

AIR SHOWER SPECIFICATIONS (ALL MODELS)

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 for exiting a contaminated area. The air shower shall provide access to and from a work 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 Clean Room environments.
- 2.2 Walls will be of a hard, durable, non-particulating surface.

3.0 CONSTRUCTION

- 3.1 Enclosure: Prefabricated wall and roof sections with integral air duct plenums.
 - 3.1.1 Units shall be self contained, self supporting, capable of supporting a minimum of 200 lbs per square foot with a maximum deflection of .25".
 - 3.1.2 Maintenance access shall be from the ends, sides or from above
 - 3.1.3 Access panels shall be provided on the access sides that are selected by the customer.
 - 3.1.4 The mechanical section of the air shower shall contain blower/motor units, air nozzles, HEPA filters, and electrical controls.
 - 3.1.5 The air shower shall be constructed of one of the following materials;
 - 3.1.5.1 Wood core with a white plastic laminate finish (standard)
 - 3.1.5.2 Wood core with a white painted aluminum skin finish (optional)
 - 3.1.5.3 Aluminum honeycomb stopped into an extruded aluminum frame (optional)
 - 3.1.5.4 Painted Steel (optional)
 - 3.1.5.5 304 Stainless Steel (optional)
 - 3.1.6 Air nozzles shall be plastic construction, white in color, adjustable, with .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 Direct drive blower with an aluminum non-overloading paddle wheel fan blade
 - 4.2.2 Size the high speed blower CFM to provide a minimum velocity of 7,000 FPM at the face of the nozzles.
 - 4.2.3 Blower fans will be capable of providing rated unit CFM from 0.6 inches to 1.5 inches static WG off the HEPA
 - 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 F insulation, designed to operate in 40C degree ambient temperature with a 1.15 service factor and have sealed ball bearings. The motor shall have a nominal efficiency of 85.5. Motor shall be inverter rated and shall be open drip proof

5.0 ELECTRICAL

- 5.1 Lighting to be 120 VAC that is powered by a step down transformer in the power panel.
 - 5.1.1 Provide number of tubes to deliver 40 candles at 3 feet above floor.
 - 5.1.2 Ballasts shall be high efficiency
 - 5.1.3 Lamps shall be T-8 high efficiency
- 5.3 Air shower 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 air shower power panel
- 5.5 The power panel is connected to (8) feet of flex from the roof to the power panel for mounting to an adjacent wall away from the air shower access panels.
- 5.6 Motor starter shall be short circuit and overload protected.
- 5.7 Wiring shall comply with NEC code.
- 5.8 Programmable controller shall have DC inputs and relay outputs. Timers shall be adjustable from .5 to 60 seconds (The blower cycle shall use the analog timer, which is adjustable from a small phillips head screw on the face of the controller).

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 Class100
 - 6.2.2 Filters 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 and shall be 30% efficiency (MERV 7)
- 6.4 HEPA filter plenums for high velocity blower shall be constructed of minimum .50" aluminum.

7.0 CONFIGURATIONS

- 7.1 Blower/motor inspections performed from access provided.
- 7.2 All service connections and access (except lamps) from side access panels or above.
- 7.3 If required, a 2" I.D. plastic sleeve will be furnished in mechanical section for sprinkler heads, (sprinkler heads and drops by others.)
- 7.4 Dimensions to be specified by customer, and verified on A.S.P.T. drawing:
 - 7.4.1 Length to be exactly as specified (no creep).
 - 7.4.2 Exterior width to be exactly as specified.
 - 7.4.3 Height as specified.
 - 7.4.4 Blower cabinet access location as specified.
- 7.5 Blowers and filters shall be located on top of air shower for SD models and on the side for LP models.
- 7.6 Air showers longer than (8) feet shall be the TN model.

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 20 seconds.
- 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.

9.0 DOORS

- 9.1 Doors shall be clear anodized aluminum frame doors with ¼” 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 Pemko # 285CPK seals
- 9.4 Door bottom shall have a 307AV door sweep.

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 88 dba.
- 10.2 Fan/Blower assembly to be isolated by means of rubber isolator pads.

11.0 WARRANTY

- 11.1 The manufacturer will exchange or repair, F.O.B. our plant any air shower component found defective in workmanship and/or material, subject to plant inspection, for a period of one (1) year from date of installation, or 410 days from date of shipment. Warranty does not include field service labor for removal and replacement of defective parts. The installing contractor or end user shall be responsible for removal and installation of component. This warranty does not cover loss or damages resulting from causes beyond manufacturer's control, or misuse, neglect, accident, or acts of God. Warranty is for normal use and service. The warranty will not apply to equipment which has been repaired or altered so as to adversely affect condition of operation. Warranty will not obligate manufacturer for damages resulting from such alterations, misuse or acts of God.
- 11.2 Warranty is not transferable