metisafe


# Biological Safety Cabinet
# Class II Type A

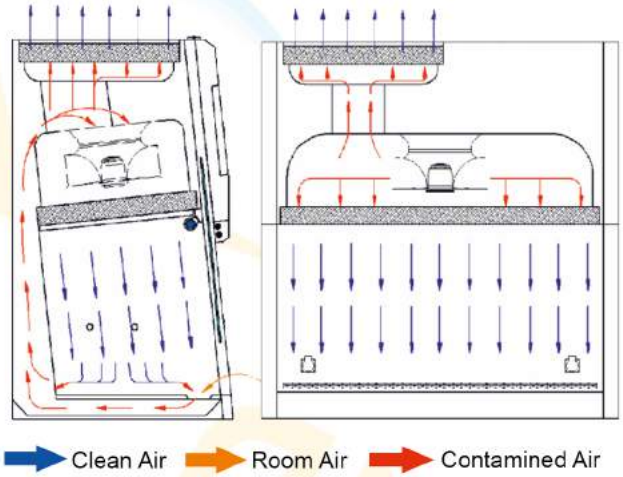
E Series

- Biosafety Ahead of Standarts
- GMP Compliant Operation
- Exclusive Quality / Safety Details
- Superior User Comfort
- Intergable Extra Functions

EN12469 ISO 14644 CE

## CLASS II TYPE A BSC AIRFLOW DIAGRAM

Metisafe Class II Type A Biological Safety Cabinets works under principles of air circulation, air filtration and keeping working area under negative air pressure. In BSC, 70% (+/-%5) of total air is recirculated and filtered through main HEPA filter located at work zone top. The rest of the air, 30% (+/-%5), is exhausted to surrounding area environmentally protected after passing through exhaust HEPA filter. The room air is pulled through the perforations located in front of the work plate and directed to blower plenum (inflow air). This air flow direction prevents reaching dirty air to materials over the working plate. Inflow air together with recirculated air is mixed at the blower plenum then pass through the main HEPA filter and laminarizator and reaches into the work area protecting the work zone under ISO-5 class laminar airflow. In addition to primary air barrier accomplished by negative pressure within the working zone double wall negative plenum design of the Metisafe cabinet prevents particle escape to surroundings and zero leakage is ensured.




Removable monoblock or sterilization available partited, high strength, non-vibrating stainless steel work plate

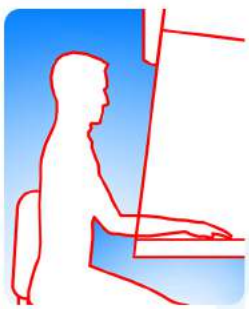
Isolated electrical components assembly from contaminated zones, easy to reach for servicing.

Automatic filter compensation, cruise control airflow rate. Energy efficient high performance EC fan technology

Scratch-proof stainless steel, monoblock interior cabinet surface with easy to clean continous radiused corners

90° Openable Gas Spring Supported Hinged Front Panel

Plenum cast design creates negative pressure around contaminated work area and ensures zero leakage



Back sloped front panel design according to anthropometric rules provides increased viewing angle, operator comfort and ergonometric for long period of works

DOP Test Ports

Easy Filter Change

EN 12469 Certificated

Easy Transport and Assembly

Field Performance Qualification

Series/Models Range with Cost/Benefit Options

## MICROPROCESSOR CONTROL UNIT

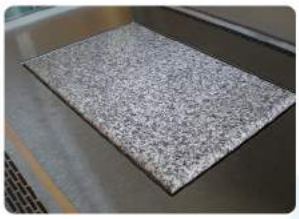

Easy adjusted working parameters by touch pad control panel Continous airflow velocity measuring sensors and cruise controlled automated airflow rate adjustment
Audio and visual alarm activation on airflow rate changes Manually cancellable alarm
Real time information available large Touch sensitive PLC screen: Airflow velocity, Airflow rate, Total work time, UV and fluorescent lamp work time, Alarm activation memory data, Filter change periods, Filter integrity state, Alarm activation log data

