



QUALITY IS OUR MOTTO

# PHARMA AIR MODULAR SYSTEMS

*Design-Engineering-Manufacturing-Construction*

## MODULAR CLEANROOM EQUIPMENT



### APPLICATION AREAS :

- ◆ Pharmaceuticals
- ◆ Biotechnology
- ◆ Medical Devices
- ◆ Food & Beverages
- ◆ Healthcare / Pathology / Microbiology
- ◆ Aerospace
- ◆ Microelectronics
- ◆ Nano Technology

## *Design-Engineering-Manufacturing-Construction*



Pharma Air Modular System's is an fastest Growing with quality grading company and is one of the largest manufacturer of Clean room Partitioning, HVAC Systems Equipment and Turnkey Solution Providers around the world.

Established in the year 2009, under the Indian companies Act. Pharma Air Modular Systems has a manufacturing area 50,000 sq.ft. with an over all supportive infrastructure area of 1,00,000 sq ft. The plant is fully equipped the latest NC/CNC manufacturing equipment based on CAD/CAM Softwares.

Pharma Air has its corporate office located at Mumbai (Kalyan) & Branch Office in chennai and state of the art manufacturing facility at Atgaon (Mumbai-Nashik Highway) Shahapur, Dist-Thane Maharashtra India. A Team of professionals support Indian & International Projects of our esteemed clients in the field of Application Areas, Pharmaceuticals, Biotechnology. Medical, Devices, Food & Beverages, Healthvcare / Pathology / Microbiology / Aerospace, Microelectronics & Nano technology.

Pharma Air Modular Systems has R & D Latest Design & Technology, High Quality Range and Qualitative Human Resources. As a result Pharma Air Modular Systems represent with an ideal line of products and services that would save your money and time.



*QUALITY IS OUR MOTTO*  
**PHARMA AIR MODULAR SYSTEMS**

**Specialised Solutions for**

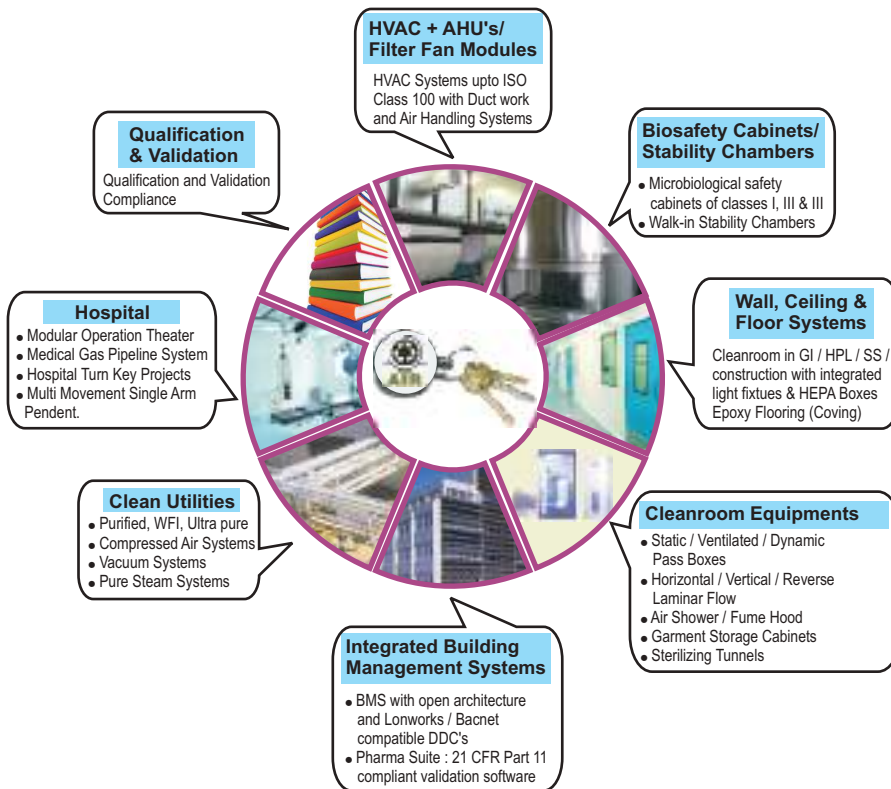


**Advantage - Pharma Air Modular Systems**

Why Pharma Air Modular Systems

- Provides a unique suite of benefits and clearly superior performance
- Provides an unparalleled range of sizes and fittings coupled with innovation and high levels of engineering support through design, selection, installation and commissioning.
- This level of support and dedication ensures secure project delivery and peace of mind.
- Successful projects delivered across the world are testimony to PAMS's attention to all phases of the project life.

- **STERILE**
- **ONCO**
- **HOSPITAL**
- **LVP / SVP**
- **INJECTABLE**
- **R & D LABS**
- **API**
- **BIOPHARMACEUTICALS**



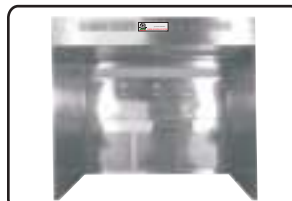
**Modular Cleanroom Equipments**



Sterilizing and Depyrogenating Tunnels for Vials and Ampoules



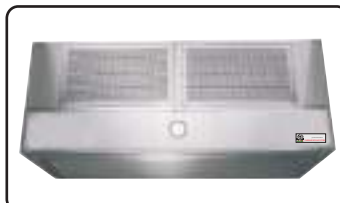
Horizontal flow Work stations.



