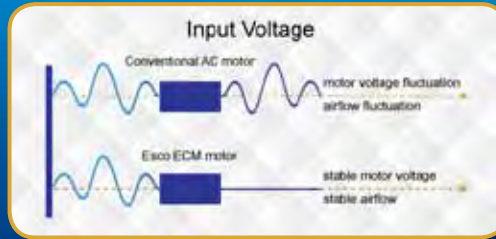
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Biological Safety Cabinets • EC2 Class II Biological Safety Cabinets



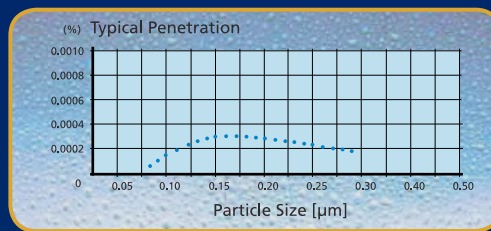
## Energy Efficient ECM Motor

- Powered by latest generation ECM motor, that is more efficient than legacy ECM and VFD motors
- 70% Energy savings compared to AC motor
- Stable airflow, despite building voltage fluctuations & filter loading
- Night Setback mode to further reduce power consumption by 60%



## High Grade H14 Filter

- 10x Filtration efficiency of conventional H13 HEPA filter
- Creates ISO Class 3 work zone instead of industry-standard ISO Class 5

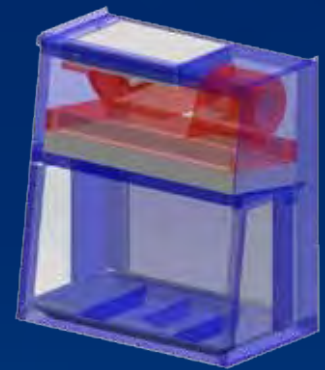


Esco cabinets use high grade H14 filter that offers 99.999% efficiency for particle sizes of 0.1 to 0.3 micron, better than conventional H13 HEPA filters that only offers 99.99 % efficiency at 0.3 micron.

## Dynamic Chamber

- Blower plenum and side walls
- Prevent contaminants from escaping outside

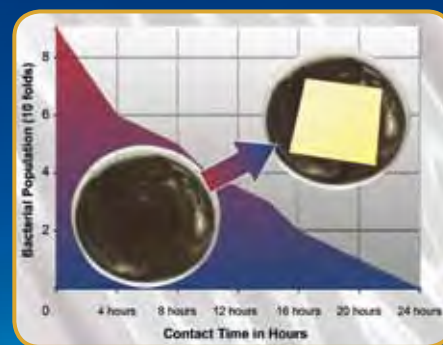
- Positive pressure
- Negative pressure



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## Isocide™ Powder Coat

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



Certified by TÜV-Nord Germany

	Biosafety Cabinets	Air Quality	Filtration	Electrical Safety
Standards Compliance	EN 12469, Europe	ISO 14644.1, Class 3, Worldwide JIS B9920, Class 3, Japan JIS BS5295, Class 3, Japan US Fed Std 209E, Class 1 USA	EN-1822 (H14), Europe IEST-RP-CC001.3, USA IEST-RP-CC007, USA IEST-RP-CC034.1, USA	IEC61010-1, Worldwide EN-61010-1, Europe UL-C-61010-1, USA CAN/CSA22.2, No.61010-1

The TÜV-Nord certified cabinet models are: EC2-4L8, EC2-4S8, EC2-5L8, EC2-5S8, EC2-6L8, and EC2-6S8