- ✓ Homogenous and cruise control laminar airflow
- ✓ Advanced filter compensation system keeping fixed airflow rate under increased filter resistance
- ✓ Continous work suitable fan motor
- ✓ Contamination proof antimicrobial coated stainless steel main body frame
- ✓ Auto setup available motorized sash window
- ✓ Aerosol Tight sash window mechanism
- ✓ Adjustable Homogenous LED illumination
- ✓ Timer controlled effective disinfection UV Lamp
- ✓ Semi-Automated Decontamination/Fumigation System

Metisafe biological safety cabinet working chambers
are dead zones free and have undisturbed laminar airflow
by advanced air direction designs and sophisticated CFD analysis

## OPTIONALS

Height adjustable support stand



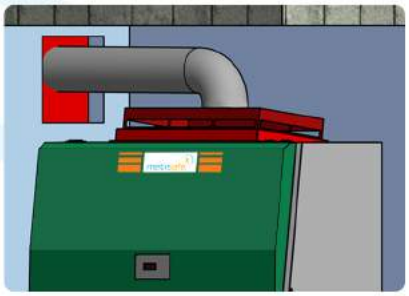
Anti-vibration weighing balance table

Monoblock or partited working table

Hanger Apparatus

Pre-Filter

Gas Spring Supported Work Table



Canopy Connection

- Carbon Filter ✓
- Key-Lock Mechanism ✓
- Full Automated Fumigation ✓
- High Capacity ULPA Filter ✓
- Motion Sensitive Sash Safety Mechanism ✓
- Heater & Microscope Assembly Base ✓
- Process Data Recording System ✓
- Multi Point Inflow Air Velocity Measurement ✓
- Active Noise Control System ✓
- Temperature/Humidity Data ✓
- Voice/Video Recording System ✓
- Particle Counting System ✓
- Music System ✓

