



Class II A2 type which meets Biosafety Levels BSL1 ~ BSL3

## Biosafety Cabinet

- › Protects sample, user safety, and the environment.
- › Applied a highly durable and energy-efficient ECM Motor.
- › Provides smart experiment with IoT functions.
- › What is different from clean bench and fume hood? (7p)



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# Biosafety Cabinet

## ▮ Lab Companion Biosafety Cabinet At a Glance



### Intuitive Controller

Allows to quickly identify the equipment status by a touch screen display that intuitively shows the airflow, and immediately response to various alarms.

### ECM Motor

Applied a high durable and energy-efficient ECM Motor.

### Sash Door & Handle

Smooth opening and closing with tempered glass that can block ultraviolet rays.



### Sash Height Sensor

Indicated with LED light, an alarm rings if the sash is not at the proper height.



### Internal Power Outlet

Provide safe built-in outlets with covers on both sides.



### Arm Rest

Arm rest that reduces fatigue during long experiments.





### ULPA Filter

Equipped with exhaust/intake ULPA filter, capable of filtering particles of 0.1~0.3 um by 99.999%, allowing for external exhaust and recirculation.

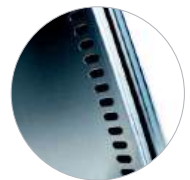
### UV Lamp

Equipped with UV lamp with a timer that can be set for sterilization before and after experiments.



### Air Slot

Creates smooth airflow without turbulence through slots on the back and lateral sides.



### Work Surface

Highly resistant to deformation and corrosion as made of STS304. Grills are located on the front and lateral sides to allow air to escape.



### Caster and Stopper

Easy to move and install due to the caster, able to experiment without being shaken due to the fixed stopper.

# Biosafety Cabinet

## Safe Experiment Environment Certified by EN 12469

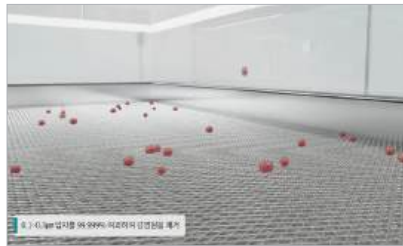
- Airflow design that protects users, samples, and the environment by separating indoor air from internal air of the equipment.
- By applying ULPA filter that can filter particles of 0.1~0.3 um by 99.999%, it provides more reliable and clean workspace than traditional HEPA filter.
- Maintains a stable airflow velocity with an inflow of 0.53 m/s and a downflow of 0.31 m/s when the sash height is 210 mm. (Certified by EN 12469)



JB-15A



Microbial Challenge Test Completed



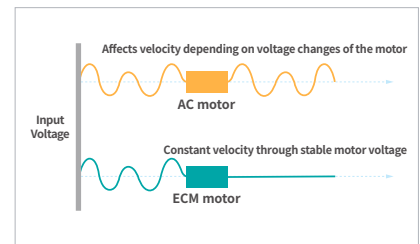
ULPA filter that removes 99.999% of 0.1~0.3 um particles



Canopy (Option) that removes small quantities of volatile chemicals

## Application of ECM Motor with High Durability and Excellent Energy Efficiency

- Embedded ECM (Electronically Commutated Motor) which generates low heat and maintains a constant airflow velocity under voltage fluctuations (unstable voltage) or heavy filter loads.
- Low noise compared to conventional AC motor-applied equipment can reduce the fatigue of the user during prolonged experiments.
- Power saving circulation mode to keep the internal air clean with low noise, low vibration. (when sash door is closed and fan is operated for 24 hours.)
- Realize office environment noise level. (60 dB)



Comparison of the motor control depending on voltage change (AC vs ECM)

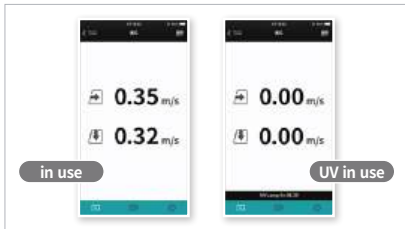
## Safety Function to Concentrate on Experiments