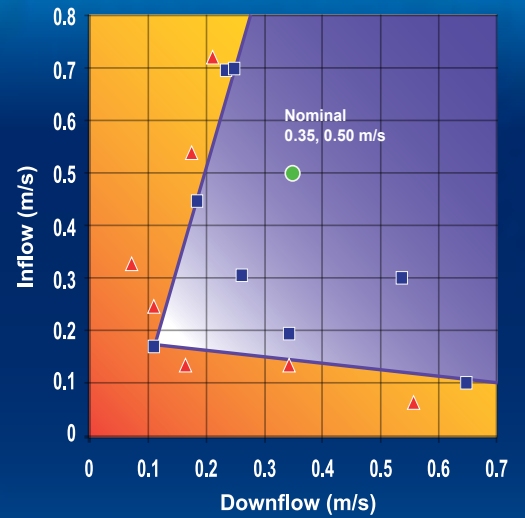


- H14-filtered air
- Unfiltered / potentially contaminated air
- Room air / Inflow air

### Cabinet Filtration System

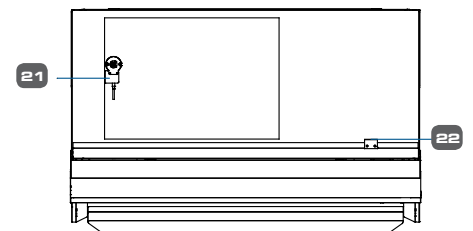
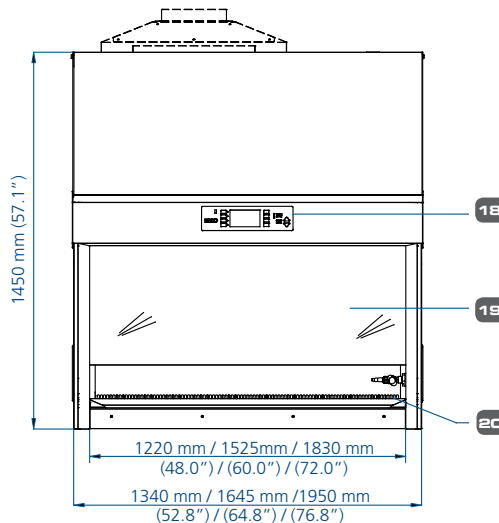
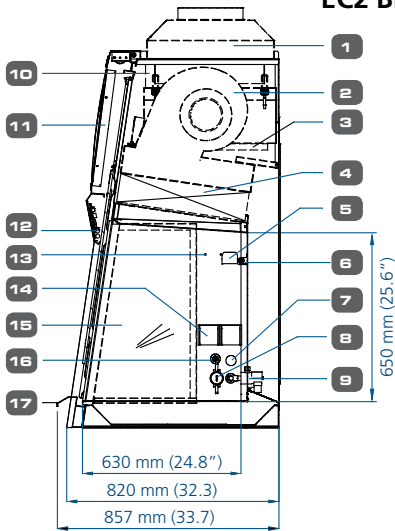
- Ambient air is pulled through front grille to create inflow, without going into the work surface. Inflow is joined by half of the downflow, to create front air curtain that is fine-tuned to create a large performance envelope. The combined air stream travels through the back air column towards the blower.
- Approximately 1/3 of the air in the common plenum is exhausted through the ULPA filter to the room. The remaining 2/3 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.

### The Performance Envelope Concept



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

### EC2 Biological Safety Cabinet Engineering Drawing



1. Exhaust Collar (Optional)
2. ECM Downflow Blower
3. ECM Exhaust Blower
4. Downflow H14 filter
5. Downflow Sensor by Degree C
6. UV Lamp Provision
7. Bioquell Cable Port
8. Steris VHP / Bioquell HPV Port

