

# LENNOX®

ENGINEERING DATA



INDOOR AIR QUALITY - 50 HZ

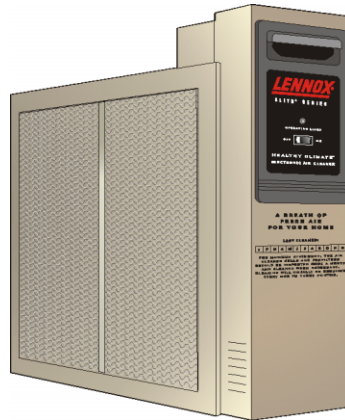
## EAC

### ELECTRONIC AIR CLEANER

Bulletin No. 490093

January 2004

Supersedes April 2000



## MODEL NUMBER IDENTIFICATION

**EAC - 14 - 2**

Unit Type

EAC = Electronic Air Cleaner

Minor Revision Number

Nominal Air Flow

14 = 660 L/s (1400 cfm)

16 = 755 L/s (1600 cfm)

20 = 945 L/s (2000 cfm)

## FEATURES

### APPLICATION

Removes up to 94% of all airborne particles passing through it as opposed to 10% efficiency of an ordinary filter.

Provides a high degree of cleaning without excessive pressure drop. Air cleaners are rated according to American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 52-76 requirements.

Shipped completely factory assembled and wired.

Applicable to all types of central units - up-flow, lo-boy, horizontal or down-flow models, may be installed in a vertical or horizontal position adjacent to the unit or remote in the duct.

Compact enough for easy installation yet rugged enough to support the weight of most up-flow furnaces.

Equipped with two matched aluminum and stainless steel cells. Constant blower operation achieves the best air cleaning results as well as temperatures remaining balanced throughout the conditioned area.

Power supply and air flow sensor have been stringently life cycle tested to assure long life.

### INSTALLATION GUIDELINES

Designed for installation in the return air side of a forced air heating or heating-cooling system.

Allow a minimum of 381 mm (15 inches) clearance in front of access door [356 mm (14 inches) for EAC-16] and 305 mm (12 inches) clear space above wiring junction box for service access.

4°C to 29°C (40°F to 85°F) entering air temperature is recommended for air cleaner installations. Do not install in the supply air duct downstream from the heating source where high temperatures would be encountered.

100% outdoor air should not be permitted to pass through the air cleaner.

Install upstream from the humidifier as high humidity effects efficiency.

### WIRING JUNCTION BOX

Junction box is located on top of air cleaner.

Electrical inlets are located on both sides and back.

Box is constructed of heavy gauge steel.

### CABINET

Thin profile design allows installation in minimum space.

Cabinet can be installed in vertical or horizontal position.

One-piece cabinet is constructed of heavy gauge cold-rolled steel with a durable baked epoxy powder coating paint finish.

Pre-drilled mounting holes and bendable tabs on each side of cabinet simplifies flush mounting to unit or duct work.

Factory applied cleaning reminder label with magnet furnished.

### SOLID-STATE POWER SUPPLY/ACCESS DOOR

Access door can be easily removed from the air cleaner for servicing as required. When removed, power is automatically disconnected to the cells, eliminating the possibility of electrical shock when servicing.

Solid-state power supply is mounted internal to the access door and is easily removed for service.

All high voltage components are self-enclosed for added protection.

Electrical components are potted in dielectric epoxy resin to protect them from breakdown caused by heat and humidity.

Integral solid-state air flow monitor switch automatically cycles the unit on/off with the system blower.

"On-Off" switch with performance indicator light for easy check of unit operation. When control switch is "On" and blower is operating, light will glow indicating proper electrical operation. If the light is not on when system blower is operating, service is required, see installation manual for troubleshooting guide.

Service features include: built-in protection against arcing, short circuit or open circuit conditions, surge resistor to protect internal components, color coded wiring and push-on terminal connections.

### PROTECTIVE DUAL PRE-FILTERS

Lightweight aluminum mesh filters serve as a protective screen in stopping large amounts of dust, animal hair, insects and lint from entering electronic cell, thereby preventing clogging and minimizing arcing.

Easily removed for periodic cleaning.

Must be installed upstream from the electronic cells.

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For the latest technical information, [www.lennox.com](http://www.lennox.com)

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability. Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury. Installation and service must be performed by a qualified installer and servicing agency.

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## FEATURES

### TWIN COLLECTING CELLS

Long life tungsten wires carry high voltage DC to set up a solid ionizing screen which places a positive charge on all particles entering the cells.

Particles then pass into the collection plate section where alternately charged plates attract and hold them until they are removed by cleaning.

