MAC 10® LE-DC 4x4

FAMILY OF FAN FILTER UNITS

USED IN:

- MICROELECTRONICS
- MEDICAL DEVICE
- SEMICONDUCTOR
- DISK DRIVE
- LABORATORY
- PHARMACEUTICAL MARKETS
- HOSPITALS
- CLEAN ROOMS

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MAC 10® LE-DC 4x4 Introduction

The MAC 10® is designed for the most challenging cleanroom applications. It offers significant cost savings and electrical efficiencies for large cleanrooms.
The MAC 10® LE-DC 4x4 maximizes energy efficiencies with its exclusive backward blower wheel design. It provides 0.45m/s airflow and up to 250Pa of ESP (External Static Pressure) capability in clean un-loaded conditions, enabling cleanroom projects to operate cost effectively.

Fewer components mean lower installed costs. With the use of the MAC 10® LE-DC 4x4 unit, additional savings are captured in the ceiling plenum because less grid is required and fewer electrical connections are needed. Even better, this model also provides a lower sound level than most competitive 600mm x 1,210mm fan filter units.

MAC 10® LE-DC 4x4

Standard Features

- Low sound, low watts, low profile and low operating costs.
- Energy efficient DC motor (1/2hp / 0.37kW).
- Universal Controller allows the following.
  - Manual control via the integral potentiometer.
  - Remote speed control via 0-10V analogue signal.
  - Network control via ModBus® compatible RTU network protocol.
- High Efficiency Particulate Air (HEPA) filter, 99.99% efficient at 0.3 micron particle size (H13).
- 250Pa of external static pressure capability at 0.45m/s with HEPA (H13) filter in clean un-loaded conditions.
- Aluminium construction with a mill finish for durability.
- 230V CE marked.
- Protective inlet ring.

Options

- Ultra Low Penetration Air (ULPA) filter - 99.9995% efficient at 0.12 micron particle size (U15) and U16 filters available.
- Monitoring and Control System – A range of Console and PLC options are available for stand-alone or integrated BMS network control solutions.
- The exterior is available powder-coated.
- Room-Side Replacement (RSR) available with gel seal filter. The filter is replaced from the roomside.
- RSRE provides filter and motor/blower assembly replacement from the roomside.

Warranty

- Limited 1-year warranty.

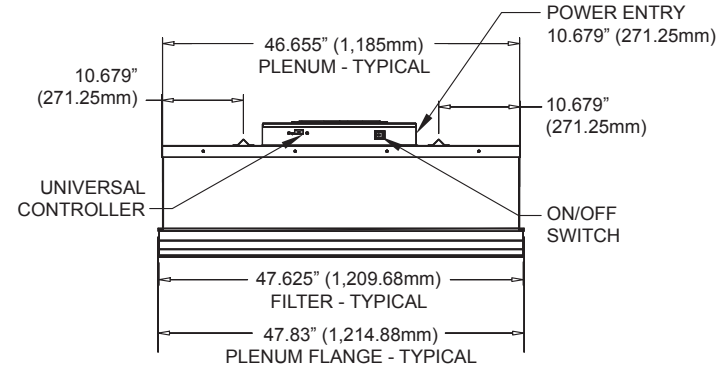
Specifications

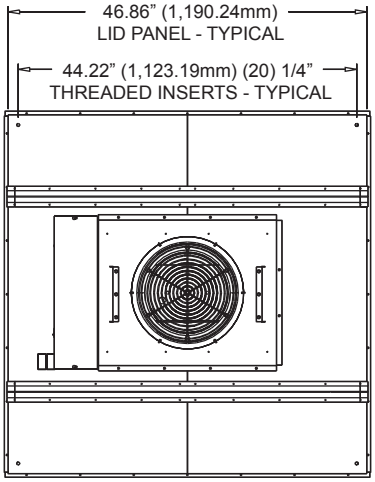
Construction
Welded aluminium cabinet.

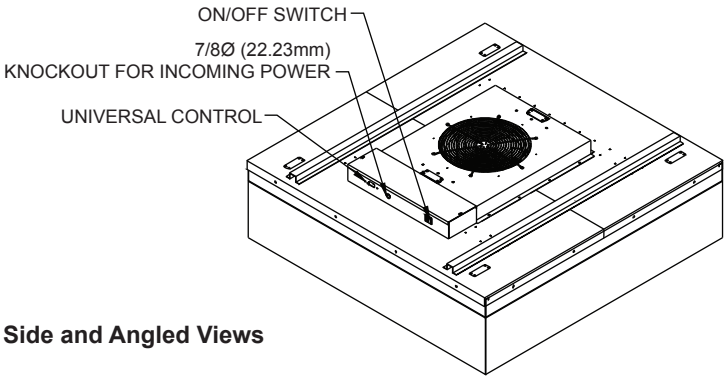
Filters
Aluminium framed High Efficiency Particulate Air (HEPA) type, with a minimum efficiency of 99.99% @ 0.3 micron (H13) aerosol challenged (zero probed). H14, U15 and U16 filters can be supplied upon request.