Dispensing and Sampling booths



Mobile Clean Carte



Unidirectional Air Flow systems



Dynamic Pass Boxes



Static Pass Boxes



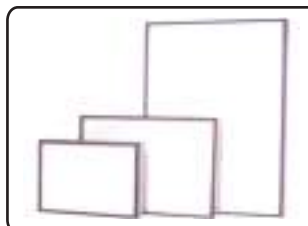
Garment Storage Cabinets



Air Showers



Pre-filters

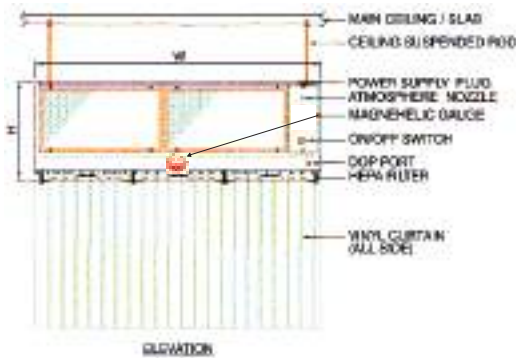


Separatorless Minipleat HEPA / ULPA filters



Standard HEPA/ ULPA filters

## LAMINAR AIR FLOW UNIT (CEILING SUSPENDED)



| EXTERNAL DIMENSIONS |      |      |     |
|---------------------|------|------|-----|
| HEPA FILTER SIZE    | W    | D    | H   |
| 6' X 4'             | 1950 | 1345 | 665 |
| 4' X 4'             | 1325 | 1345 | 665 |
| 4' X 2'             | 1325 | 735  | 665 |
| 3' X 2'             | 995  | 735  | 665 |

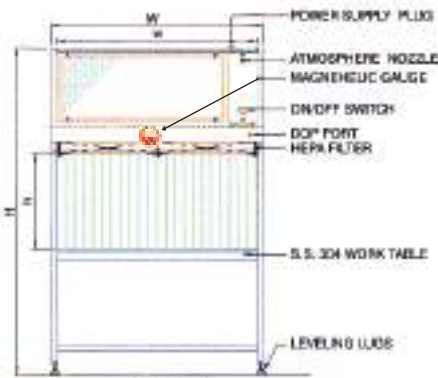


| Sr. No. | Item                                | Description   |
|---------|-------------------------------------|---|
| 1)      | <b>MOC</b>                          | SS 304 / SS 316 / Customised  |
| 2)      | <b>HEART OF SYSTEM COMPRISES OF</b> |   |
| 2.1     |                                     | Imported minipleat HEPA Filter with hot melt technology, which conforms to EU-13 / EU-14 Grade  |
| 2.2     |                                     | Pharma air make Fresh Air prefilter which conforms to EU 6 Grade, with efficiency of 95% down to 5µ   |
| 2.3     |                                     | Motor Blower provided are statically and dynamically balanced, Sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.4     |                                     | Magnehelic Differential Pressure Gauge across Supply HEPA Filter  |
| 2.5     |                                     | Fluorescent Light ( 250 Lux )   |
| 2.6     |                                     | ON/OFF Swithches for motor & Lights.  |
| 2.7     |                                     | DOP Test post at upstream of HEPA filter  |
| 3)      | <b>PERFORMANCE</b>                  |   |
| 3.1     | Air cleanliness                     | ISO Class 5 (ISO 14644-1:1999) (E)  |
| 3.2     | Air Velocities                      | 0.45±0.05 mps   |
| 3.3     | Air Flow                            | Vertical  |
| 3.4     | Noise Level                         | Less than 67dB on Scale 'A' when Ambient is not greater then 55dB on Scale 'A'  |
| 3.5     | Vibration Level                     | Minimum   |
| 4)      | <b>POWER SUPPLY</b>                 | 230 V AC 1- ø 50HZ  |

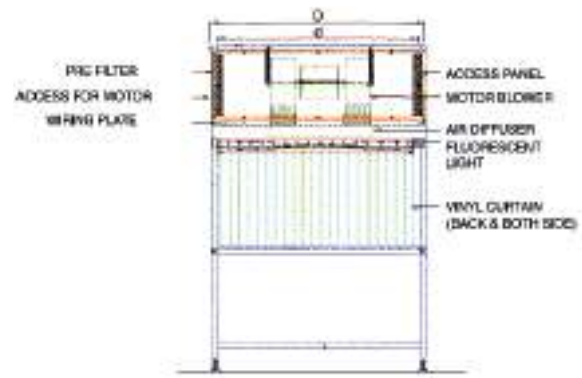
### Optional Accessories

- \* Vinyl Curtain / Polycarbonate enclosures on all sides
- \* SS Perforated Safety Grill for HEPA Filter
- \* 5/15 Amp single-phase switch socket
- \* Audio Visual Alاتم Indicating Condition of HEPA Filters

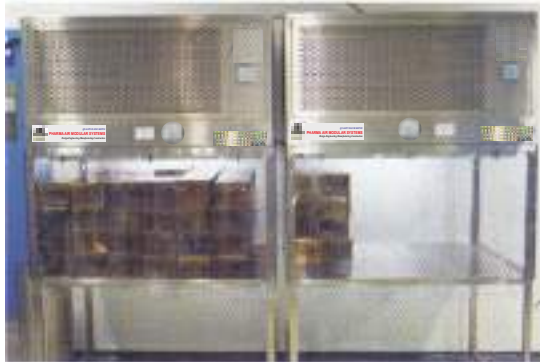
## LAMINAR AIR FLOW UNIT (STAND MOUNTED)



ELEVATION



SIDE VIEW



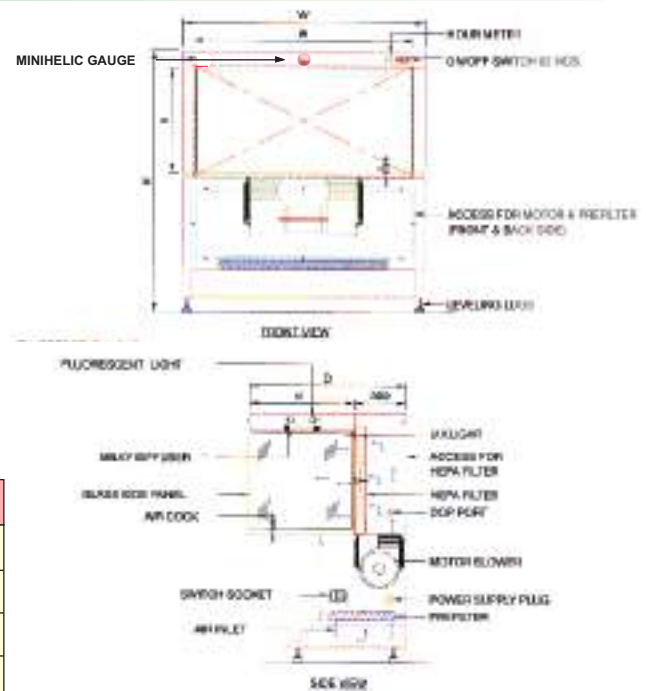
| HEPA FILTER SIZE | INTERNAL DIMENSIONS |      |     | EXTERNAL DIMENSIONS |      |      |
|------------------|---------------------|------|-----|---------------------|------|------|
|                  | w                   | d    | h   | W                   | D    | H    |
| 6' X 4'          | 1900                | 1295 | 610 | 1980                | 1375 | 1440 |
| 4' X 4'          | 1275                | 1295 | 610 | 1355                | 1375 | 1440 |
| 4' X 2'          | 1275                | 685  | 610 | 1355                | 765  | 1440 |

