



**023V**  
DAVE LENNOX SIGNATURE™ COLLECTION  
Upflow - Variable Speed Blower

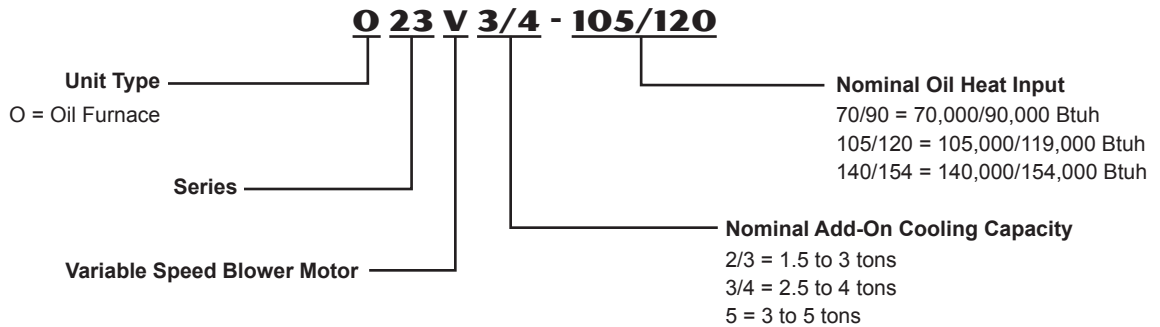
**PRODUCT SPECIFICATIONS**

Bulletin No. 210427  
October 2010  
Supersedes August 2008



**AFUE - Up to 83%**  
**Input - 70,000 to 154,000 Btuh**  
**Nominal Add-on Cooling - 1.5 to 5 Tons**

**MODEL NUMBER IDENTIFICATION**



## FEATURES

### CONTENTS

Accessory Dimensions . . . . .	7
Blower Data . . . . .	5
Dimensions . . . . .	6
Features. . . . .	2
Installation Clearances . . . . .	7
Model Number Identification . . . . .	1
Optional Accessories . . . . .	4
Specifications . . . . .	4

### EQUIPMENT WARRANTY

**Heat exchanger - limited lifetime warranty** in residential applications.

**Oil burners and all other covered components - five year limited warranty** in residential applications.

Refer to the Lennox Equipment Limited Warranty certificate included with the equipment for details.

### APPROVALS

Units have been rated and tested according to U.S. Department of Energy (DOE) test procedures and Federal Trade Commission (FTC) labeling regulations.

Units are certified by AHRI.

Units are ETL/Intertek listed.

Developed in accordance with ISO 9001 quality standards.

### APPLICATIONS

Suitable for installation in a residence, small business or commercial establishment.

Compact, rugged cabinet with side or bottom return air entry, will allow installation in a basement, closet, recreation or utility room.

Approved for reduced clearances to combustibles.

Lennox add-on indoor coils, powered electronic air cleaners and humidifiers can be added to the furnace.

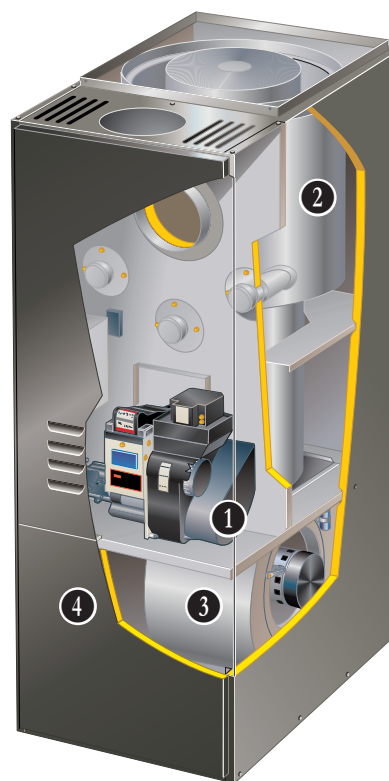
Quiet operating blowers have sufficient capacity to handle add-on cooling air volume requirements.

All units are shipped factory assembled including the oil burner, with all controls installed and wired.

Each unit is factory test operated insuring proper operation after shipment.

#### Zoning Applications

Units are not approved for zoning applications.



### HEATING SYSTEM

#### 1 Beckett Flame-Retention Oil Burner

Smooth operating, high-pressure atomizing type burner blends oil and air to attain maximum efficiency.

Heavy duty motor drives quiet operating blower wheel and fuel pump.

Air turbo injector directs combustion air for smooth ignition.