Motor/Blower Assembly
Direct drive, continuous duty 1/2 Hp (0.37kW) EC motor with sealed-for-life bearings and inherent overload protection. The blower assembly is electronically (dynamically) balanced and is designed to provide rated airflow through a 50% increase in initial static pressure.

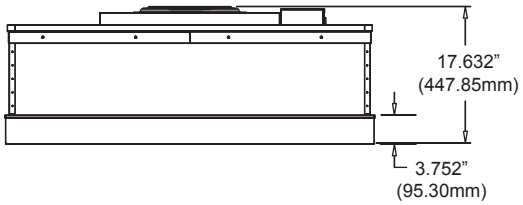
Dimensions







Side and Angled Views



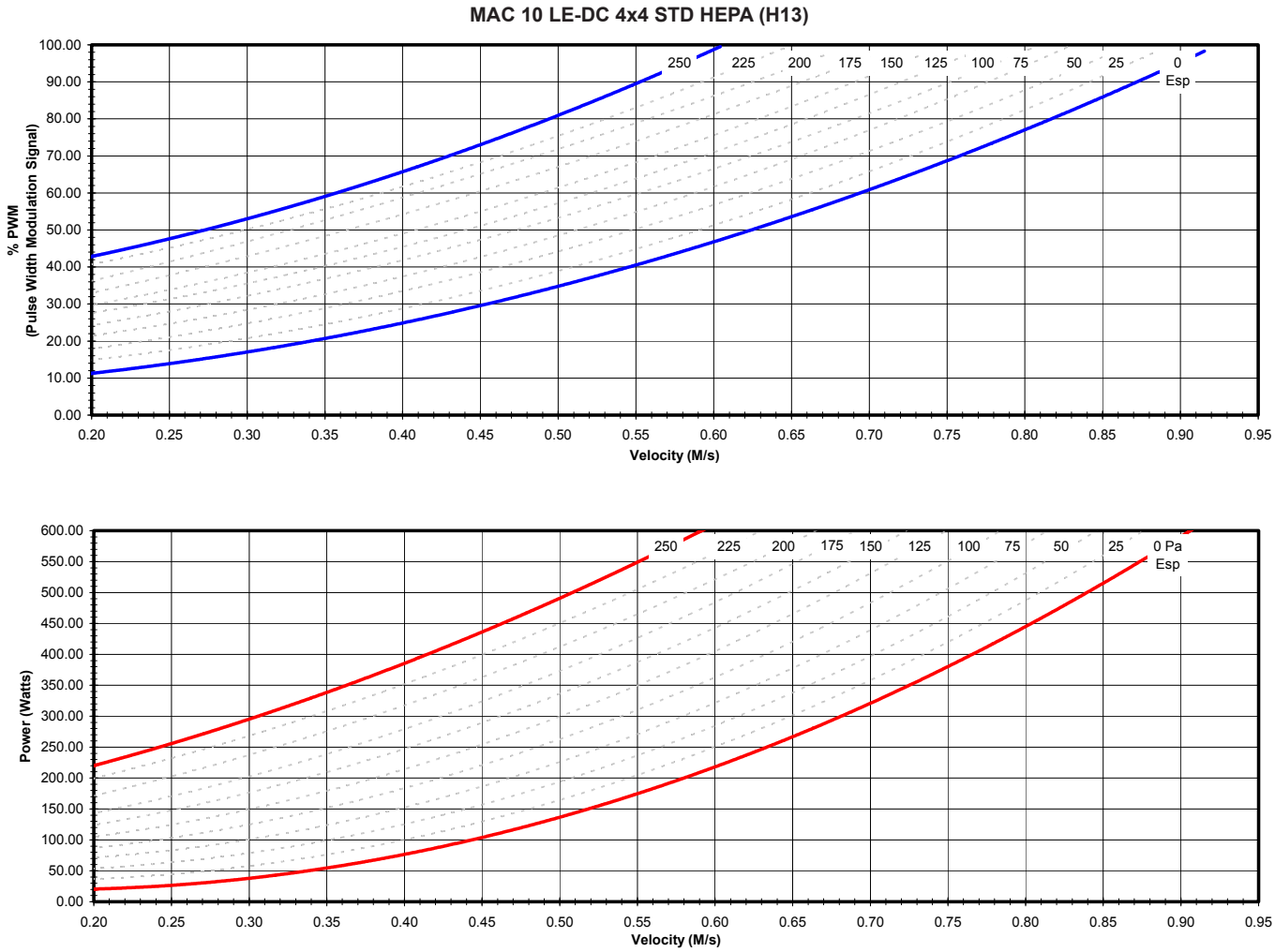
Top & Side Views

Performance 4x4 Standard, RSR, & RSRE

NOMINAL UNIT SIZE	MAX m/h	WATTS @ 0.45m/s	UNIT WEIGHT (kg)
Standard	3,315	105	61.23
RSR & RSRE	3,230	115	68.04

NOTES:
Test data is taken with a vane anemometer at 0.45m/s in clean un-loaded conditions (0Pa ESP).
Full Load Current; 230V, 50Hz, 1 Ph = 3.2A.
The initial current exceeds 3.2A momentarily; suitable circuit breakers should be installed.

