

General

The Flanders-Precisionaire PurePac Electronic Air Purification System is designed for reliable, high efficiency air filtration required in today's commercial building environments. It is available in both side access housings and front access units, for use with air handlers and central ventilation systems.

PurePac is a new generation electronic air purifier, incorporating highly dependable high frequency electronics that deliver the specified efficiency instantly and continuously. The extremely low resistance to airflow means less fan horsepower is needed, compared to conventional media filters, and because the resistance is constant, the system air volume is always maintained. Permanent aluminum collectors, built-in automatic cleaning and a low 35 watts per 1,000 cfm energy usage, result in a substantially lower life cycle cost, compared to conventional air filtration systems.

High performance and low operating cost make PurePac an excellent choice for HVAC system

filtration. Optional TechSorb High Mass Zero Dust bonded activated carbon is available for gas phase/odor control, making PurePac the IDEAL SOLUTION for quality indoor air.

Configuration

PurePac Side Access units are available in sizes ranging from 3,000 to 30,000 cfm. Housings are 16 gauge galvanealed steel, continuously welded, primed and painted. Pre and post mist eliminators, electronic collectors and built-in cleaning system are factory assembled into the housing. PLC control and detergent dispenser are supplied as separate components.

PurePac front access units are available in sizes ranging from 12,000 to unlimited cfm. Pre and post mist eliminators, electronic collector modules, built-in cleaning system, Unistrut, framing, PLC control and detergent dispenser are furnished as built-up sub-assemblies

Key Features

- Reliable high frequency electronics do not use fragile ionizing wires or insulators
- Specified ASHRAE 52.1-92 efficiency is instant and constant
- Resistance to airflow is a low 0.25 \hat{i} w.g., resulting in reduced fan horsepower
- Constant resistance to airflow prevents fluctuations in system air volume
- Permanent aluminum collector modules never need replacing
- Built-in automatic cleaning and PLC controls
- Optional TechSorb bonded carbon for gas/odor control
- Available in side access housings or front access units
- Rugged design lasts the life of a HVAC system
- Interfaces with Building Management System





Today's IAQ Challenges

The effort to increase performance and efficiency of buildings has resulted in tighter construction and reduced air infiltration. Airborne particulate and gas phase contaminants released from paint, carpeting, wallpaper, insulation, copy machines, and cleaning agents become trapped in the work environment.

A typical ventilation system recirculates 80-90% of the total air volume in the building, and introduces 10-20% outside (make-up) air to the recirculated air, in order to dilute the airborne contaminants and reduce staleness. However, make-up air often introduces new pollutants to the building, such as diesel and gasoline engine exhaust, mold, pollen, dust, offensive odors and other common outdoor pollutants.

The key to providing healthy indoor air is reducing the levels of airborne particulate and gas phase contaminants. A successful ventilation system reduces the levels of contaminants through high efficiency filtration and gas phase control, while at the same time, reducing maintenance, upkeep, and operating costs.

Filtration System Considerations

PurePac's particle collection efficiency is continuous and not highly dependent on particle size or filter loading, therefore actual efficiencies of 90-95% and higher can be achieved at an economical operating cost.

PurePac is available with optional TechSorb HMZD impregnated bonded carbon panels for gas phase contaminant and odor control. The rigid panels eliminate air by-pass, channeling and settling, which are typical with conventional loose granular carbon filters. The disposable HMZD panels also offer clean, easy, removal and replacement.

The operating cost to move ventilation air through a filtration system is directly related to the filter resistance. PurePac's low and constant 0.25i w.g. resistance results in reduced fan horsepower and a significant energy savings compared to conventional filtration. Since PurePac's efficiency is instant and continuous, fouling of heating and cooling coils is reduced, resulting in higher performance and reduced operating cost of the system.

PurePac incorporates a permanent self-cleaning system, eliminating the replacement and labor cost of buying, changing, and disposing of filters. A life cycle cost analysis almost always shows that PurePac's performance and reliability can be justified.

Today's Solution

PurePac is designed to work in conjunction with a building's air handling units and ventilation systems, delivering the specified level of efficiency, continuously and reliably.

