

MAC IO Original & IQ

FAMILY OF FAN FILTER UNITS

+

FOR USE IN:
MICROELECTRONICS

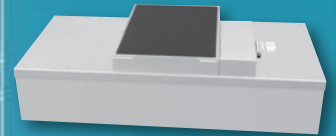
MEDICAL DEVICE

SEMICONDUCTOR

DISK DRIVE

LABORATORY

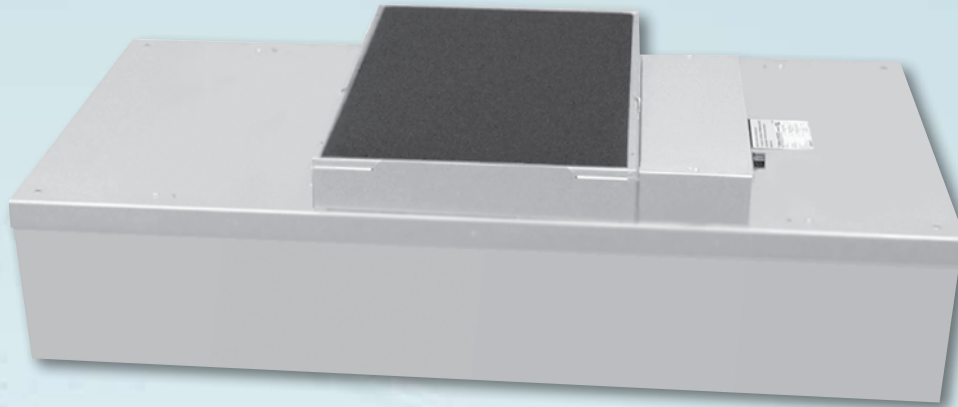
PHARMACEUTICAL
MARKETS



W W W . E N V I R C O . C O M

ENVIRCO MANUFACTURES A COMPLETE LINE OF CLEAN AIR SYSTEMS FOR INDUSTRIES REQUIRING ULTRA-CLEAN ENVIRONMENTS FOR CRITICAL TECHNOLOGIES.

 **ENVIRCO**
Innovators in clean air technology



■ Introduction

Extra low watts, sound, and profile.

As the newest addition to Envirco's MAC 10 Fan Filter Unit (FFU) family, the MAC 10 Original is the only FFU combining low sound, low watts and a low profile. Measuring only 51 dBA, the MAC 10 Original Standard (2 ft x 4 ft [600 mm x 1,210 mm]) provides one of the lowest sound levels of any FFU in the industry. Running at only 240 watts @ 90 fpm, the unit uses less energy than traditional FFUs, lowering operating costs. The MAC 10 Original maintains a low profile, measuring less than 13 in. (330 mm).

MAC 10 Original comes standard with the filter integral with the unit housing, requiring the unit be removed from the ceiling grid to replace the filter. The RSR unit has the filter sealed to the unit using the knife edge/gel seal construction, allowing the filter to be replaced from the roomside. The RSRE unit has the added feature of allowing the motor to be replaced from the roomside.

■ Features

- » Low sound, low watts, low profile, and low operating costs.
- » Three speed switch features low, medium, and high settings; standard on all 2 ft x 4 ft (600mm x 1,210mm) and 2 ft x 3.5 ft (600mm x 1,057mm) units.
- » Solid-state speed control standard on 2 ft x 2 ft (600mm x 600 mm) and 2 ft x 3 ft (600mm x 905mm) units.
- » Forward-inclined centrifugal-type fan.
- » High Efficiency Particulate Air (HEPA) Filter: 99.99% efficient @ 0.3 micron
- » Snap-in prefilter allows for easy replacement and maintenance.
- » Walkable plenum (excluding prefilter)
- » Mill finished aluminum exterior.
- » Meets IEST recommended practices.

■ Options

- » Solid-State Speed Control: Available on 2 ft x 4 ft (600mm x 1,210mm) and 2 ft x 3.5 ft (600mm x 1,057mm) units; allows for a full range of settings.
- » Room-Side Replacement (RSR) available with gel seal filter element; filter is replacement from the roomside.
- » RSRE provides filter and motor/blower assembly replacement from the roomside.
- » Ultra-low Penetration Air (ULPA) Filter: 99.9995% efficient @ 0.12 micron (U15).
- » ePTFE boron-free ULPA filter.
- » UL listed (120 V, 240 V, 277 V) with standard UL 900 Class 2 filter.
- » Airflow Indicator Light: Allows external monitoring of motor operation. Red indicator is on during normal operation.
- » Monitoring and Control System: On-site or remote monitoring and adjustment.
- » CE Marked: 230 V units available.
- » A/C Collar (12 in [305mm] diameter) allows direct connection to the air conditioning supply.
- » Fluorescent Light: Provides illumination with minimal airflow disruption.
- » Ion Bar: Neutralizes static charges below the filter.
- » Finish: Powder coat painted or stainless steel.
- » Power Cord: Provides convenient plug-in connection for non-permanent applications (non-UL).
- » Challenge Port: Offers convenient aerosol challenge and filter testing.
- » Knife Edge: Permits easy placement in gel track ceiling grid system (available on RSR and RSRE units only).
- » Custom sizes and configurations available; perfect for mini-environment applications.
- » Metric sizes available

■ Introduction

The first FFU with a built-in brain.