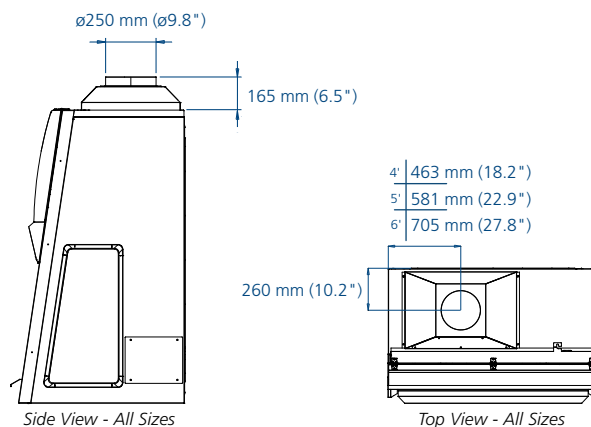
9. Optional Solenoid Valve (mandatory for gas valve)
10. Exhaust H14 Filter
11. Electrical / Electronics Panel
12. T5 Fluorescent Lamps
13. IV Bar Retrofit Kit Provision
14. Standard Electrical Outlet Retrofit (2 on each side)
15. Side Tempered Glass (L-Series). SS & EG double walls (S-Series)

16. Service Fixture Retrofit Kit Provision (2 on each side)
17. Stainless Steel Dual Posture Arm Rest
18. Sentinel™ Platinum Microprocessor Control System
19. Laminated Glass Motorized Sliding Sash Window
20. Stainless Steel Work Tray
21. Exhaust Sensor by Degree C
22. Power Inlet and Cable Clip

### Stainless Steel Side Wall Variant



### Optional Exhaust Collar Positions for Thimble-Ducting for EC2 Models



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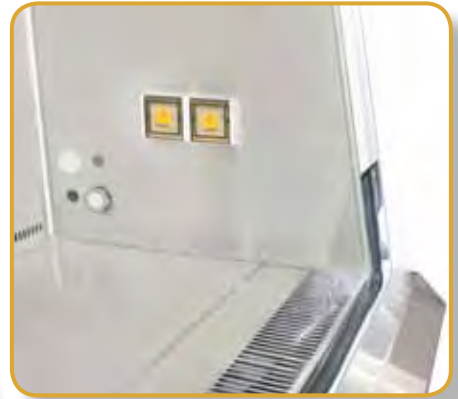
## Hybrid Glass and Stainless Steel Side Wall (L-Series)

- Side glass for visibility and Stainless Steel curved wall for good cleanability.
- 4x electrical outlets and 4x service fixtures total on side walls, for easy reach.
- Built-in VHP / HPV port and HPV cable port on right side.
- Multi-piece trays that are easy to lift for cleaning.



## Double Layer Stainless Steel & EG Side Wall (S-Series)

- Negative pressure between two layer side walls improves leak protection.
- 4x electrical outlets and 4x service fixtures total on side walls, for easy reach.
- Built-in VHP / HPV port and HPV cable port on right side.
- Single-piece tray with sump prevents spillage to drain pan and easy to clean.



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## Angled Arm Rest

- Prevent grille blocking
- Comfortable
- Dual posture: horizontal or angled arm placement

## EC2 Sentinel™ Platinum Microprocessor Controller

Cabinet status summary (safe / unsafe).

Fixed touch pad buttons to control primary functions.

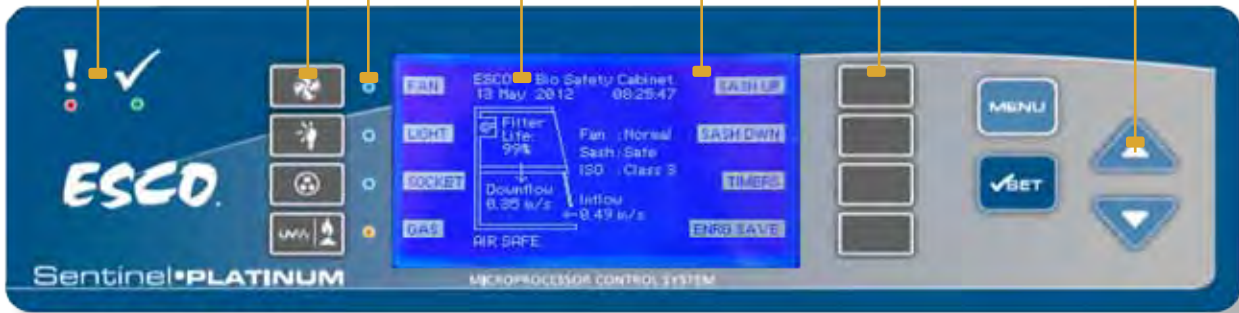
Color-coded LEDs to indicate activation of primary functions.