High reliability, optimum performance, and low operating cost make PurePac the IDEAL SOLUTION for today's indoor air quality challenges.

Performance

PurePac uses a 2-stage electronic collector for particulate control. A high-density, low power first stage charges each particle. The charged particles then travel downstream into the second stage where they are repelled from the air stream, captured, and retained on collector plates.

The electronic collector uses an airfoil design that eliminates air-bypass, so all of the HVAC system air and airborne particulate pass directly through the

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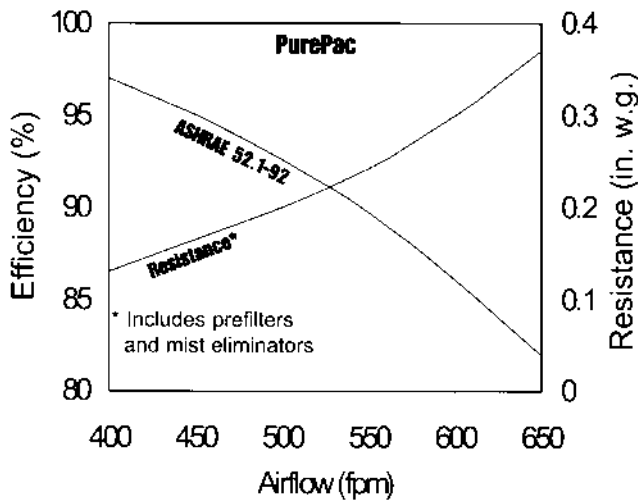
Engineered Products: 1-800-637-2803

Replacement Products: 1-800-347-2220

PurePac Delivers

charging and collecting stages. This assures that all system air is filtered.

Conventional media filters rely on fiber density for particulate removal efficiency. A media filter is rated efficiency is based on the average efficiency over the filter is life. Since the initial filter efficiency is lower than the rated efficiency, a substantial amount of particles go unfiltered. In contrast, PurePac delivers the rated efficiency instantly and continuously. The high-density charging and collecting zones produce an immediate and constant removal rate regardless of particle size.



Reliability

The PurePac uses a programmable logic controller (PLC) for system control and monitoring, in conjunction with high frequency electronics, to deliver optimum performance and assure the highest degree of reliability.

The versatile control system can be easily integrated with existing building management systems, adding another degree of reliability in the overall building system.

The durable, all aluminum 2-stage electronic collectors feature unitary construction and are designed to last the lifetime of the system. The integrated automatic wash system assures optimum performance and maximum system reliability.

Value

PurePac's design features increased collector surface area in a smaller package compared to conventional systems, resulting in higher dirt holding capacities and reduced system footprint. This translates into extra

available floor space, up to 30% in some instances.

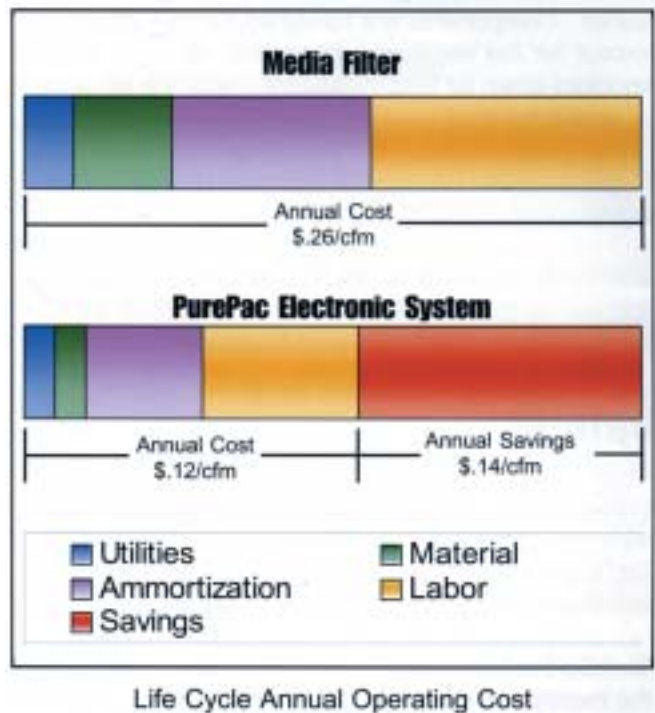
PurePac's low resistance to airflow results in reduced fan horsepower and fan energy cost. Over a period of time, this reduction amounts to significant savings in energy costs. Since PurePac uses wash-in-place electronic collectors, replacement filter cost, disposal cost and labor cost are eliminated.