The MAC 10 IQ is the world's first smart fan filter unit. With its microcomputer-controlled DC motor, the MAC 10 IQ dynamically adjusts itself to maintain the set airflow, compensating for changes in static pressure, filter loading or other local conditions. Competitively priced, the MAC 10 IQ offers low sound, low energy consumption, and a low profile with high performance and built-in intelligent control.

While Enviroco has introduced a variety of proprietary products, one of its most successful continues to be the MAC 10 family of fan filter units (FFUs). MAC 10 FFUs are used worldwide for a variety of critical clean air applications.

The novel MAC 10 IQ FFU uses a combination of DC motor technology with Enviroco's patented baffling system and forward curve fan to make it intelligent and energy-efficient. This unique combination takes advantage of Enviroco's expertise in FFUs and energy efficiency of DC motors.

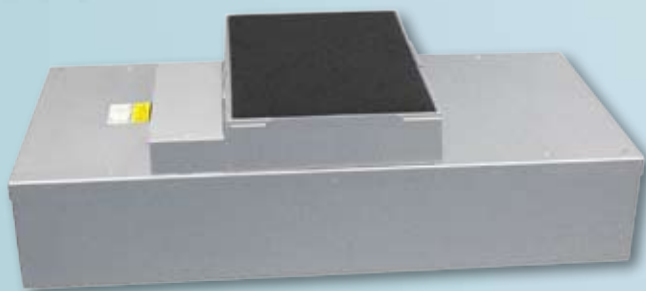
The electronically commutative (EC) motor with internal micro-computer provides low energy consumption (100 W @ 90 ft/min (0.45 m/s), high performance and long motor life. The IQ utilizes Enviroco's patented VE5 baffling technology, offering low sound levels that are a MAC 10 family benchmark.

Constant airflow.

Unlike conventional induction motors, the EC motor regulates itself by automatically adjusting its torque and speed. Each MAC 10 IQ includes a visual control unit which provides a constant airflow of 50-130 ft/min (0.25 – 0.66 m/s) over a wide range of static pressure.

The MAC 10 IQ maintains airflow so constantly and consistently that the need for future balancing is greatly reduced. The correlated velocity feature of the visual control unit provides infinite control and fine tuning capabilities for each FFU.

The MAC 10 IQ efficiently and easily maintains set clean room airflow velocities that meet IEST Recommended Practices. With its unique constant airflow feature, the MAC 10 IQ is also an ideal component for mini-environments.