Constructed of lightweight aluminum and stainless steel.

127 mm (5 inches) deep with wide plate spacing to minimize arcing and provide greater dirt holding capacity.

Spring loaded contacts between cells and power supply assure positive power connection.

Glazed porcelain insulators are practically out of the air stream to prevent dirt build-up and make cleaning easier.

Easily removed for cleaning.

## OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

### CHARCOAL FILTERS

Filter out disagreeable odors such as cigarette and cigar smoke, cooking odors, etc.

Charcoal filters are installed on the opposite side of the unit from the pre-filters for maximum efficiency.

## REQUIRED COMPONENT - MUST BE ORDERED EXTRA

### STEP-DOWN TRANSFORMER

220/240V primary, 115V secondary.

## SPECIFICATIONS

Model No.	EAC-14	EAC-16	EAC-20	
<sup>1</sup> Equivalent MERV efficiency at rated air flow - L/s (cfm)	MERV 12 at 660 (1400)	MERV 11 at 755 (1600)	MERV 11 at 945 (2000)	
Air volume range - L/s (cfm)	380-755 (800-1600)	565 - 850 (1200-1800)	660-1040 (1400-2200)	
Maximum pressure drop - Pa (in. w.g.) at rated capacity	35 (.14)	37 (.15)	35 (.14)	
<sup>2</sup> Maximum ozone generation rate - (µg/min)	37	37	37	
Electronic Cell	Number and size - mm (in.)	(2) 330 x 406 x 127 (13 x 16 x 5)	(2) 254 x 508 x 127 (10 x 20 x 5)	(2) 330 x 508 x 127 (13 x 20 x 5)
	Weight	(2) 4 kg (9 lbs.) each	(2) 4 kg (9 lbs.) each	(2) 5 kg (11 lbs.) each
Pre-filter number & size - mm (in.)	(2) 330 x 406 x 8 (13 x 16 x 5/16)	(2) 254 x 508 x 8 (10 x 20 x 5/16)	(2) 330 x 508 x 8 (13 x 20 x 5/16)	
Duct opening - W x H - mm (in.)	600 x 344 (23-5/8 x 13-9/16)	473 x 451 (18-5/8 x 17-3/4)	600 x 451 (23-5/8 x 17-3/4)	
Electrical characteristics	120 volts - 60 hertz - 1 phase			
Power consumption	40 watts maximum			
Shipping weight - kg (lbs.)	20 (45)	20 (44)	24 (54)	

## REQUIRED COMPONENTS - MUST BE ORDERED EXTRA

Step-Down Transformer	78H21	78H21	78H21
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## OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

<sup>3</sup> Charcoal Filters	69H98	X1194	72H09
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<sup>1</sup> MERV (Minimum Efficiency Reporting Value based on ASHRAE 52.2).

<sup>2</sup> Assumptions: Maximum accumulation (increase over background) of ozone of 25 parts per billion under worst case scenario of 92.9 m<sup>2</sup> (1000 ft.<sup>2</sup>) house; 0.2 air changes per hour at 25° C (77° F), 1 atmospheric pressure, and 50% relative humidity measured using a flow through test at 285 L/s (600 cfm).

<sup>3</sup> Two filters are required and furnished per catalog number.

## AIR RESISTANCE

Air Volume		Total Resistance					
L/s	cfm	EAC-14		EAC-16		EAC-20	
		Pa	in. wg.	Pa	in. wg.	Pa	in. wg.
380	800	10	.04	---	---	---	---
470	1000	17	.07	---	---	---	---
565	1200	25	.10	22	.09	---	---
660	1400	35	.14	30	.12	17	.07
755	1600	40	.16	37	.15	22	.09
850	1800	---	---	50	.20	27	.11
945	2000	---	---	62	.25	35	.14
1040	2200	---	---	---	---	42	.17

NOTE - Standard central system filter is removed and not included in table.

## AIR CLEANING EFFICIENCY

On the average, an electronic air cleaner will remove fifteen (15) times as much dust, dirt, lint, and mold spores from the air as an ordinary furnace filter. And, on smaller particles, the percentage removed versus standard filters is significantly greater.

An electronic air cleaner will remove airborne particles as small as 0.01 µm in diameter. The chart below lists sizes of common airborne particles trapped and removed from recirculated air by electronic air cleaners.