## METİSAFE CLASS II TYPE A BIOLOGICAL SAFETY CABINET E SERIES TECHNICAL SPECIFICATIONS

| MODEL | | MSC-IIA-E90 | MSC-IIA-E120 | MSC-IIA-E150 | MSC-IIA-E180 |
|---|---|---|---|---|---|
| Internal Dimensions (WxLxH) mm | | 875x520x746 | 1250x610x675 | 1480x520x746 | 1785x520x746 |
| External Dimensions (WxLxH) mm | | 995x735x1440 | 1370x843x1445 | 1600x735x1478 | 1905x735x1467 |
| Support Stand (WxLxH) mm | | 995x735x745 | 1370x843x745 | 1600x735x745 | 1905x735x745 |
| Working table-floor height | | 840 mm | | | |
| Airflow (m/s) | Inflow | 0.50 ± % 5 | | | |
| | Downflow | 0.38 ± % 5 | | | |
| Filter Types (EN 1822) | Main Filter | High Capacity H14 HEPA, 0,3 μm particle %99.995 filtration efficiency | | | |
| | Exhaust Filter | High Capacity H14 HEPA, 0,3 μm particle %99.995 filtration efficiency | | | |
| | Pre Filter (optional) | G4/F5 | | | |
| Clean Area Class | EN14644 | < ISO 5 | | | |
| | FED209E | < Class 100 | | | |
| Working Table | Standard | 316L Stainless Steel | | | |
| | Optional | 304 Stainless Steel | | | |
| Sash Window Aperture (mm) | Preset/Std | 200 ± % 10 mm | | | |
| | Max Height | 530 ± % 10 mm | | | |
| Sash Window | | ≤ 6 mm Laminated | | | |
| Electrical socket voltage and frequency | | 220 - 240 VAC / 16A | | | |
| Supply Voltage / Frequency / Power / Current | | 230 VAC / 50 Hz / 2500W / 16A | | | |
| Working Area Illumination (Lux) | | 850 - 1250 Lux | | | |
| Noise Level | Normal Mode | ≤ 56 dB(A) | ≤ 56 dB(A) | ≤ 58 dB(A) | ≤ 62 dB(A) |
| | Eco (Stand by) Mode | ≤ 50 dB(A) | ≤ 50 dB(A) | ≤ 50 dB(A) | ≤ 52 dB(A) |
| Power Consumption | Fan Filter | 105 W | 200 W | 170 W | 200 W |
| | Illumination | 50 W | 50 W | 50 W | 50 W |
| | UV Lamp | 30 W | 30 W | 30 W | 30 W |
| Pack/Palette Dimensions (WxLxH) mm | | 1100x970x1690 | 1480x1070x1720 | 1700x970x1690 | 2000x970x1690 |
| Weight (kg), without support stand/storage cupboard | | 190 | 220 | 260 | 310 |
| Main Body & Design Parameters | | Antibacterial Epoxy Powder paint Coated stainless Steel, $90^0$ Openable Front panel for easy working chamber cleaning, < $7^0$ angle sloped front panel for work comfort and increased working chamber vision, easy reachable electronic control & electrical part protection inside at front panel isolated from working chamber, UV Resistant tempered glass, Aerosol tight sash window | | | |
| Microprocessor Control Unit & Display Parameters | | One key touch on-off, Timer setting, Inflow/Downflow Air Velocity/Airflow Rate, System Ready/Not-Ready message/warning, Normal/Stand-by option button, Automated airflow rate and velocity compensation system, HEPA Filter Life (percent), Total working Time, UV and FL Lamp working times, Automatic Stand-by status at sash window closure, Motorized sash window level position setting, One key sash window preset position, Automatic UV Lamp-Off protection at sash window opening, Sash window position message, Servicing records, Password protected technical service key | | | |
| Audio-Visual Alarm Parameters | | Audible and Visual Alarms for Air Flow/Rate System ready/not-ready information, Filter/Lamps replacement warning, Service need warning, Alarm cancel button, unproper Sash window position warning | | | |
| Quality and Certificates | | CE, Management certificate of ISO9001, Biological Safety Cabinets EN 12469, ISO 14644 Clean Room class compatibility, EN61010 Electrical and Electronic safety compatibility, Accredited test company validation guarantee (When installation made by Metis or by its certified technical personnel), GMP & Field performance qualification test report | | | |
| Optionals | | ULPA Filter, Carbon Filter, Canopy connection, Automatic decontamination/fumigation, Biocidal surface coating material, Height adjustable support stand, Working chamber Inside/Outside temperature measurment, Active noise control system, Foot pedal control, Work chamber Hanger apparatus, Heater & Microscope Assembly Base, Anti-vibration weighing balance table, Document / Equipment Cleaning Module, Sensor integrated Sash Window safety mechanism | | | |

## ACCESSORIES

Microincinerator

Gas / Vacum Valves

IP 54 Electrical Socket

- Solenoid / Backflow Valve ✓
- Cleanroom Chair ✓
- Voltage Regulator ✓
- Arm Rest Apparatus ✓
- Disinfection dispenser ✓
- Acrobat Document Holder ✓
- IR Sensored Bunsen Burner ✓
- Portative Germicidal UV lamp ✓
- Height adjustable support stand ✓
- Mechanical Airflow Velocity Sensor ✓
- UPS (Uninterruptible Power Supply) ✓
- BSC Microbiological Test Equipments ✓

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Also available from METISAFE

Hygenic air cleaners with climatization, Ceiling type HEPA Filtration Units, Laminar Air Flow Cabinets (LAF), Biological Safety Cabinets (BSC), Chemical Fume Hoods, Mobile Air Extraction Units, Modular Clean Room and Biological Safety Units, Mobile Biosafety Labs, Air-Shower, Air-Lock and Pass-Boxes...

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