

## AIR SHOWER SPECIFICATIONS FOR WOOD/PLASTIC SD, TN AND CT AIR SHOWERS

### 1.0 PURPOSE AND SCOPE

This specification describes a factory fabricated air shower enclosure to be used for removing surface particles from personnel prior to entering a controlled environmental area or leaving a contaminate area. The air shower shall provide access to and from a cleanroom work area (or from a contaminated area) and shall be a high velocity, low air pressure system. Construction of all structures shall be structurally sound and esthetically pleasing.

### 2.0 MATERIALS

- 2.1 All materials used to be compatible with a cleanroom environment.
- 2.2 Walls will be of a hard, durable, non-particulating surface.

### 3.0 CONSTRUCTION

- 3.1 Enclosure: Prefabricated wall and roof section(s) with integral air duct plenum(s).
  - 3.1.1 Units shall be capable of supporting a minimum of 200 lbs per square foot with a maximum deflection of 0.25".
  - 3.1.2 Maintenance access shall be from the entry/exit ends, the sides or from above the mechanical section.
  - 3.1.3 All the enclosure panels surrounding the mechanical shall be removable.
  - 3.1.4 The mechanical section of the air shower shall contain blower/motor unit(s), air nozzles, HEPA filter(s), and electrical controls.
  - 3.1.5 The air shower shall be constructed of a melamine core that has all the surfaces covered in plastic laminate. All cutouts are sealed.
  - 3.1.6 Air nozzles shall be plastic construction, white in color, adjustable, with 0.875" diameter outlet

### 4.0 MOTORS AND BLOWERS

- 4.1 Motor to be 208-230 or 440- 480 volt/3phase/ 60Hz
- 4.2 Blowers/Fans
  - 4.2.1 Single paddle wheel non overloading fan blower.
  - 4.2.2 Size the high speed blower CFM to provide a minimum velocity of 7,000 feet per minute at the face of the nozzle.
  - 4.2.3 Blower fans will be capable of providing rated unit CFM from 0.6 inches to 1.2 inches static WG off the HEPA filter
  - 4.2.4 Blower fans will have permanent indication of correct rotation direction attached the blower housing.
- 4.3 Motor shall be NEMA design B with class A insulation, designed to operate in 40 degrees, have a 87.5% efficiency and have sealed ball bearings.

### 5.0 ELECTRICAL

- 5.1 Motors to be open drip proof and shall be 3500 R.P.M.
- 5.2 Lighting to be 24VDC that is powered by a step down transformer in the power panel.
  - 5.2.1 Lighting shall provide 40 candlepower at 36" above the floor.
  - 5.2.2 Lighting is provided by an LED strip light located in the ceiling.
- 5.3 Air shower PLC controller shall be 120 VAC.

- 5.4 Each air shower is to be provided with one non-fused disconnect. Disconnect shall be mounted in the power panel for the air shower. The power panel shall be connected to the air shower by a minimum of 8' of seal tight electrical flex. The installer shall mount the panel adjacent to the air shower clear of the air shower access panels.
- 5.5 Motor starter shall be short circuit and overload protected.
- 5.6 Wiring shall comply with NEC code.
- 5.7 Programmable controller shall have DC inputs and relay outputs. Timers shall be adjustable from 1 to 55 seconds (The PLC controller shall have a potentiometer that enables the timer value to be adjusted).

## 6.0 FILTERS

- 6.1 99.99% efficient at .3 microns HEPA filter with aluminum or steel frames.
- 6.2 Filters and seals shall provide for:
  - 6.2.1 A complete seal of the HEPA filter to its housing.
  - 6.2.2 Filter(s) easily accessible thru maintenance panels or above.
  - 6.2.3 Sufficient rigidity /bracing /clamping etc...to insure no filter or seal damage during normal shipping, handling, rigging, and installation.
- 6.3 Pre-filters shall be located at return air grille on the lowest part of the wall (or under the floor grate(s) for raised floor option) and shall be a MERV 7 panel filter.
- 6.4 HEPA filter plenums for high velocity blower shall be constructed of minimum 0.50" aluminum.

## 7.0 CONFIGURATIONS

- 7.1 Blower/motor inspections performed from access provided.
- 7.2 All service connections and access (except LED strip light) are from side access panels or above.
- 7.3 A 2" diameter sleeve through the roof section for a fire sprinkler. ASPT does not supply the fire sprinkler components.
- 7.4 Dimensions shall match those indicated on our literature (or customer specified on custom units) with a minimum tolerance of .0625"

## 8.0 CYCLE CONTROL

- 8.1 The exit doors of the air shower will be locked when the entry door is open.
- 8.2 The air shower cycle will begin upon entry to the air shower after entry door closes.
- 8.3 All doors will be locked during the air shower cycle.
- 8.4 High velocity blower will run 15 seconds (user adjustable)
- 8.5 The personnel shall proceed out the exit door (the entry door remains locked)
- 8.7 Once the exit door shuts all doors unlock and the system resets.
- 8.8 When the exit door opens first the air shower acts as an air lock and the blower does not run.

## 9.0 DOORS

- 9.1 Doors shall be clear anodized aluminum frame doors with .025" clear tempered glass.
- 9.2 Doors shall be interlocked with 24VDC magnetic door locks with 600 pounds holding force.
- 9.3 Doors shall be sealed on the top and two sides of the jamb with door seal and a drag sweep shall be supplied for the bottom of the door (which is field installed)

## 10.0 NOISE AND VIBRATIONS

- 10.1 Units maximum noise level is 74dba, with a back ground noise level of 10dba. Interior noise levels shall not exceed 87 dba.
- 10.2 Fan/Blower assembly to be isolated by means of rubber isolator pads.