Multi Language: English, German.

Large graphical LCD illustrates the cabinet inflow, downflow, sash opening, and filter life. Also showing the date, time, and airflow & sash status.

Variable touchpad buttons to control secondary functions.

Grouped menu, set, and arrow buttons for fast menu navigation.



### Accessories for eSafe Biological Safety Cabinets

Model	Description
SPL-_A0 gen2	Leveling Feet Stand, Sitting Posture, Adjustable 28" to 30" (711 - 762 mm), _ = Size in Feet (4,5,6), Example: SPL-4A0 gen2 for 4 ft, Shipped Flat
SPL-_B0 gen2	Leveling Feet Stand, Standing Posture, Adjustable 34" (864 - 914 mm), _ = Size in Feet (4,5,6), Example: SPL-4B0 gen2 for 4 ft, Shipped Flat
SPC-_A0 gen2	Caster Wheel Stand, Sitting Posture, 28" (711 mm) Fixed Height, _ = Size in Feet (4,5,6), Example: SPC-4A0 gen2 for 4 ft, Shipped Flat
SPC-_B0 gen2	Caster Wheel Stand, Standing Posture, 34" (864 mm) Fixed Height, _ = Size in Feet (4,5,6), Example: SPC-4B0 gen2 for 4 ft, Shipped Flat
STL-_A0	Telescoping Feet Stand, Manually Adjustable 28" to 36" (711 - 914 mm) by Pins, _ = Size in Feet (4,5,6), Example: STL-4A0 for 4 ft, Shipped Flat
SPM-_A1	Hydraulic Stand, Electrically Adjustable 28" to 36" (711 - 914 mm), _ = Size in Feet (4,5,6), Example: SPM-4A1 for 4 ft, Shipped assembled
SF-1G20	Gas Service Fixture Kit, must be ordered with solenoid valve
SF-1W20	Water Service Fixture Kit
SF-1V20	Vacuum Service Fixture Kit
IV-XXXX	IV bar kit, Includes 6 hooks, Max Load 6 Kg (13 lbs), Specify model when ordering, Field installed. XXXX = Cabinet internal width, minus 10 mm
DAMPER 10	Air Tight Damper for all BSC, 9.8" (250mm) diameter x 9.8" height (250 mm) fits inside 10" (254 mm) duct
ECO-EC2-_	Thimble exhaust transition. Specify size when ordering (e.g. ECO-EC2-4)
ABBV-10	Anti Blow Back Valve, automatically shuts exhaust, preventing back flow in the duct, 10" diameter
TEM-4	Tri-Safe Exhaust Module. 4ft / 1.2 m only. (Comes with extra H14 filter, damper, VHP / HPV port, and Ø250 mm (10 ") exhaust collar)
DCN-BAG	Plastic decon bag for formalin decon on all BSC
FOOT REST	Ergonomic Foot Rest, free-standing, angled surface, easily adjustable from 75 to 275 mm increment, 500 mm wide, Black Rubber Matte



SPC-\_A0 gen2



SPC-\_B0 gen2



STL-\_A0



SPM-\_A1



SF-1G20



ECO-EC2-\_



TEM-4

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## Comprehensive Performance Testing At Esco



Every eSafe model manufactured by Esco is individually tested, documented by serial number and validated with the following test methods:

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



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## TECHNICAL SPECIFICATIONS

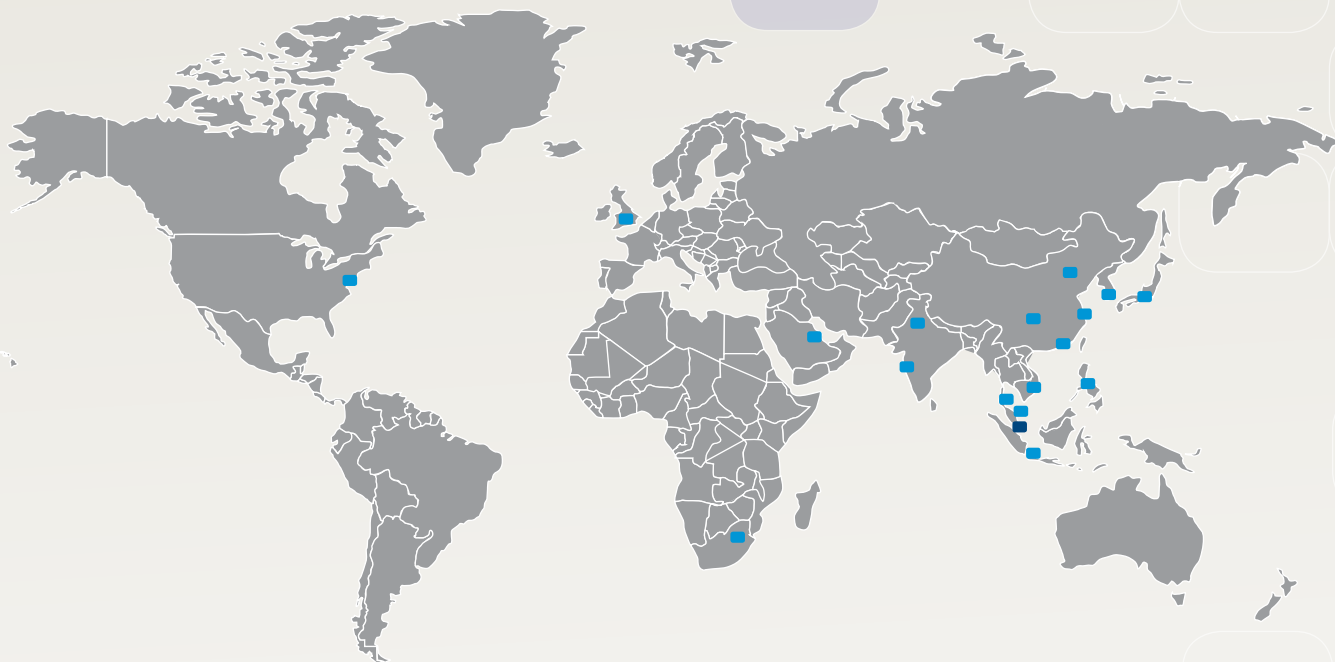
Glass Side : 230 V, 50 / 60 Hz		EC2-4L8	EC2-5L8	EC2-6L8
Stainless Steel Side: 230 V, 50 / 60 Hz		EC2-4S8	EC2-5S8	EC2-6S8
Nominal Size		4ft / 1.2 m	5ft / 1.5 m	6ft / 1.8 m
External Dimensions (W x D x H)	Width	1340 mm (52 ¾")	1645 mm (64 ¾")	1950 mm (76 ¾")
	Depth without arm rest and front sash cover removed	790 mm (30 7/8")		
	Depth with arm rest	857 mm (33 4/5")		
	Height	1450 mm (57")		
Gross Internal Dimensions (W x D x H)	Width	1220 mm (48")	1525 mm (60")	1830 mm (72")
	Depth	630 mm (22 ¾")		
	Height	650 mm (25 ½")		
Usable Work Area		0.63 m <sup>2</sup> (6.8 ft <sup>2</sup> )	0.79 m <sup>2</sup> (8.5 ft <sup>2</sup> )	0.95 m <sup>2</sup> (10.2 ft <sup>2</sup> )
Tested Opening		175 mm (7")		
Working Opening		190 mm (7 ½")		
Average Airflow Velocity	Inflow	0.50 m/s (100 fpm)		
	Downflow	0.35 m/s (70 fpm)		
Airflow Volume	Inflow	385 m <sup>3</sup> / h (227 cfm)	482 m <sup>3</sup> / h (284 cfm)	518 m <sup>3</sup> / h (305 cfm)
	Downflow	892 m <sup>3</sup> / h (525 cfm)	1118 m <sup>3</sup> / h (658 cfm)	1339 m <sup>3</sup> / h (788 cfm)
	Exhaust	385 m <sup>3</sup> / h (227 cfm)	482 m <sup>3</sup> / h (284 cfm)	518 m <sup>3</sup> / h (305 cfm)
	Required Exhaust Volume With Optional Thimble Exhaust Collar	538 m <sup>3</sup> / h (317 cfm)	615 m <sup>3</sup> / h (362 cfm)	823 m <sup>3</sup> / h (485 cfm)
	Required Static Pressure For Optional Thimble Exhaust Collar	31 Pa / 0.12 in H <sub>2</sub> O	35 Pa / 0.14 in H <sub>2</sub> O	47 Pa / 0.18 in H <sub>2</sub> O
HEPA Filter Typical Efficiency		>99.999% at 0.1 to 0.3 micron as per IEST-RP-CC001.3 USA (ULPA)		
		>99.999% at MPPS as per EN 1822 EU (H-14)		
Sound Emission*	NSF / ANSI 49	56	59	59
	EN 12469	53	56	56
