

The categories of Bio Safety Cabinet are defined and classified according to the National Sanitation Foundation Standard, NSF/ANSI 49.

© **Class I** The Class I BSC is designed to provide personnel protection

| BSC grades | Inlet air velocity | % of air flow | | Exhaust system | Applications |
|----------------|--------------------|------------------------|-----------|----------------------|--|
| | m/s | internal re-circulated | Exhausted | | |
| Class I | 0.38 | 0 | 100 | External (hard duct) | It is used for laboratories which are work with nonvolatile, radionuclide/chemical protection, microorganisms in Risk. |

© **Class II**

The Class II BSC is designed not only to provide personnel protection but also to protect work surface materials from being contaminated by the room air which is drawn into the cabinet. And it is used for protecting the laboratory environment as well. It is acceptable for working with medium level risk tests. And according to the **National Sanitation Foundation Standard, NSF/ANSI 49(2002)**, it can be defined and classified as 4 types. Their features are compared as below.

| BSC grades | Inlet air velocity | % of air flow | | Exhaust system | Applications |
|--------------------|--------------------|------------------------|-----------|-------------------------------------|---|
| | m/s | internal re-circulated | Exhausted | | |
| Class II A1 | 0.38 | 70 | 30 | Internal or external (Exhaust hood) | It is used for laboratories which are work with nonvolatile, radionuclide/chemical protection, microorganisms in Risk. |
| Class II A2 | 0.5 | 70 | 30 | | |
| Class II B1 | 0.5 | 30 | 70 | External (Hard duct) | It is used for laboratories which are work with lightly volatile, radionuclide/chemical protection, microorganisms in Risk. |
| Class II B2 | 0.5 | 0 | 100 | | |

© **Class III**

Class III biological safety cabinets are suitable for work in Bio-safety Level 3 and 4 laboratories and provide the protection for the highest hazardous level of the Risk Group 3, Risk Group 4, or above. It virtually is a sealed gas tight cabinet. Moreover, its supply air is HEPA- filtered and exhaust air passes through two HEPA filters which keep the cabinet interior under negative pressure consequently. The only way of accessing to the work surface for operation is by means of heavy duty rubber gloves, which are attached to ports in the cabinet virtually.

| BSC grade | Inlet air velocity | % of air flow | | Exhaust system | Applications |
|------------------|--------------------|------------------------|-----------|--|---|
| | m/s | internal re-circulated | Exhausted | | |
| Class III | N/A | 0 | 100 | Exhaust air should pass through two filters. | It is used for laboratories which are work with lightly volatile, toxic, radionuclide protection, microorganisms in Risk. |

Selection of a biological safety cabinet (BSC)

| BSC category | Laboratory type | Protection object |
|--------------------|--|--------------------------------|
| Class I | Groups 1–3, microorganisms in Risk; Slightly volatile, radionuclide/chemical protection | Operator, environment |
| Class II A1 | Groups 1–3, microorganisms in Risk | Operator, environment, product |
| Class II A2 | Groups 1–3, microorganisms in Risk | Operator, environment, product |
| Class II B1 | Groups 1–3, microorganisms in Risk; Slightly volatile radionuclide/chemical protection | Operator, environment, product |
| Class II B2 | Groups 1–3, microorganisms in Risk; Minute amounts volatile, radionuclide/chemical protection | Operator, environment, product |
| Class III | Groups 1–3, microorganisms in Risk; Volatile, radionuclide/chemical protection | Operator, environment, product |

| Type-CLASS II | A1 | A2 | B1 | B2 | A1 | A2 | B1 | B2 | A1 | A2 | B1 | B2 |
|--|-------------------------------|---------|------------------------------|---------|------------------------------|---------|------------------------------|---------|-------------------------------|---------|-------------------------------|---------|
| Model Number | BA1-4 | BA2-4 | BB1-4 | BB2-4 | BA1-5 | BA2-5 | BB1-5 | BB2-5 | BA1-6 | BA2-6 | BB1-6 | BB2-6 |
| External Dimension (W * D * H mm) | 1450*827*2200 | | | | 1750*827*2200 | | | | 2050*827*2200 | | | |
| Internal Dimension (W * D * H mm) | 1250*600*650 | | | | 1550*600*650 | | | | 1850*600*650 | | | |
| Product meets Standard | NSF 49 、 EN12469 、 JIS K 3800 | | | | | | | | | | | |
| Air cleanliness standard (Within working area) | ISO 14644-1 | | | | | | | | | | | |
| Body Construction | 1.5 t SUS 304 | | | | | | | | | | | |
| HEPA filter 0.3 um H14 | 1170*450*70 mm | | | | 1470*450*70 mm | | | | 1770*450*70 mm | | | |
| HEPA filter (Exhaust) | 520*460*100 mm 0.3 um H14 | | 520*460*290 mm 0.3 um H14 | | 700*460*100 mm 0.3 um H14 | | 700*460*292 mm 0.3 um H14 | | 1000*460*100 mm 0.3 um H14 | | 1000*460*292 mm 0.3 um H14 | |
| Blower | EC Brushless Motor | | | | EC Brushless Motor | | | | EC Brushless Motor | | | |
| Worktable | SUS 304 perforated panel | | | | SUS 304 perforated panel | | | | SUS 304 perforated panel | | | |
| Air in flow | 75 FPM | 100 FPM | 100 FPM | 100 FPM | 75 FPM | 100 FPM | 100 FPM | 100 FPM | 75 FPM | 100 FPM | 100 FPM | 100 FPM |
| Air down flow | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM | 60 FPM |
| Air circulation | 70% | 70% | 30% | 0% | 70% | 70% | 30% | 0% | 70% | 70% | 30% | 0% |
| Air Exhaust | 30% | 30% | 70% | 100% | 30% | 30% | 70% | 100% | 30% | 30% | 70% | 100% |
| Light Illuminance (NSF 49) | > 500 lux | | | | > 500 lux | | | | > 500 lux | | | |
| Noise Level (According to EN12469) | < 65 dBA | | | | < 65 dBA | | | | < 65 dBA | | | |
| UV Lamp | 254nm | | | | 254nm | | | | 254nm | | | |



Class II A2



Class II B1
Class II B2