When it comes to value, PurePac delivers. High performance and reliability in a compact design, and low operating cost make PurePac the ideal choice for today's IAQ challenges. Call us, and we'll prepare a life cycle cost comparison for your filtration system and show you how PurePac can deliver performance, reliability and value.

System Description

PurePac Front Access Model (FA) is packaged as a complete system, including the electronic air purifier, system control, detergent dispenser and system accessories. Components are furnished factory assembled, except for the electronic air purifier, which is shipped knocked-down for field installation inside the air handler or ventilation duct.

PurePac Model FA uses Flanders type HCC electronic collectors and modular design, arranged in multiple tiers and varying widths to attain the specified capacities and efficiency. The versatile design and modular construction can accommodate all sizes of ventilation systems by installing multiple units side-by-side.



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Engineered Products: 1-800-637-2803

Replacement Products: 1-800-347-2220

PurePac Front Access Units



PLC Control automatic or manual operation.



30 Gallon Detergent Dispenser liquid level sensor and flow control valve.



System Accessories
solenoid valve, backflow preventer, Y-strainer and ball valve.



Model FA-0604 (metal mesh prefilters removed)

Options

PurePac is available with TechSorb HMZD bonded, activated carbon panels for gas phase contaminant and odor control. Since the granules are locked together, TechSorb eliminates settling, dusting, and air by-pass, which are typical in loose granular carbon filters.

TechSorb is furnished in disposable panels, eliminating the messy chore of emptying and refilling loose carbon holding frames.

TechSorb is impregnated with select enhancers, making it an extremely effective sorbent media for formaldehyde and other gas contaminants present in new or remodeled buildings.

System Accessories

Each PurePac Front Access system is furnished with the following standard accessories.

Wash water strainer	1 each
Ball valve.	1 each
Backflow preventer	1 each
Solenoid valve	1 each
Access door electrical interlock & pilot light.	2 each
Detergent	55 gal

Utilities

Electrical

Standard: 120 Vac, 1 ph, 60 Hz

Optional: 208-230, 460 Vac, 1 ph, 50/60 Hz

Wash Water:(See Selection Table) gpm @ 40 psig

System Drain: Sized according to applicable codes to handle water and detergent volume shown in Size Selection Table

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Engineered Products: 1-800-637-2803 Replacement Products: 1-800-347-2220

PurePac Front Access Units

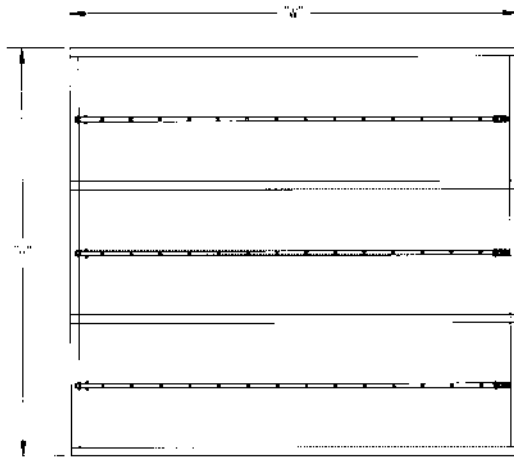
Model Number Development

Front Access	Nominal Height	Nominal Width
FA	06	06

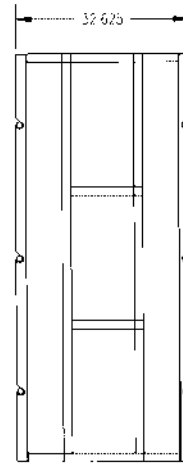
Represents a PurePac Front Access unit, model FA0606, nominally 6 feet high by 6 feet wide, as illustrated below.