| Sr. No. | Item                                | Description   |
|---------|-------------------------------------|---|
| 1)      | <b>MOC</b>                          | SS 304 / SS 316 / Customised  |
| 2)      | <b>HEART OF SYSTEM COMPRISES OF</b> |   |
| 2.1     |                                     | Imported minipleat HEPA Filter with hot melt technology, which conforms to EU-13 / EU-14 Grade  |
| 2.2     |                                     | Pharma air make Fresh Air prefilter which conforms to EU 6 Grade, with efficiency of 95% down to 5µ   |
| 2.3     |                                     | Motor Blower provided are statically and dynamically balanced, Sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.4     |                                     | Glass / Poly carbonate side Panels  |
| 2.5     |                                     | Magnehelic Differential Pressure Gauge across Supply HEPA Filter  |
| 2.6     |                                     | Fluorescent Light ( 250 Lux )   |
| 2.7     |                                     | ON/OFF Swithches for motor & Lights.  |
| 3)      | <b>PERFORMANCE</b>                  |   |
| 3.1     | Air cleanliness                     | ISO Class 5 (ISO 14644-1:1999) (E)  |
| 3.2     | Air Velocities                      | 0.45 ± 0.05 mps   |
| 3.3     | Air Flow                            | Vertical  |
| 3.4     | Noise Level                         | Less than 67dB on Scale 'A' when Ambient is not greater then 55dB on Scale 'A'  |
| 3.5     | Vibration Level                     | Minimum   |
| 4)      | <b>POWER SUPPLY</b>                 | 230 V AC 1- ∅ 50HZ  |

### Optional Accessories

- \* Vinyl Curtain
- \* Polycarbonate enclosures with Front Door (Hinged/Pneumatic Cylinder)
- \* SS Perforated Safety Grill for HEPA Filter
- \* 5/15 Amp single-phase switch socket
- \* Audio Visual Alarm Indicating Condition of HEPA Filters
- \* U.V. Light with Hour meter
- \* Air / Gas Cock

## HORIZONTAL LAMINAR AIR FLOW UNIT



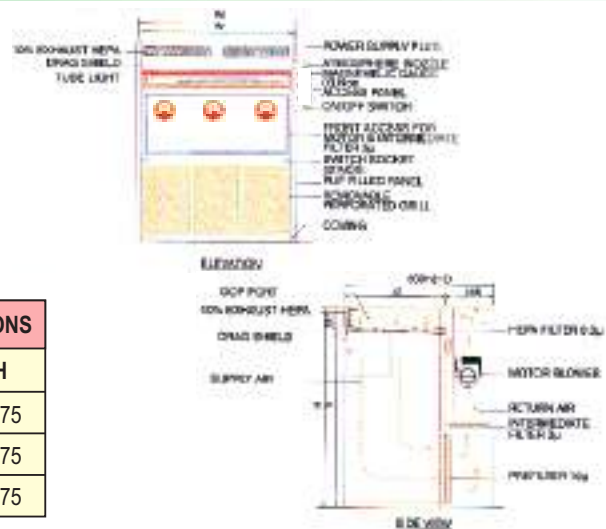
| HEPA FILTER SIZE | INTERNAL DIMENSIONS |     |     | EXTERNAL DIMENSIONS |      |      |
|------------------|---------------------|-----|-----|---------------------|------|------|
|                  | w                   | d   | h   | W                   | D    | H    |
| 6' X 2'          | 1800                | 610 | 570 | 1960                | 1375 | 1440 |
| 4' X 2'          | 1180                | 610 | 570 | 1340                | 1375 | 1440 |
| 3' X 2'          | 875                 | 610 | 570 | 1035                | 765  | 1440 |

| Sr. No. | Item                                | Description   |
|---------|-------------------------------------|---|
| 1)      | <b>MOC</b>                          | SS 304 / SS 316 / Customised  |
| 2)      | <b>HEART OF SYSTEM COMPRISES OF</b> |   |
| 2.1     |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13 / EU-14 Grade  |
| 2.2     |                                     | Pharma air make Fresh Air prefilter which conforms to EU 6 Grade, with efficiency of 95% down to 5µ   |
| 2.3     |                                     | Motor Blower provided are statically and dynamically balanced, Sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.4     |                                     | Magnehelic Differential Pressure Gauge  |
| 2.5     |                                     | Working Table : S.S. 304 with Due Reinforcement   |
| 2.6     |                                     | Glass side panel  |
| 2.7     |                                     | Fluorescent Light ( 250 Lux )   |
| 2.8     |                                     | ON/OFF Switches for motor & Lights.   |
| 2.9     |                                     | 5/15 Amp single - phase switch socket for external equipment  |
| 2.10    |                                     | DOP Test Port at upstream of HEPA filter  |
| 3)      | <b>PERFORMANCE</b>                  |   |
| 3.1     | Air cleanliness                     | ISO Class 5 (ISO 14644-1:1999) (E)  |
| 3.2     | Air Velocities                      | 0.45±0.05 mps   |
| 3.3     | Air Flow                            | Vertical  |
| 3.4     | Noise Level                         | Less than 67dB on Scale 'A' when Ambient is not greater then 55dB on Scale 'A'  |
| 3.5     | Vibration Level                     | Minimum   |
| 3)      | <b>POWER SUPPLY</b>                 | 230 V AC 1- ø 50HZ  |