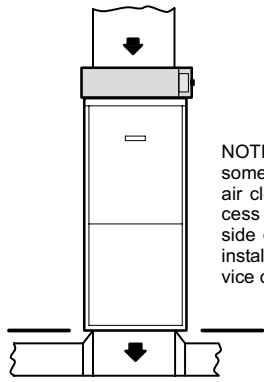
Types of Airborne Particles	Particle Size - 1 µm
Pollen	10.0 to 100.0
Tobacco Smoke	0.01 to 1.0
Cooking Smoke	0.02 to 1.0
Household Dust	0.01 to 300.0
Mold Spores	10.0 to 30.0
Atmospheric Dust	0.01 to 1.0
Insecticide Dust	0.40 to 10.0
Coal Dust (Soot)	1.0 to 100.0

<sup>1</sup> Particles 10 µm and larger are visible to the naked eye.

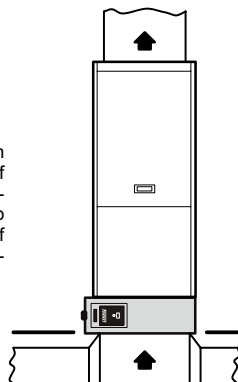
Particles 10 to 0.1 µm are visible with microscope.

Particles below 0.1 µm are visible with electron microscope.

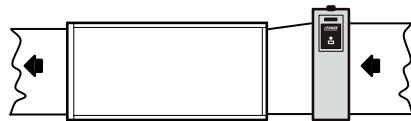
# TYPICAL APPLICATIONS



**Down-Flow**  
 NOTE - Due to flue location on some down-flow furnaces, front of air cleaner (with controls and access panel) must be installed to side or rear of furnace cabinet. If installed in a confined space, service clearance may be restricted.

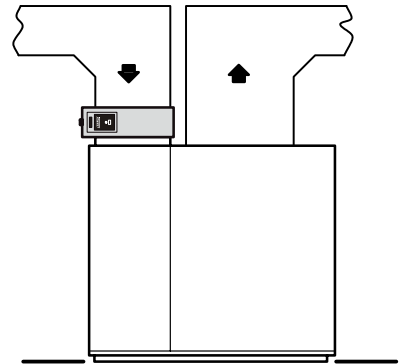
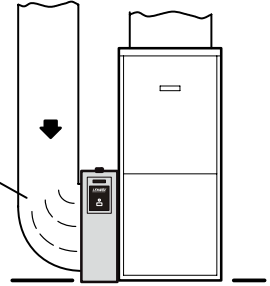


Up-Flow



Horizontal

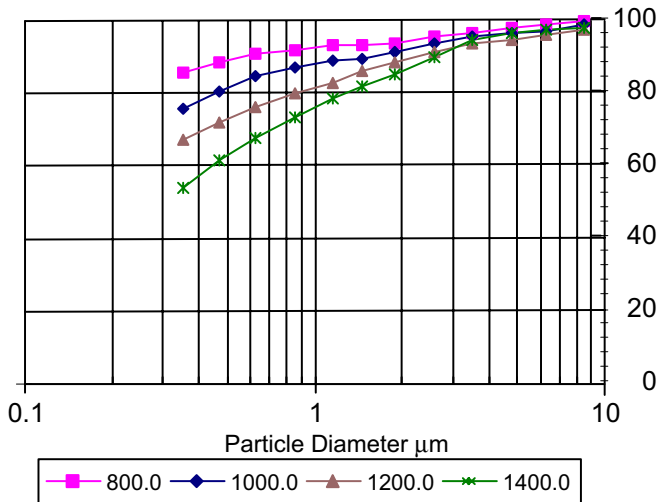
**Up-Flow (Side Installation)**  
 NOTE - At sharp turns, turning vanes are recommended, installed before the air cleaner.