Unit Selection Guide

1. From the Size Selection Table below, select the Model FA with Air Volume and Dimensions that meet the required efficiency.
2. Multiple Model FA units of the same height may be grouped together to create larger, multi-section units.
3. Each Model FA is shipped complete with the System Accessories as shown on Page 4.



Front Elevation



Side Elevation

Model	Face Area(ft ²)	Air Volume (cfm) (1,2)Efficiency			Dimensions Overall (in)		(3)Wash Cycle	Detergent (4)Wt. gal	(lb)	
		95%	90%	85%	H	W	Water gpm			
FA-0604	22.8	10,000	12,500	14,000	77 3/8	50 3/8	28.8	1.4	1,025	
FA-0605	28.32	12,500	15,500	17,500	77 3/8	61 3/16	36	1.8	1,160	
FA-0606	33.84	15,000	18,000	21,000	77 3/8	72	43.2	2.2	1,295	
FA-0804	30.4	13,500	16,500	18,500	102 5/8	50 3/8	38.4	1.9	1,250	
FA-0805	37.76	16,500	20,500	23,000	102 5/8	61 3/16	48	2.4	1,540	
FA-0806	45.12	20,000	24,500	27,500	102 5/8	72	57.6	2.9	1,740	
FA-1004	38	16,500	20,500	23,500	127 7/8	50 3/8	48	2.4	1,610	
FA-1005	47.2	21,000	25,500	29,000	127 7/8	61 3/16	60	3	1,830	
FA-1006	56.4	25,000	30,500	34,500	127 7/8	72	72	3.6	2,055	
FA-1204	45.6	20,000	24,500	28,000	153 1/8	50 3/8	57.6	2.9	1,900	
FA-1205	56.64	25,000	30,500	35,000	153 1/8	61 3/16	72	3.6	2,165	
FA-1206	67.68	30,000	36,500	41,500	153 1/8	72	86.4	4.3	2,430	

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Engineered Products: 1-800-637-2803 Replacement Products: 1-800-347-2220

PurePac Side Access Units



PLC Control automatic or manual operation.



30 Gallon Detergent Dispenser liquid level sensor and flow control valve.



System Accessories
solenoid valve, backflow preventer, Y-strainer and ball valve.



Conforms to ANSI/UL
STD 867 for Electrostatic
Air Cleaners



Model FA-0604 (metal mesh prefilters removed)

System Description

PurePac Side Access Model (SA) is a factory packaged system including the side access housing, wash system, electronic collectors, control system, detergent dispenser, and accessories. The factory assembled system is designed for installation in air handlers and ventilation systems.

The side access cabinet features unitary construction with flanges on the upstream and downstream sides to bolt in-line with new or existing air handling systems. The cabinet is furnished complete with pre and post mist eliminators, electronic collectors, integral wash system and electrically interlocked access door.

Options

PurePac Model (SA) is available with TechSorb HMZD, bonded, activated carbon panels for gas phase control. The TechSorb is contained in a separate cabinet that conveniently bolts to the exhaust side of the Model SA cabinet. The panels are arranged in a V Bank configuration using fully gasketed tracks to eliminate air by-pass.

System Accessories

Each PurePac Side Access system is furnished with the following standard accessories.

Wash water strainer.....	1 each
Ball valve.....	1 each
Backflow preventer.....	1 each
Solenoid valve.....	1 each
Detergent.....	.55 gal

Utilities

Electrical

Standard: 120 Vac, 1 Ph, 60 Hz

Optional: 208-230, 460 Vac, 1 Ph, 50/60 H

Wash Water: (See Selection Table) gpm @ 40 psig

System Drain: Integral 3" FNPT

Agency Approval

Each PurePac Side Access system is ETL listed, conforming to ANSI/UL 867 Standard for Electrostatic Air Cleaners

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Engineered Products: 1-800-637-2803 Replacement Products: 1-800-347-2220