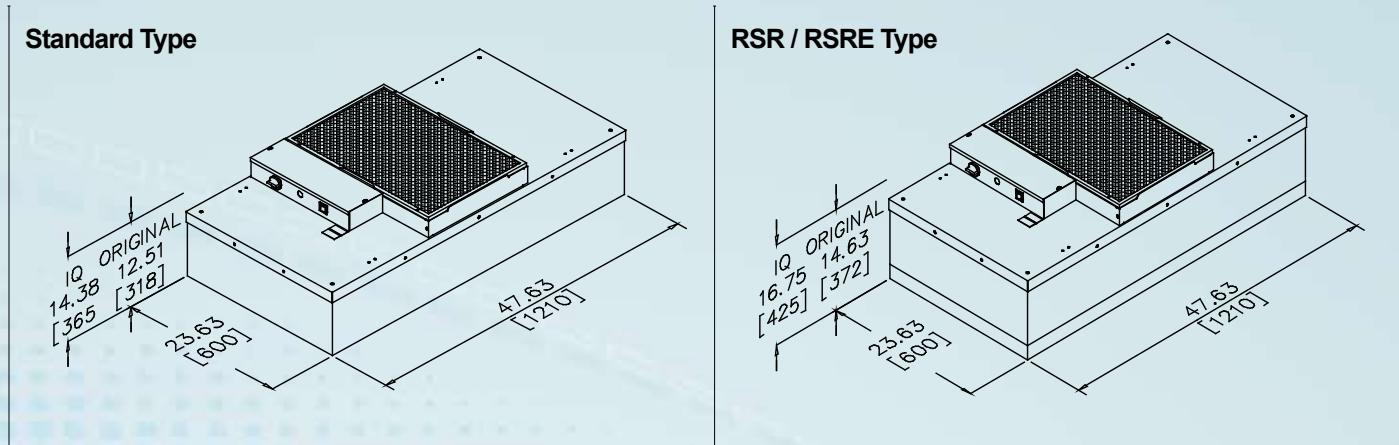
■ Features

- » EC brushless DC motor with internal microprocessor.
- » Visual Control Unit: Constant airflow over a wide range of external static pressures.
- » Low power consumption at 125 watts.
- » Low sound at only 51 dBA.
- » High Efficiency Particulate Air (HEPA) Filter: 99.99% @ 0.3 micron.
- » 0.6 in wg (200 Pa) of external static capability at 90 ft/min (0.45 m/s).
- » Forward-inclined centrifugal-type fan.
- » Walkable plenum (excluding prefilter).
- » Snap-in Prefilter: No tools required for easy replacement and maintenance.
- » Mill finished aluminum exterior.
- » Meets IEST recommended practices.

■ Options

- » Room-Side Replacement (RSR) available with gel seal filter element; filter is replacement from the roomside.
- » RSRE provides filter and motor/blower assembly replacement from the roomside.
- » Controls include handheld Infrared control, 0-10Vdc (4-20mA), and monitoring and control system. On-site or remote monitoring and adjustment available.
- » A/C Collar (12 in [305 mm] diameter): Direct connection to air conditioning supply. Customer must notify factory prior to purchasing a MAC 10 IQ with a duct collar.
- » CE Marked: 230 units available.
- » Ultra-low penetration air filter (ULPA): 99.9995% @ 0.12 micron (U15).
- » ePTFE boron-free ULPA filter.
- » UL listed (120 V, 240 V, 277 V) with standard UL 900 Class 2 filter.
- » Fluorescent Light: Provides illumination with minimal airflow disruption.
- » Ion Bar: Neutralizes static charges below the filter.
- » Finish: Powder coat painted or stainless steel.
- » Power Cord: Provides convenient plug-in connection for non-permanent applications (non UL).
- » Challenge Port: Offers convenient aerosol challenge and HEPA filter testing
- » Knife Edge: Permits easy placement in gel track ceiling grid systems (available on RSR and RSRE units only).
- » Custom sizes and configurations available; perfect for mini-environment applications.
- » Metric sizes available.

■ Dimensions



■ Performance

UNIT SIZE	MAC 10 ORIGINAL 1/5 Hp AC Motor			MAC 10 IQ 1/3 Hp ECM Motor		
	HIGH SPEED (Velocity) ft/min	90 ft/min (Airflow/Watts)	WEIGHT lbs(kg)	HIGH SPEED (Velocity) ft/min	90 ft/min (Airflow/Watts)	WEIGHT lbs(kg)
2 x 4 Standard 23.63" x 47.63" 600mm x 1210mm	126 / 340	90 / 240	66 (30)	127 / 220	90 / 105	66 (30)
2 x 3 Standard 23.63" x 35.63" 600mm x 905mm	140 / 340	90 / 190	52 (29)	127 / 190	90 / 80	52 (29)
2 x 2 Standard 23.63" x 35.63" 600mm x 600mm	190 / 340	90 / 150	41 (19)	127 / 190	90 / 80	41 (19)
2 x 4 RSR 23.63" x 47.63" 600mm x 1210mm	123 / 340	90 / 200	71 (32)	120 / 285	90 / 140	71 (32)
2 x 3 RSR 23.63" x 35.63" 600mm x 905mm	135 / 340	90 / 148	54 (24.5)	120 / 250	90 / 110	54 (24.5)
2 x 2 RSR 23.63" x 35.63" 600mm x 905mm	145 / 340	90 / 120	44 (20)	120 / 250	90 / 110	44 (20)

Notes:

All test data is measured at 90 ft/min (0.45 m/s), test data is taken with an electronic micromanometer with Velgrid attachment; eight readings in unloaded conditions. Measurement with two Velgrid reading centered on each half of the 2 x 4 filter gives readings equal to the eight readings.

MAC 10 Original:

Full-Load Amps: 120V/60Hz/1 Ph = 3.0; 208-240V/50/60 Hz/1 Ph = 1.5; 277V/60 Hz/ 1 Ph = 1.2.

MAC 10 2 x 4 is available with either the three-speed switch or a speed control, 2 x 3 and 2 x 2 units come standard with a speed control. Custom sizes are available. Consult the factory for both size and control options.

MAC 10 IQ:

Full-Load Amps: 120V/60Hz/1 Ph = 3.4; 208-240V/50/60 Hz/1 Ph = 1.9; 277V/60 Hz/ 1 Ph = 1.7.

The MAC 10 IQ motor is programmed to operate between 50 fpm and 130 fpm. For requirements outside this range consult factory. Notify the factory when installing the MAC 10 IQ with a duct collar connection. Custom sizes are available. Consult the factory for both size and control options.

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