### Optional Accessories

- ★ Front doors (hinged/Pneumatic Cylinder)
- ★ SS Perforated Safety Grill for HEPA Filter
- ★ Air / Gas Cock
- ★ Audio Visual Alarm Indicating condition of HEPA Filters
- ★ U.V. Light with Hour meter
- ★ Flame Proof Fitting

# SAMPLING / DISPENSING BOOTH



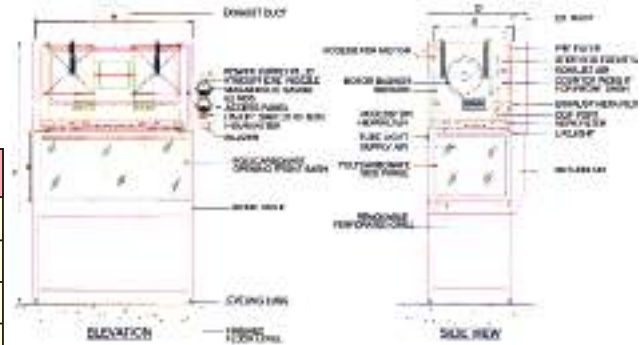
| HEPA FILTER SIZE | INTERNAL DIMENSIONS |      |      | EXTERNAL DIMENSIONS |      |      |
|------------------|---------------------|------|------|---------------------|------|------|
|                  | w                   | d    | h    | W                   | D    | H    |
| 6' X 6'          | 1900                | 2500 | 2170 | 2004                | 1900 | 2475 |
| 6' X 4'          | 1900                | 1260 | 2170 | 2004                | 1860 | 2475 |
| 4' X 4'          | 1275                | 1260 | 2170 | 1379                | 1860 | 2475 |

| Sr.No. | Item                                | Description  |
|--------|-------------------------------------|--|
| 1)     | <b>MOC</b>                          | SS 304 / SS 316 / Customised   |
| 2)     | <b>HEART OF SYSTEM COMPRISES OF</b> |  |
| 2.1    |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13/EU-14 Grade at supply position  |
| 2.2    |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13/EU-14 Grade at exhaust position   |
| 2.3    |                                     | Pharma air make prefilter which conforms to EU 4 Grade, with efficiency of 90% down to 10 μ  |
| 2.4    |                                     | Pharma air make Intermediate filter which conforms to EU 7   |
| 2.5    |                                     | Motor Blower provided are statically and dynamically balanced sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.6    |                                     | SS 304 Double Walled Side Panels.  |
| 2.7    |                                     | Magnehelic Differential Pressure Gauge (0-25 mm: 2 Nos.) to monitor pressure drop across intermediate filter & HEPA filter and (0-10 mm 1 No.) across Prefilter                  |
| 2.8    |                                     | Electrical control panel mounted on the side panle of the unit.  |
| 2.9    |                                     | Fluorescent Light (250 Lux)  |
| 2.10   |                                     | ON/OFF Switches for motor & Lights.  |
| 2.11   |                                     | DOP Test Port at upstream of HEPA filter   |
| 3)     | <b>PERFORMANCE</b>                  |  |
| 3.1    | Air Cleanliness                     | ISO Class 5 (ISO 14644-1:1999 (E))   |
| 3.2    | Air Velocities                      | 0.45 0.05 mps  |
| 3.3    | Air Flow                            | Vertical - Recirculatory   |
| 3.4    | Noise Level                         | Less than 67 dB on Scale 'A' when Ambient is not greater then 55dB on Scale 'A'  |
| 3.5    | Vibration Level                     | Minimum  |
| 4)     | <b>POWER SUPPLY</b>                 | 230 V AC 1- Ø 50HZ   |

### Optional Accessories

- \* SS Perforated Safety Grill for HEPA Filter
- \* Front Anti Static PVC Curtains (for warehouse applications)
- \* Front doors (hinged)
- \* SS Perforation table for keeping weighing scale.
- \* Sodium Vapor Lamps
- \* Audio Visual Alarm indicating condition of HEPA Filters
- \* Flame Proof Fitting
- \* VFD based Control systems
- \* Safe change Bag in/Bag out arrangement for filters
- \* 5/15 Amp single - phase switch socket

# BIO SAFETY CABINETS



| HEPA FILTER SIZE | INTERNAL DIMENSIONS |     |     | EXTERNAL DIMENSIONS |     |      |
|------------------|---------------------|-----|-----|---------------------|-----|------|
|                  | w                   | d   | h   | W                   | D   | H    |
| 6' X 2'          | 1830                | 610 | 610 | 2045                | 900 | 2310 |
| 4' X 2'          | 1220                | 610 | 610 | 1400                | 900 | 2310 |
| 3' X 2'          | 915                 | 610 | 610 | 1095                | 900 | 2310 |

| Sr.No. | Item                                | Description   |
|--------|-------------------------------------|---|
| 1)     | <b>MOC</b>                          | SS 304 / SS 316 / Customised  |
| 2)     | <b>HEART OF SYSTEM COMPRISES OF</b> |   |
| 2.1    |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13/EU-14 Grade at supply position   |
| 2.2    |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13/EU-14 Grade at exhaust position  |
| 2.3    |                                     | Pharma air make Return Air Prefilter which conforms to EU 6 Grade, with efficiency of 95% down to 5 μ   |
| 2.4    |                                     | Motor Blower provided are statically and dynamically balanced, Sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.5    |                                     | Glass side Panels.  |
| 2.6    |                                     | SS 304 perforated work Table which can be readily removed for cleaning.   |
| 2.7    |                                     | Fully openable sliding polycarbonate front door with counter weight arrangement,  |
| 2.8    |                                     | Magnehelic Differential Pressure Gauge  |
| 2.9    |                                     | Sealed white light with milky acrylic diffuser  |
| 2.10   |                                     | Interlocking of supply & exhaust motor blower with logic control to ensure the system stops if either motor stops.  |
| 2.11   |                                     | Alarm triggers in case front doors is raised more than 8"   |
| 2.12   |                                     | ON/OFF Switches for motor & Lights.   |
| 2.13   |                                     | DOP Test Port at upstream of HEPA filter  |
| 2.14   |                                     | Small elbow duct for exhaust.   |
| 3)     | <b>PERFORMANCE</b>                  |   |
| 3.1    | Air Cleanliness                     | ISO Class 5 (ISO 14644-1:1999 (E))  |
| 3.2    | Air Velocities                      | 0.45 0.05 mps   |
| 3.3    | Air Flow                            | Vertical - Recirculatory  |
| 3.4    | Noise Level                         | Less than 67 dB on Scale 'A' when Ambient is not greater then 55dB on Scale 'A'   |
| 3.5    | Vibration Level                     | Minimum   |
| 4)     | <b>POWER SUPPLY</b>                 | 230 V AC 1- Ø 50HZ  |