PurePac Side Access Units

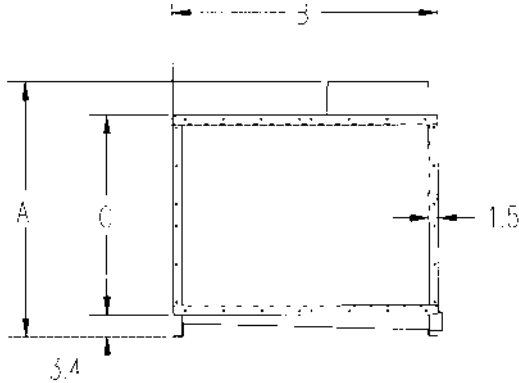
Model Number Development

Side Access	Nominal Height	Nominal Width
SA	02	03

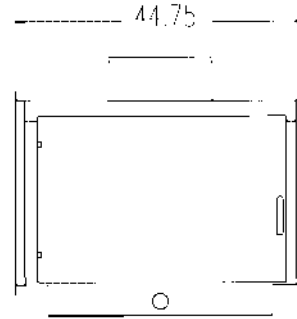
Represents a PurePac Front Access unit, Model SA0203, nominally 2 feet high x 3 feet wide, as illustrated below.

Unit Selection Guide

1. From the Size Selection Table below, select the Model SA with Air Volume and Dimensions that meet the required efficiency.
2. Multiple Model SA units of the same height may be arranged side-by-side to create a larger, multi-section unit. Specify one unit with left hand and one unit with right hand access doors.
3. Each Model SA is shipped complete with the System Accessories shown on Page 6.



Inlet Elevation



Access Side Elevation

Model	Face Area(ft ²)	Air Volume (cfm) (1,2)Efficiency			Dimensions (in) Overall Inlet/Outlet			(3) Wash Cycle Water Detergent		(4) Weight
		95%	90%	85%	A	B	C	gpm	gal (lb)	
SA-0203	5.6	2,500	3,000	3,500	40 1/4	41 7/8	31 1/2	7.2	0.4	510
SA-0204	7.6	3,500	4,000	4,500	40 1/4	54 3/8	31 1/2	9.6	0.5	570
SA-0205	9.4	4,000	5,000	6,000	40 1/4	65 1/8	31 1/2	12	0.6	650
SA-0206	11.3	5,000	6,000	7,000	40 1/4	76	31 1/2	14.4	0.7	785
SA-0403	11.3	5,000	6,000	7,000	64 1/8	41 7/8	55 3/8	14.4	0.7	710
SA-0404	15.2	6,500	8,000	9,500	64 1/8	54 3/8	55 3/8	19.2	1	810
SA-0405	18.9	8,500	10,000	11,500	64 1/8	65 1/8	55 3/8	24	1.2	930
SA-0406	22.6	10,000	12,000	14,000	64 1/8	76	55 3/8	28.8	1.4	1,110
SA-0407	26.4	11,500	14,500	16,500	64 1/8	88 5/8	55 3/8	33.6	1.7	1,225
SA-0408	30	13,000	16,000	18,500	64 1/8	99 3/8	55 3/8	38.4	1.9	1,335
SA-0409	33.8	15,000	18,500	21,000	64 1/8	110 1/8	55 3/8	43.2	2.2	1,445
SA-0603	16.9	7,500	9,000	10,500	88	41 7/8	79 1/4	21.6	1.1	860
SA-0604	22.8	10,000	12,500	14,000	88	54 3/8	79 1/4	28.8	1.4	1,100
SA-0605	28.3	12,500	15,500	17,500	88	65 1/8	79 1/4	36	1.8	1,180
SA-0606	33.8	15,000	18,500	21,000	88	76	79 1/4	43.2	2.2	1,315
SA-0607	39.6	17,500	21,500	24,500	88	88 5/8	79 1/4	50.4	2.5	1,500
SA-0608	45	20,000	24,500	27,500	88	99 3/8	79 1/4	57.6	2.9	1,685
SA-0609	50.8	22,000	27,500	31,000	88	110 1/8	79 1/4	64.8	3.2	1,860

(1) ASHRAE 52.1-92 Test Standard

(3) Based on 40psi water pressure

(2) Capacities may be rounded to nearest 500 cfm

(4) Total system net weight

Flanders Precisionaire - Foremost in Air Filtration

Engineered Products: 1-800-637-2803

Replacement Products: 1-800-347-2220

Engineering Specifications

A. General

The electronic air cleaner shall be the two stage, dual voltage, plate type electrostatic precipitator, sized to clean the airflow capacities scheduled on the Contract Documents at an efficiency of at least (specify %) as determined by the ASHRAE Standard 52.1-92, Dust Spot Test Method. Air cleaner shall be furnished with built-in high pressure, low volume water/detergent washing system and programmable logic control for complete automatic operation.