- Monitors velocity and temperature, and generates an alarm when it exceeds the ranges.
- Generates visual and audio alarms for abnormal power supply, abnormal sensor, and accessories replacement for immediate safety measures.
- Records the most recent 20 alarms, and separately manages replacement alarms of the main accessories for useful experiment feedback.
- A UV-protecting tempered glass is applied and resistant to shock. The glass breaks into small pieces in case of breakage to prevent injury to the user.
- Removes small quantities of volatile chemicals or radioactive isotopes using Canopy. (Option)



## Convenient Experiment with Smart Technology

- Integrated operation through sash door open/close actions by interlocking sash door, UV lamp, fluorescent light, and blower. (Patent 10-1451382)
- Mobile monitoring system that enables real-time transmission of device-generated alerts to smartphones in the form of push notifications and enables real-time monitoring of temperature and wind speed. (LC GreenBox, Option)
- Offers both 'Auto Start' mode, where the fan and lamp automatically start/stop based on sash opening and closing, and 'Manual' mode, allowing manual control of the fan and lamp, so that customers select according to their conditions.
- Able to check easily the device status using Bluetooth tablet, and prevents cross-contamination by hands-free adjustment of the controller.



Real-time mobile monitoring (Option)



Quick response by sending push notifications of the device-generated alarms to smartphones (Option)



No need to take out hands during the experiment to manipulate controller through Bluetooth, preventing cross-contamination (Option)

## Hidden Functions for Better Convenience

- STS 304 side walls with built-in steel plates that can be used as magnetic boards.
- Post-purge function that filters out remaining contaminations by operating the fan for a certain period of time.
- Two secured outlets of IP54 class with cover are embedded, allowing users to use power in the workspace.
- Various event records for easy feedback, and convenient maintenance by consumable replacement alarm. (filter, lamp, UV lamp, etc.)



Attaches protocols and other materials using magnets



Provides dustproof and waterproof outlets of IP54 grade



Consumable replacement alarm history

## User Friendly Structure

- Easy to clean working tray with handles, and convenient disposal of dirty water through drain valve.
- An ergonomic armrest designed for comfortable arm positioning during experiments.
- Seamless single-plate workstation prevents microbial contamination and allows easy cleaning.
- Built-in outlets and valves for suction pumps come as standard, with additional service valve provided for easy space utilization.