Fluorescent Lamp Intensity (lux)		1340 lux (124 ft-cd) max (adjustable)	1610 lux (150 ft-cd) max (adjustable)	1457 lux (135 ft-cd) max (adjustable)
Cabinet Construction	Main body	1.5 mm (0.06") 18 gauge electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish		
	Work Zone	1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish		
	Side Walls (L-Series)	UV absorbing tempered glass, 6 mm (0.2"), colorless and transparent 1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish		
	Side Walls (S-Series)	1.5 mm (0.06") 16 gauge stainless steel, type 304, with 4B finish		
Electrical	Cabinet Full Load Amps (FLA)	10.5	11.1	11.3
	Heat Generation (BTU / Hr)**	751	887	1228
Nominal Power Consumption		220 W	315 W	360 W
Net Weight ***		259 Kg (571 lbs)	303 Kg (668 lbs)	350 Kg (772 lbs)
Shipping Weight ***		289 Kg (637 lbs)	343 Kg (756 lbs)	400 Kg (882 lbs)
Shipping Dimensions, Maximum (W x D x H) ***		1520 mm x 920 mm x 1750 mm (59" x 37" x 69")	1710 mm x 920mm x 1750 mm (67" x 37" x 69")	2120 mm x 920 mm x 1750 mm (83" x 37" x 69")
Shipping Volume, Maximum ***		2.4 m <sup>3</sup> (85 ft <sup>3</sup> )	2.7 m <sup>3</sup> (95 ft <sup>3</sup> )	3.4 m <sup>3</sup> (120 ft <sup>3</sup> )

\* 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.

\*\* Cabinet Heat Load (BTU/Hr) = Cabinet nominal power x 3.412

\*\*\* Cabinet only, excludes optional stand.

# ESCO GLOBAL NETWORK



- ART Equipment
- Biological Safety Cabinets
- CO<sub>2</sub> Incubators
- Compounding Pharmacy Equipment
- Containment / Pharma Products
- Ductless Fume Hoods
- Freeze Dryer
- Lab Animal Research Products
- Laboratory Fume Hoods
- Laboratory Ovens and Incubators
- Laminar Flow Clean Benches
- PCR Cabinets
- PCR Thermal Cyclers
- Powder Weighing Balance Enclosures
- Ultra-low Freezers

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Life Science • Chemical Research • Assisted Reproductive Technology (ART) • Pharmaceutical Equipment • General Equipment

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