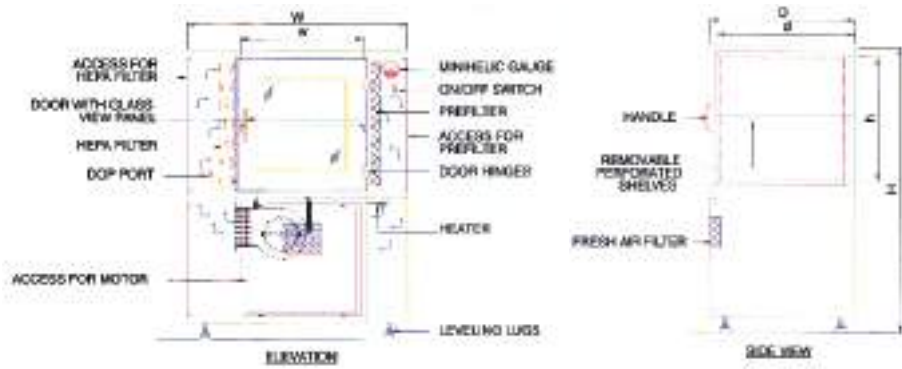


### Optional Accessories

- ☞ Audio Visual Alarm indicating condition of HEPA Filters
- ☞ Flame Proof Fitting
- ☞ Front door with Glove arrangement
- ☞ VFD based Control systems
- ☞ 5/15 Amp single - phase switch socket
- ☞ U.V. Light with Hour meter



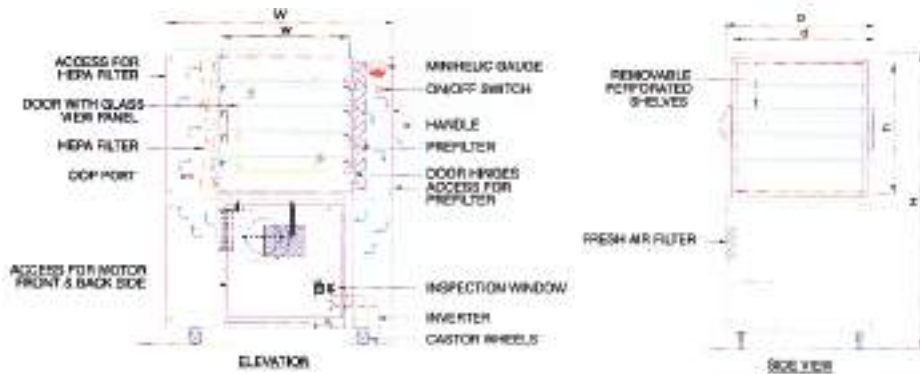
# GARMENT STORAGE CABINETS



| INTERNAL DIMENSIONS |     |     | EXTERNAL DIMENSIONS |      |      |
|---------------------|-----|-----|---------------------|------|------|
| w                   | d   | h   | W                   | D    | H    |
| 1000                | 685 | 620 | 1490                | 720  | 1420 |
| 915                 | 990 | 620 | 1405                | 1025 | 1420 |
| 610                 | 685 | 620 | 1100                | 720  | 1420 |

| Sr.No. | Item                                | Description  |
|--------|-------------------------------------|--|
| 1)     | <b>MOC</b>                          | SS 304 / SS 316 / Customised   |
| 2)     | <b>HEART OF SYSTEM COMPRISES OF</b> |  |
| 2.1    |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13/EU-14 Grade at supply position 0.3 $\mu$ at supply position                                     |
| 2.2    |                                     | Pharma air make Fresh Air prefilter which conforms to EU 6 Grade, with efficiency of 95% down to 5 $\mu$   |
| 2.3    |                                     | Motor Blower provided are statically and dynamically balanced sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.4    |                                     | Minihelic Gauge  |
| 2.5    |                                     | Fluorescent Light (250 Lux)  |
| 2.6    |                                     | ON/OFF Switches for motor & Lights.  |
| 2.7    |                                     | Mounting : Unique Spring Suspension System to take Care of Vibration and Noise.  |
| 2.8    |                                     | DOP Test Port at upstream of HEPA filter   |
| 3)     | <b>PERFORMANCE</b>                  |  |
| 3.1    | Air Cleanliness                     | ISO Class 5 (ISO 14644-1:1999 (E))   |
| 3.2    | Air Velocities                      | 0.45 0.05 mps  |
| 3.3    | Air Flow                            | Horizontal Recirculatory   |
| 3.4    | Noise Level                         | Less than 67 dB on Scale 'A' when Ambient is not greater then 55dB on Scale 'A'  |
| 3.5    | Vibration Level                     | Minimum  |
| 4)     | <b>POWER SUPPLY</b>                 | 230 V AC 1- $\emptyset$ 50HZ   |