Easy-to-clean Working Tray



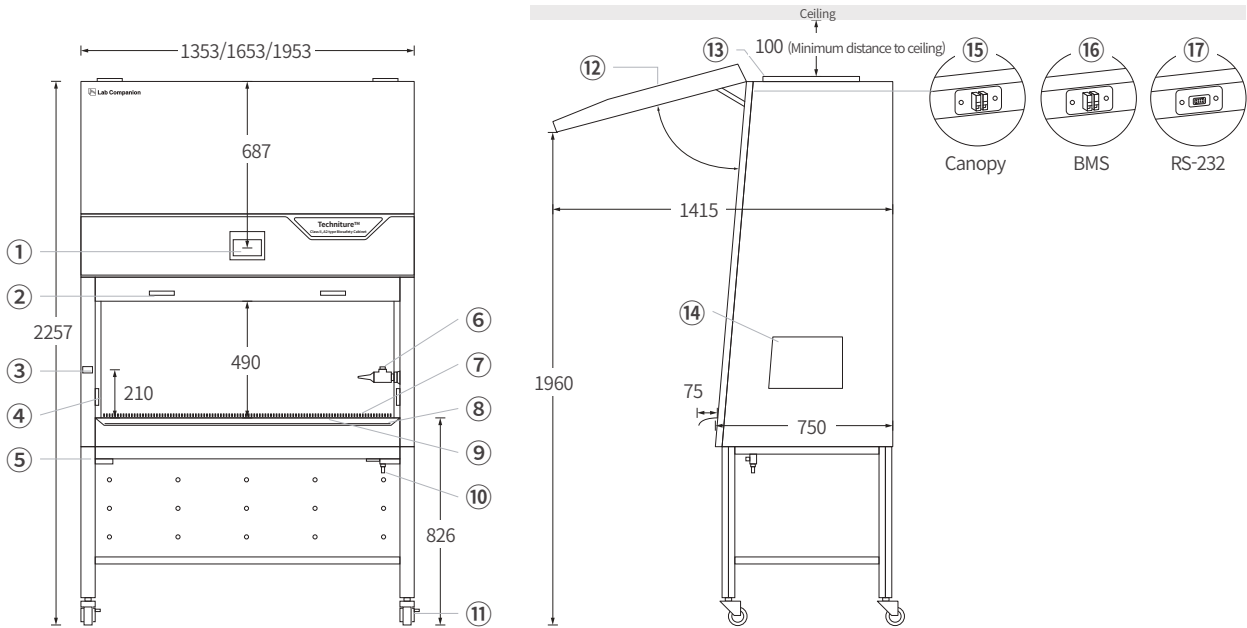
Arm Rest for Comfortable Experiments



Seamless structure to prevent contamination in fine gaps

## Dimension

(Unit: mm)



- |                          |                    |                          |
|--------------------------|--------------------|--------------------------|
| 1. Control panel         | 7. Air slot        | 13. Exhaust filter cover |
| 2. Sash door & Handle    | 8. Arm rest        | 14. Service nozzle inlet |
| 3. Safe sash height      | 9. Work surface    | 15. Canopy alarm port    |
| 4. Internal power outlet | 10. Drain valve    | 16. Alarm contact        |
| 5. Stand                 | 11. Fixable caster | 17. RS-232 port          |
| 6. Service cock valve    | 12. Front cover    |                          |

## Specification

Models		JB-12A	JB-15A	JB-18A
<b>Type</b>		Class II A2		
<b>Air</b>	Airflow type	Vertical laminar flow		
	Filter	ULPA, typical efficiency of 99.999% at 0.1~0.3 μm		
	Downflow velocity (m/s)	0.31±0.025		
	Inflow velocity (m/s)	0.53±0.025		
	Exhaust volume (m <sup>3</sup> /h)	452	562	672
<b>Material</b>	Main body	Epoxy powder coated steel		
	Working surface	Stainless steel #304		
	Sash	UV absorbing tempered glass (5.0T)		
<b>Dimensions</b>	External (W x D x H, mm / inch)	1353 x 824 x 2257 / 53.3 x 32.4 x 88.9	1653 x 824 x 2257 / 65.1 x 32.4 x 88.9	1953 x 824 x 2257 / 76.9 x 32.4 x 88.9
	Working area (W x D x H, mm / inch)	1230 x 572 x 658 / 48.4 x 22.5 x 25.9	1530 x 572 x 658 / 60.2 x 22.5 x 25.9	1830 x 572 x 658 / 51.5 x 22.5 x 25.9
	Sash max opening (mm / inch)	515 / 20.3		
	Working opening (mm / inch)	210 / 8.3		
<b>Noise level (dB)</b>	< 57 db	< 58 db	< 60 db	
<b>Fluorescent lamp intensity (Lux)</b>	More than 800			
<b>Net weight with stand (kg / lbs)</b>	305 / 672	347 / 765	390 / 860	
<b>Power Consumption (230V, 50/60Hz) (W)</b>	308	374	418	
<b>Cat. No.</b>	<b>AAAB8001</b>	<b>AAAB8002</b>	<b>AAAB8003</b>	

## Accessories

(Unit: mm)