Performance Charts



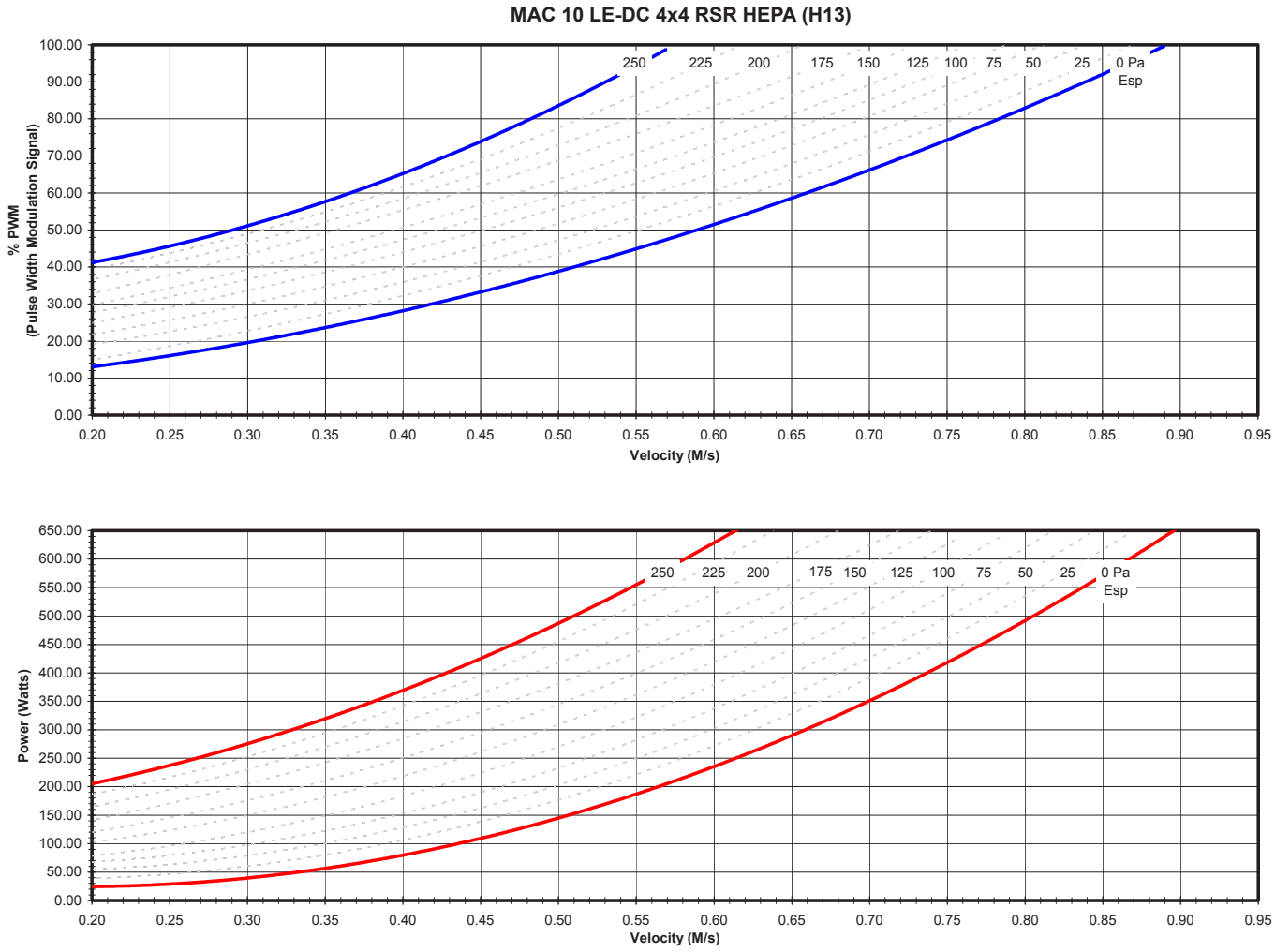
Test data taken with a vane anemometer.
Testing performed in accordance with IEST Recommended Practices IEST-RP-CC006.3
Includes initial clean filter pressure losses.
Active Filter Face Area* = 1.33 m2.
% PWM = Motor Controller Pulse Width Modulation Signal

Unit Operating Amps = Watts / (Volts x Power Factor)
Power Factor
@ 20% PWM = 0.61
@ 40% PWM = 0.67
@ 60% PWM = 0.71
@ 80% PWM = 0.74
@ 100% PWM = 0.74

Sensible Heat Gain:
Total Heat Method - Btu/hr = 3.431 x Motor Watts
Motor Efficiency Method = Btu/hr = 3.431 x .35 x Motor Watts

**Active filter face area does not include area losses due to protective screens.*
***Due to variations in filter protective screens, actual values measured 152mm from filter face in accordance with IEST Standards, may vary from charted values.*

Performance Charts



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Hospital & Healthcare

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