B. Configuration (Select B.1 or B.2)

B.1 The electronic air cleaner shall be furnished in a side access housing, fabricated from 16 gage galvanized steel, continuously welded, primed and painted. The housing shall be furnished with gasketed, hinged access door with safety electrical interlock, flanged inlet/outlet collars, built-in cleaning system and sloped bottom drain pan. The housing shall be tracked for and furnished with aluminum pre and post mist eliminators and ionizing-collecting cells.

B.2 The electronic air cleaner shall be front/rear access, furnished using prefabricated, galvanized framework designed to contain ionizing-collecting cells and wash system. All frame sub-assemblies shall be match marked and prepared for bolted field assembly. Base support framework shall be stainless steel. All necessary fasteners and fittings shall be furnished. Framing shall be designed for cell removal either upstream or downstream and pre-punched air by-pass baffles shall be provided for the upstream side. The foundation supporting the framework, including drains and specified opening shall be prepared by the Contractor in accordance with the manufacturer's recommendation and written instructions.

C. Electronic Collector Modules

Ionizing-collecting cells shall be of industrial design integrity and single unit construction. The cells shall be all aluminum construction except the ionizing electrode shall be of the rigid stainless steel type without serrated spikes or the tungsten wire type. Repelling and collecting plates shall be positively retained in place using tie rod and tubular spacer design. High voltage insulators shall be molded from structural, self-glazing ceramic; shall contain no appurtenances; shall be of radial and bilateral symmetry; shall contain no high voltage penetrations and shall not contact the high voltage on the process air side. The entire assembly shall be suitable for handling cold saturated air.

D. Built-in Cleaning System

Water/detergent washing system shall be high pressure, low volume type. Detergent, wash and rinse water shall be applied by oscillating copper

manifolds containing brass spray nozzles, located on both the air entering and air leaving side of each module tier. Complete, effective washing of all ionizing-collector cell surfaces and all appurtenances shall be provided. Drive motors, used to oscillate the manifolds, shall be high torque, gear reduced, totally enclosed fan cooled type, and be permanently lubricated. Drive linkage shall be a rigid, positively fastened type without tracks or sprockets.

One detergent dispensing assembly shall be provided to serve each electronic air cleaner. The detergent dispenser shall consist of a (specify 30 or 55) gallon anti-corrosive reservoir, positive displacement pump, motor, and flow volume control valve.

Solenoid valve, strainer, backflow preventer, ball valve, and an initial supply of detergent shall be furnished by the electronic air cleaner manufacturer.

E. Control and High Voltage Power Supplies

Each electronic air cleaner shall use a single remote-mounted control and power supply, contained in NEMA 12 enclosures. The unit shall operate on 120 Vac, 1Ph, 60 Hz.

The control shall be of the programmable logic (PLC) type, furnished in a NEMA 12 enclosure, preprogrammed to sequence the electronic air cleaner through wash cycles at a schedule to be determined with the Owner. Integral electronic time clock with manual override shall be provided.

High voltage power supply, furnished in a NEMA 12 enclosure, shall be the high frequency, solid state type, supplying a dual voltage and current output specified by the electronic air cleaner manufacturer. Power supply shall have a regulated input and output for line fluctuations of 10% and shall have a current limiting shutdown and restart feature.

The face panel of the enclosures shall contain indicators for electronic air cleaner control status (run, wash, etc.), individual power supply, primary circuit indicating light, monitoring instrumentation, and on-off switch.

Provide enable/disable contacts suitable for interface with the specified Building Control and Management System (BMS).

F. Electrical Interlocks

Furnish duct door electrical interlocks, disconnect switch, and pilot light assembly. All access to electronic air cleaners and high voltage power packs shall contain electrical safety interlocks which de-energize the primary power circuit prior to accessing high voltage.

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