Designation	Cat. No.	Model	Description
ULPA filter set	AAAB8511	JB-12A	670 x 457 x 120 / 1209 x 457 x 65
	AAAB8512	JB-15A	870 x 457 x 120 / 1509 x 457 x 65
	AAAB8513	JB-18A	1070 x 457 x 120 / 1809 x 457 x 65
Canopy	AAAB8551	JB-12A	708 x 441 x 285
	AAAB8552	JB-15A	905 x 441 x 285
	AAAB8553	JB-18A	1105 x 441 x 285
UV lamp	CHE0004423	JB-12A/JB-15A/JB-18A	Ø26*890
LED lamp	BSC0000071	JB-12A/JB-15A/JB-18A	Ø16*850
IV bar	AAAB8521	JB-12A	Ø15.8*1223
	AAAB8522	JB-15A	Ø15.8*1523
	AAAB8523	JB-18A	Ø15.8*1823
Service cock valve	AAAB8531	JB-12A/JB-15A/JB-18A	86 x 131 x 64
Suction pump	BEA1002901	JB-12A/JB-15A/JB-18A	160 x 120 x 150
LC-Bluetooth	AAAB8541	JB-12A/JB-15A/JB-18A	Supported from Android 9 and above, iOS 11 and above
Tablet PC for LC-Bluetooth	BEA0008542	JB-12A/JB-15A/JB-18A	Contact to salesperson
LC GreenBox	AAHQ1011K	JB-12A/JB-15A/JB-18A	Supported from Android 9 and above, iOS 11 and above

## Biosafety Cabinet vs. Clean Bench vs. Fume Hood: Similar Appearance, Different Functions

### Biosafety Cabinet

Protecting Users, Samples, and the Environment Simultaneously

Sample	User	Environment
✓	✓	✓

- Safe Zone
- Indoor Air
- Contaminated Air Passed Through Samples
- Clean Air Passed Through ULPA

Airflow of Biosafety Cabinet

Air entering through the sash door doesn't directly enter the chamber; instead, it moves to the top through a negative pressure plenum along with the air that has passed through the chamber. Some of this air is purified and exhausted through the exhaust ULPA filter, while some is purified by the supply ULPA filter to create vertical laminar airflow inside the chamber, ensuring the protection of users, samples, and the environment simultaneously.

### Clean Bench

Preventing Cross-Contamination of Samples

Sample	User	Environment
✓	✗	✗

- Safe Zone
- Indoor Air
- Contaminated Air Passed Through Samples
- Clean Air Passed Through ULPA

Airflow of Clean Bench

Air entering from the top is filtered through a HEPA filter by a fan and provided creating vertical laminar airflow inside the chamber. The air passing through the chamber is discharged through the sash opening, preventing cross-contamination of samples.

Find out more on Clean Bench

### Fume Hood

Protecting Users from Harmful Gases

Sample	User	Environment
✗	✓	✗

- Safe Zone
- Indoor Air
- Air Containing Harmful Gases such as Samples

Airflow of Fume Hood

Indoor air enters the chamber through the sash opening, and the air inside the chamber exits through the rear baffle into a central exhaust duct. It safely protects users from harmful gases that can affect respiratory health.

Find out more on Fume Hood

## Lab Companion Laboratory Facilities



**Fume Hood, Ductless**

Built-in filter hood without duct connection



**Fume Hood, Small**  
General, For Observation

Option to choose direct exhaust or filter exhaust, with easy mobility when using filters



**Mobile Fume Extractor**

Free mobility and diverse applications by removing harmful gas via filters



**Extraction Arm Hood**  
Ceiling Mount Type/Wall Mount Type

Direct connection to external exhaust system to remove dust and harmful gases



**Clean Bench**

Convenient operation during work due to the same controller inside as on the outside



**PCR Workstation**

Completed internal cleanliness evaluation and microbiological testing compatibility test



**UV Sterilization Cabinet**

Clean environment due to sterilization and removal of sources of contamination with UV light

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