

quantum air technology

controlling your environment

Air Guard System

Introduction

The Air-Guard System is a means of defence against biological and chemical attack. Using the latest defence technology, the Air-Guard uses an air management unit to draw in air from outside a designated room to pressurize it. This ensures there can be no inward leaks into the room from potentially contaminated air outside. The air as it passes through the unit is biologically and then chemically cleaned by special filters designed to defence standards. This means that the air entering the room to create the over-pressure will be free of any biological or chemical warfare agents. The system is inexpensive to purchase and simple to install, requiring only a room in the house which is reasonably sealable.



Principle Features

Applying defence technology developed over many years, Quantum Air Technology has made levels of protection previously reserved only for military personnel, available to everyone. A complete room in a house can be protected from bio-chemical attack, as long as it is reasonably sealable, and connects with an adjoining area such as a hallway, which is heated and ventilated. The Air-Guard unit is about the size of a domestic dehumidifier, and constructed from polyester coated steel. It is on castors making it easy to transport and move within any room. The unit

is powered from the domestic power supply and takes only 100 watts (similar to a light bulb). It has its own internal battery power supply allowing it to run for many hours in the event of a power failure. The only work required to install the system is a 75 mm hole drilled in an internal door. This takes the fitting, which supports the air hose and metering tube. Once installed, the unit can be started and the digital instrumentation on the control panel, gives an indication of how well sealed the room is. Taping up window frames etc can improve sealing, until a safe pressure of +70 Pa is reached and

displayed on a digital display. Further taping causes the fully automatic fan control system to reduce the duty of the fan, and the air volume flow rate. This has the effect of increasing the efficiency of the air filtration, as the air takes longer to pass through the filters. As this is undertaken, a reduction in fan noise is noticed signifying an increased safety factor and battery run time, which is also displayed digitally.

In the event that an easy-to-seal room is not available, or the site to be protected is just too large, a flexible film tent or envelope can be supplied with the Air-Guard unit, to create a bio-chemically protected safe zone inside.

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Mechanical Specification

The Air-Guard has overall dimensions 360 x 360 x 795 mm (w, d, h). The shell is fabricated from polyester coated mild steel, with castors fitted to the base for ease of moving. A membrane control panel is mounted on the front towards the top, with the exhaust air grilles on the reverse panel. Air is drawn from an adjacent area via a door fitting and a 75 mm diameter flexible hose, which is connected to the base of the Air-Guard.

Inside the unit are located the filters. The HEPA filter is nearest the base, with the carbon filter mounted above. Above the carbon filter in the top section is located the supply fan and the main circuit board which is mounted immediately behind the membrane control panel. An appliance coupler socket for mains power connection is also mounted on the top panel.

The weight of the unit is 30 kg.

Performance Specification

Air Volume Flow: 0.042m³/s
 Max Room Leakage: 6500mm²
 Door Linear Leak: 2.2m
 HEPA Face Velocity: 0.45m/s

HEPA ΔP: 125Pa
 Carbon Filter ΔP: 200Pa
 Duct System ΔP: 108Pa
 System ΔP: 433Pa

Noise Level: 60dBA

All HEPA Filters to 99.997% Efficiency BS 3928 (0.5 to 0.6 μm). Also to 99.998% Efficiency Mil Standard 282 DOP (0.3 μm).

Air Filtered to:

BS 5295 Class F
 EU GMP Class B
 FED 209E Class 100
 ISO 14644 Class 5

Electrical Specification

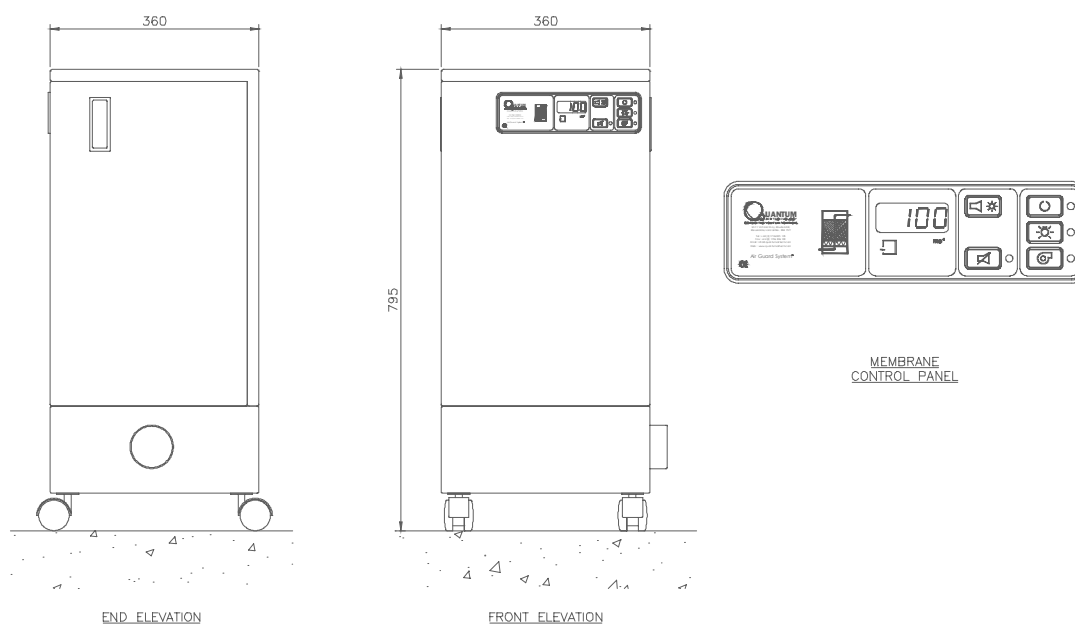
Fan: EBM forward curved vane impellor type G1G 160-BD 29-52. Rated at: 24 VDC, 98 W, 5.1 A. Control by PWM signal.

Main Circuit Board: Proprietary design 24 VDC input.

Internal Power Supply: Switch mode device rated at 24 VDC, 5 A, with a regulated output.

Batteries: 2 off sealed lead-acid 12 V type NPC 12 Amp hour capacity.

Membrane Control Panel: 4 zone panel comprising information, main control, alarm control, and metering display zones. Direct connection to circuit board via 4-conductor tail.



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