# MOBILE TROLLEY

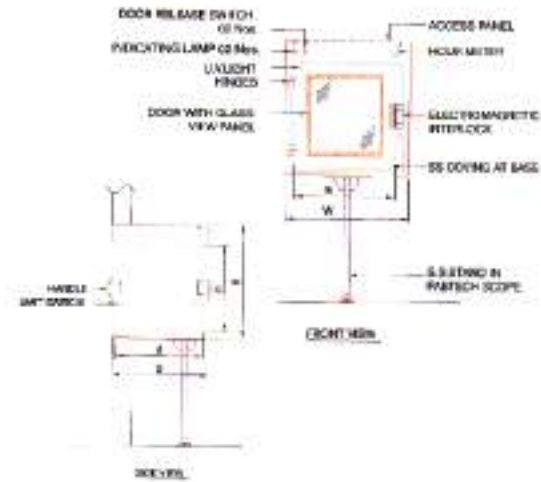
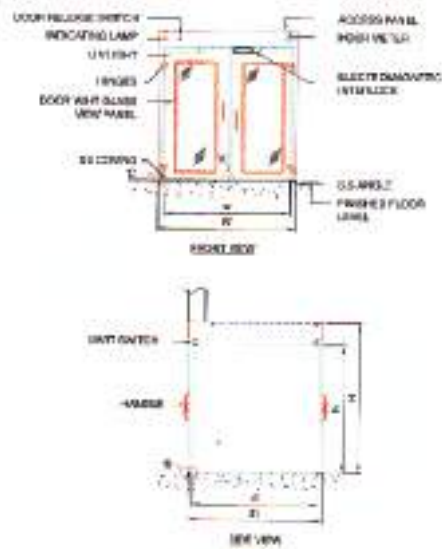


| INTERNAL DIMENSIONS |     |     | EXTERNAL DIMENSIONS |      |      |
|---------------------|-----|-----|---------------------|------|------|
| w                   | d   | h   | W                   | D    | H    |
| 1000                | 685 | 620 | 1490                | 720  | 1420 |
| 915                 | 990 | 620 | 1405                | 1025 | 1420 |
| 610                 | 685 | 620 | 1100                | 720  | 1420 |

| Sr.No. | Item                                | Description   |
|--------|-------------------------------------|---|
| 1)     | <b>MOC</b>                          | SS 304 / SS 316 / Customised  |
| 2)     | <b>HEART OF SYSTEM COMPRISES OF</b> |   |
| 2.1    |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13/EU-14 Grade at supply position.  |
| 2.2    |                                     | Pharma air make Return Air prefilter which conforms to EU 6 Grade, with efficiency of 95% down to 5 μ   |
| 2.3    |                                     | Motor Blower provided are statically and dynamically balanced, sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.4    |                                     | Minihelic Gauge   |
| 2.5    |                                     | ON/OFF Switches for motor & Lights.   |
| 2.6    |                                     | SS 304 Double Walled doors, SS handles, hinges  |
| 2.7    |                                     | Return Air Grills on side walls.  |
| 2.8    |                                     | Electro - Magnetic Interlocking to ensure only one side door will be opened at a time.  |
| 2.9    |                                     | DOP Test Port at upstream of HEPA filter  |
| 3)     | <b>PERFORMANCE</b>                  |   |
| 3.1    | Air Cleanliness                     | ISO Class 5 (ISO 14644-1:1999 (E))  |
| 3.2    | Air Velocities                      | 0.45 0.05 mps   |
| 3.3    | Air Flow                            | Vertical - Recirculatory  |
| 3.4    | Noise Level                         | Less than 67 dB on Scale 'A' when Ambient is not greater then 55dB on Scale 'A'   |
| 3.5    | Vibration Level                     | Minimum   |
| 4)     | <b>POWER SUPPLY</b>                 | 230 V AC 1- Ø 50HZ  |

**STATIC PASS BOX  
(FLOOR MOUNTED)**

**STATIC PASS BOX  
(WALL MOUNTED)**



| INTERNAL DIMENSIONS |      |      | EXTERNAL DIMENSIONS |      |      |
|---------------------|------|------|---------------------|------|------|
| w                   | d    | h    | W                   | D    | H    |
| 1200                | 1200 | 1500 | 1300                | 1270 | 1700 |
| 1050                | 1050 | 1050 | 1150                | 1120 | 1250 |
| 1000                | 1000 | 1000 | 1100                | 1070 | 1200 |

| INTERNAL DIMENSIONS |     |      | EXTERNAL DIMENSIONS |     |      |
|---------------------|-----|------|---------------------|-----|------|
| w                   | d   | h    | W                   | D   | H    |
| 800                 | 900 | 1000 | 940                 | 970 | 1150 |
| 620                 | 600 | 700  | 760                 | 670 | 850  |
| 600                 | 600 | 600  | 740                 | 670 | 800  |

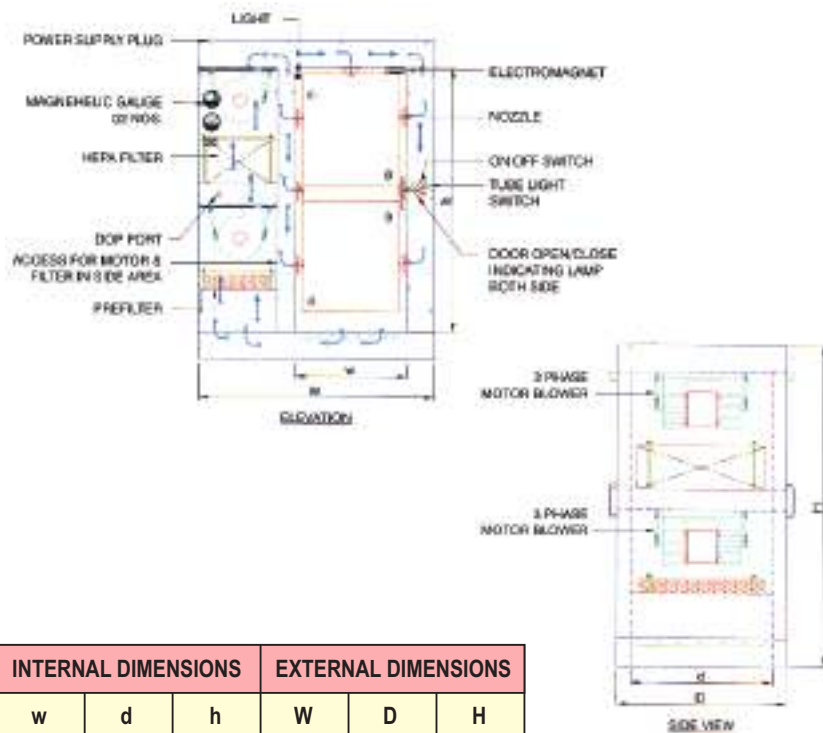
| Sr. No. | Item                         | Description   |
|---------|------------------------------|---|
| 1)      | MOC                          | SS 304 / SS 316 / Customised  |
| 2)      | HEART OF SYSTEM COMPRISES OF |   |
| 2.1     |                              | SS 304 double walled doors with glass view panels, SS handles, hinges               |
| 2.2     |                              | Electro - Magnetic Interlocking to ensure only one side door will be opened at time |
| 2.3     |                              | Indocating Lamp on both sides   |
| 2.4     |                              | Door release button on both sides   |
| 3)      | POWER SUPPLY                 | 230 V AC 1- ø 50HZ  |