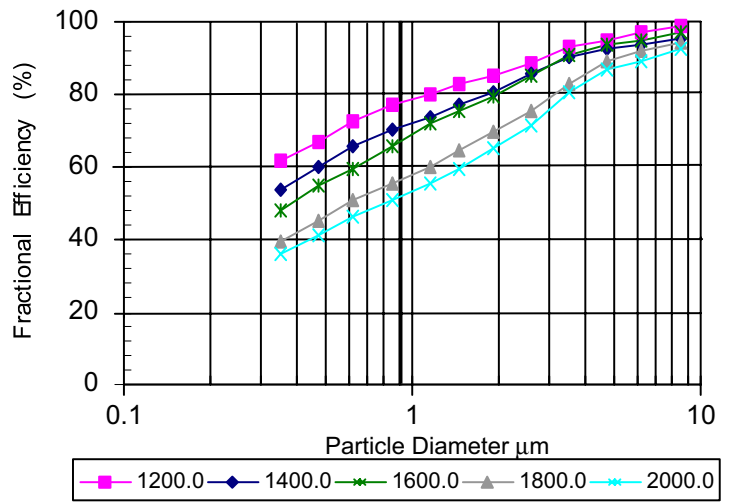
Lo-Boy

# FRACTIONAL EFFICIENCY VS. PARTICLE DIAMETER

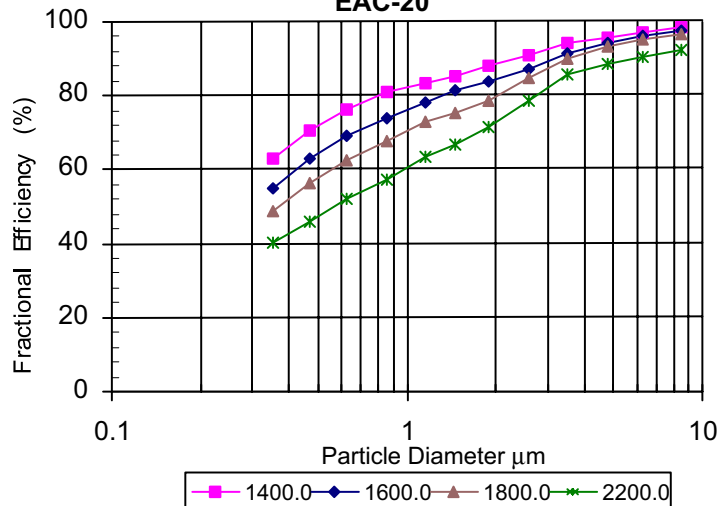
EAC-14



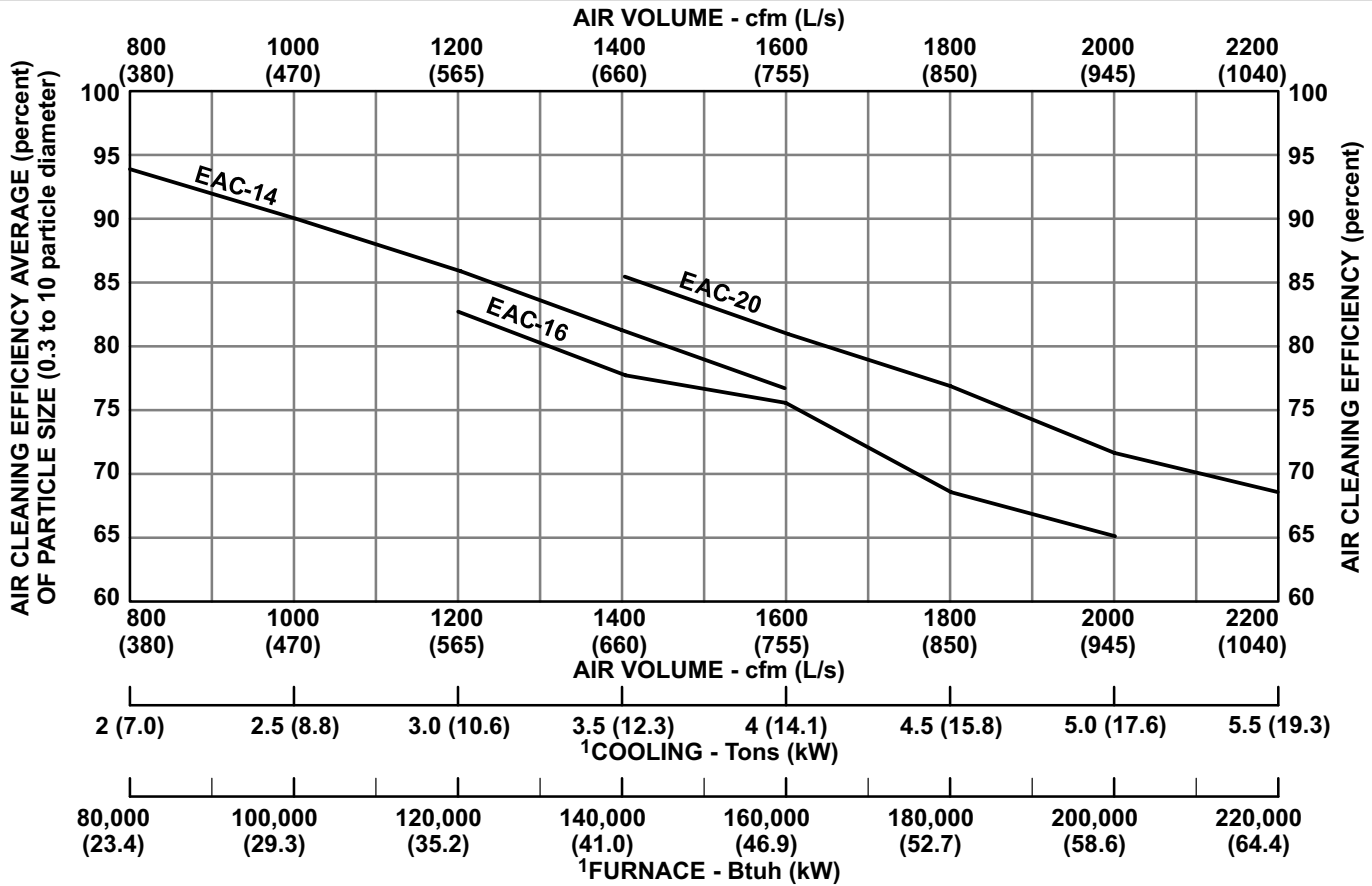
EAC-16



EAC-20

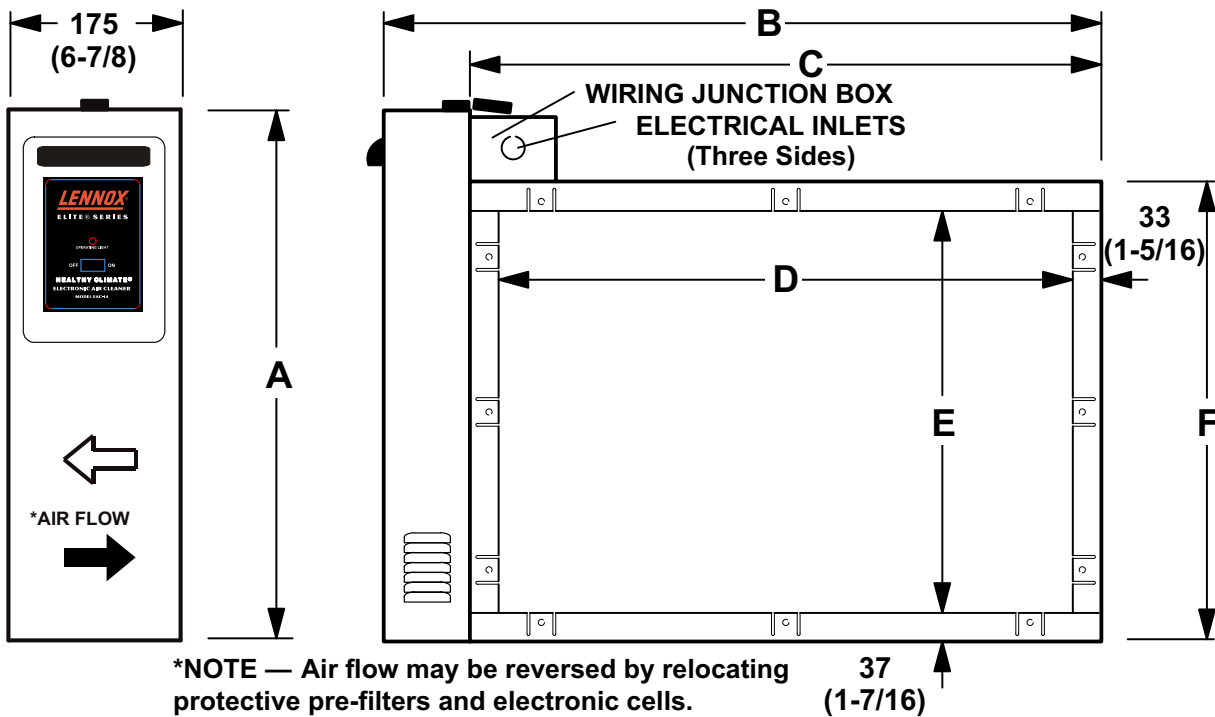


## AIR CLEANING EFFICIENCY



<sup>1</sup> Ratings based on methods prescribed by American Society of Heating, Refrigerating, and Air Conditioning Engineers - (ASHRAE) standard 52-76 using atmospheric air without the addition of artificial dust.

## DIMENSIONS - MM (INCHES)



Model No.	A		B		C		D		E		F	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
EAC-14	484	19-1/16	754	29-11/16	667	26-1/4	600	23-5/8	344	13-9/16	418	16-7/16
EAC-16	594	23-3/8	648	25-1/2	541	21-5/16	473	18-5/8	451	17-3/4	524	20-5/8
EAC-20	594	23-3/8	754	29-11/16	667	26-1/4	600	23-5/8	451	17-3/4	524	20-5/8