**Optional Accessories**

- ★ Mechanical Interlocking
- ★ U.V. Light with Hour Meter with interlocking arrangement to put-off U.V. Light if either door opens
- ★ Support stand to mount the pass box on wall
- ★ Flange for sealing the gap between the pass box and the cleanroom wall
- ★ Flame Proof Fitting



# AIR SHOWER



| INTERNAL DIMENSIONS |      |      | EXTERNAL DIMENSIONS |      |      |
|---------------------|------|------|---------------------|------|------|
| w                   | d    | h    | W                   | D    | H    |
| 1200                | 2000 | 2000 | 2300                | 2200 | 2400 |
| 1200                | 1025 | 2000 | 2300                | 1225 | 2400 |
| 800                 | 1025 | 2000 | 1700                | 1225 | 2400 |

| Sr.No. | Item                                | Description   |
|--------|-------------------------------------|---|
| 1)     | <b>MOC</b>                          | SS 304 / SS 316 / Customised  |
| 2)     | <b>HEART OF SYSTEM COMPRISES OF</b> |   |
| 2.1    |                                     | Imported Minipleat HEPA Filter with hot melt technology, which conforms to EU-13/EU-14 Grade at supply position   |
| 2.2    |                                     | Pharma air make Return Air Prefilter which conforms to EU 6 Grade, with efficiency of 95% down to 5 µ   |
| 2.3    |                                     | Motor Blower provided are statically and dynamically balanced, Sufficient capacity and static pressure is maintained to take care of airflow requirement for entire life to HEPA. |
| 2.4    |                                     | Magnehelic Differential Pressure Gauge  |
| 2.5    |                                     | Tear Drop Light   |
| 2.6    |                                     | ON/OFF Switches for motor & Lights.   |
| 2.7    |                                     | DOP Test Port at upstream of HEPA filter  |
| 2.8    |                                     | Door with flushed glass view panels and door closer.  |
| 3)     | <b>PERFORMANCE</b>                  |   |
| 3.1    | Air Cleanliness                     | ISO Class 5 (ISO 14644-1:1999 (E))  |
| 3.2    | Air Velocities                      | 0.45 0.05 mps   |
| 3.3    | Air Flow                            | Horizontal / Vertical   |
| 3.4    | Noise Level                         | Less than 67 dB on Scale 'A' when Ambient is not greater than 55dB on Scale 'A'   |
| 3.5    | Vibration Level                     | Minimum   |
| 4)     | <b>POWER SUPPLY</b>                 | 230 V AC 1- Ø 50HZ  |



## Sterilizing and Depyrogenating Tunnels for Vials and Ampoules

Pharma Air ISO CLASS 5 continuous sterilizer is a fully automated system which utilizes dry heat by means of forced convection of filtered air, through high efficiency particulate air filter to achieve sterilization and depyrogenation of washed empty pharmaceutical glassware used of parenteral product packing.

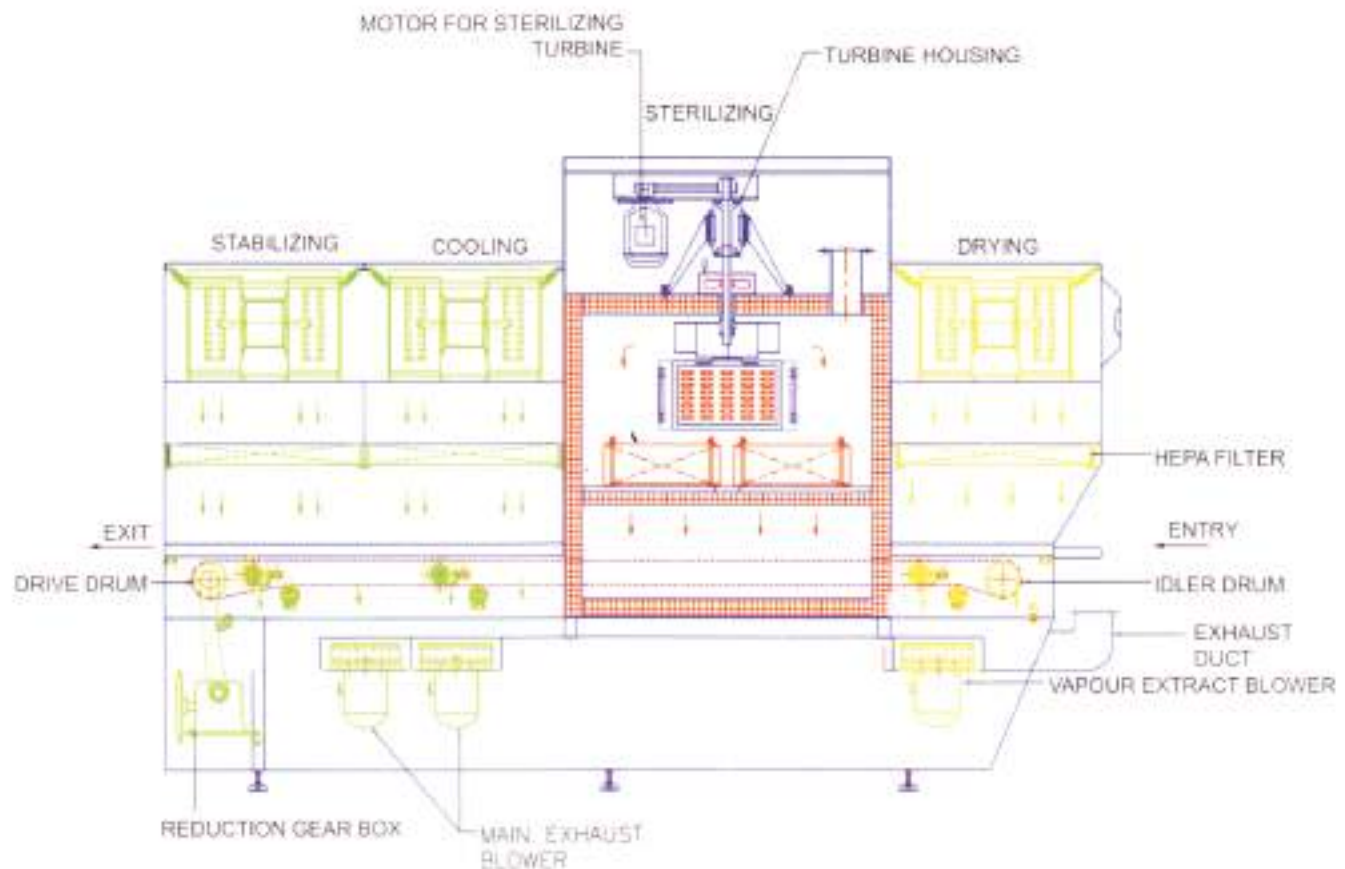
Pharma Air Continuous dry heat sterilizer ensures the glassware to exposed for depyrogenation temperature. The time required for the necessary reduction in endotoxins which at bare minimum >LOG3 at rated output.

The Sterilization Depyrogenation cycle is based on selection of Cycle times and exposure of temperature that will sterilize or depyrogenate the glassware to an acceptable low probability level of contamination, without adversely affecting the critical parameters of the product.



Generally heat destroys micro organisms. The destruction process of micro organisms is a function of time and temperature. The rate of destruction is linear logarithmic, means in a given time interval and at a given temperature, the same percentage of the bacterial population will be destroyed.

The Forced Conventional Dry Sterilizer consists of **Drying zone** to raise the temperature of the glassware and evaporate the wash water from the glassware. The **Sterilizing Zone** sterilize the glassware and evaporate the wash water from the glassware. The Sterilizing Zone sterilize the glassware at 350°C (approx.) And the third section consist of **Cooling & Sterilizing Zone** to restore the glassware temperature to ambient.



## SPECIFICATIONS FOR HEPA & PREFILTERS

### 1.0 STANDARD HEPA FILTERS WITH ALUMINIUM SEPARATORS

PHARMAAIR FILTER HEPA (High Efficiency Particulate Air) Filters are designed to remove particles down to 0.3 micron from air/gas streams with an efficiency exceeding 99.97%. Junior HEPA filters are rated for 50% DOP efficiency.

Unique properties of filter media : resists mildew, inhibits funga and bacterial growth, withstands corrosive chemical fumes including hydrofluoric acid.

The filter media is pleated (36-38 pleats per feet) back and forth to the required depth. Aluminium corrugated sheets are used between folds as separators.

The filter matrix pack housed in a rigid Aluminium frame, is bonded to the frame on all sides using suitable adhesive.

Each HEPA Filter is subjected to tests conforming to international standards especially IES recommended practices IES-RP-CC-001-86.



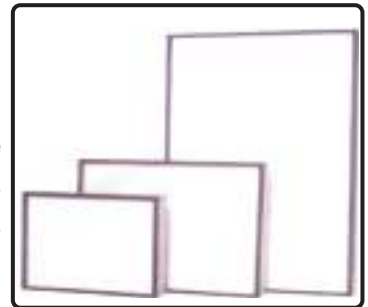
### 2.0 HIGH TEMPERATURE HEPA FILTERS

Unique properties of special grade reinforced filter media (suitable for temperature upto 400°C): resists mildew, inhibits fungal and bacterial growth, withstands corrosive chemical fumes including hydrofluoric acid.

The filter matrix pack housed in a rigid Stainless Steel frame, is bonded to the frame on all sides using special high temperature resistant resin.

### 3.0 SEPARATORLESS MINI PLEAT HEPA FILTERS

The filter media is pleated (85-90 pleats per feet) back and forth to the required depth supported by micro-fibreglass ribbons. The filter matrix is assembled in a rigid frame made of accurately pre-cut extruded aluminium sections with locking inserts and bonded to the frame on all sides using suitable adhesive.



### 4.0 PREFILTERS

Prefilters are designed to remove particles down to 3, 5 or 10 microns (identified as SUPER, STANDARD and JUNIOR) at retention efficiencies 99%, 98% and 95% respectively when tested as per BS 2831 using Test Dust II. The fibre glass media (4, 2, 1 layers respectively for 3, 5 & 10 microns) inhibits growth of microorganisms, it is sandwiched between 2 layers of HDP mesh and reinforced with anodized aluminium screens on both sides.

The filter matrix is housed in an aluminium sheet frame with flanges and closed-cell neoprene gasket. Filters can be cleaned with water, mild detergents or compressed air in reverse direction.

### 5.0 PREFILTERS (for High Temperature Application)

The fibre glass media (4, 2, 1 layers respectively for 3, 5 & 10 microns) inhibits growth of microorganisms, it is sandwiched between 2 layers of fibreglass cloth and reinforced with stainless steel screens on both sides. The filter matrix is housed in stainless steel sheet frame with flanges and closed-cell neoprene gasket. Filters can be cleaned with water, mild detergents or compressed air in reverse direction.



## Facilities

## Design-Engineering-Manufacturing-Construction

with 50,000 sq.ft manufacturing facility, which is well equipped with :

1. Amada CNC Punch Press from Japan
2. Amada CNC Bending Machine Press from Japan
3. Hydraulic Bending machines
4. Hydraulic Cutting machines
5. Advanced Machine Tools
6. Power Presses
7. Roll forming line
8. Powder coating equipment
9. Minipleat HEPA Machine
10. Puff Press & Puff Filling Machine



Marketed, Serviced & Qualified by:

## PHARMA AIR MODULAR SYSTEMS

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### Factory Add.: Unit-1

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Dist. Thane Maharashtra INDIA

### Regd.Off. & Fact.: 1344,

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