Flame retention head is designed to agitate and mix oil and air for complete combustion and highest efficiency.

Burner design features 4 in. connection to air inlet for optional outdoor combustion air.

Oil pump located on opposite side of air inlet to prevent any dirt accumulation from inlet air.

Burner has 14,000 volt ignition transformer and ceramic glazed electrodes which provide a safe continuous flame.

Equipped with a factory installed cadmium sulfide cell flame detector and primary safety control that provides complete shutdown in case of flame failure.

All burner parts are easily removable for servicing.

Burner is U.L. approved, C.S.A. certified and certified according to ANSI Standard 296.6.

Burner is factory installed in the unit, wired and fire tested. Units are shipped for lower heating capacity operation.

Nozzle must be field provided for field conversion to higher heating capacity.

## FEATURES

### HEATING SYSTEM (CONTINUED)

#### 2 EZ Clean Heat Exchanger

Streamlined drum type heat exchanger exposes maximum surface area to the air stream with minimum air resistance.

Constructed of heavy gauge steel for maximum service life.

Strategically placed ports allow easy cleaning.

Heavy gauge mounting channels are provided in cabinet base for support of heat exchanger.

#### Combustion Chamber

All models have a factory installed, specially designed alumina silica ceramic fiber combustion chamber.

Combustion chamber can withstand temperatures of up to 2550°F resulting in more complete combustion and higher efficiencies.

#### Flame Inspection Tube

Conveniently located at the front of the unit.

Opening is large enough for normal inspection mirror.

### OPTIONS

#### Oil Filter

Recommended for proper oil filtration. See Specifications table for order number.

#### Two Stage Oil Pump

Two stage oil pump is available.

See Specifications table for order number.

### CONTROLS

#### Electronic Blower Control

HEAT and COOL settings (with four different air volume selections for cooling and one selection for heating) are made by jumper pins on board.

ADJUST jumper pin allows approximately 15% higher, normal or 15% lower motor speed selection within COOL speeds selected for fine tuning air volume. See Blower Data Tables.

**Cooling Airflow Ramp Up** - At the beginning of a call for cooling, the blower will run at 80% of full airflow for 7.5 minutes. This improves the system's moisture removal and saves blower power during cooling start.

**Reduced Airflow Operation** - For situations where humidity control is an issue, the variable speed motor can be connected to operate at a 25% reduction in the normal airflow rate. The variable speed motor interface board provides for connection of a thermostat with humidity control or a humidistat on the HUM terminal. When connected, the dehumidifier resistor on the interface must be cut. The control should be wired to open during high humidity, which will reduce blower airflow.

#### Limit Control

Factory installed on vestibule panel.

Control has fixed temperature setting and protects unit from abnormal operating conditions.

#### Barometric Draft Control

Furnished as standard equipment and field installed in flue pipe.

#### Transformer

24 volt (40VA) control transformer with circuit breaker is furnished as standard and factory installed.

### OPTIONS

#### ComfortSense® 7000 Touchscreen Thermostat

Electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat.

4 Heat/2 Cool.

Auto-changeover.

Controls humidity during cooling mode.

Offers enhanced capabilities including humidification / dehumidification / dewpoint measurement and control, Humiditrol® control, and equipment maintenance reminders.

Easy-to-use, menu driven thermostat with a back-lit, LCD touchscreen.

Remote outdoor sensor (optional) allows the thermostat to display outdoor temperature. Required in dual fuel and Humiditrol® applications.

See the ComfortSense 7000 Product Specifications bulletin in the Controls section for more information.

See Controls section and Lennox Price Book for additional thermostats.

#### Thermostat

See Thermostat bulletins in Controls section and Lennox Price Book.

### BLOWER

#### 3 Variable Speed Direct Drive Blower

Each blower assembly statically and dynamically balanced.

Change in blower speed is easily accomplished by simple jumper change on blower control board.

See Blower Performance tables.

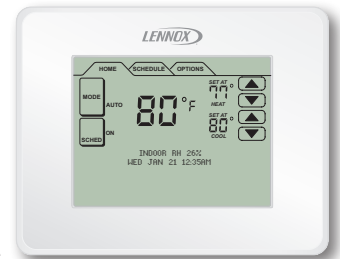
Blower assembly easily removed for servicing.

#### Variable Speed Blower Motor

Variable speed motor maintains specified air volume from 0 though 0.80 in. w.g. static range.

Motor is controlled by the blower control board.

Motor is resiliently mounted.



## FEATURES

### CABINET

- 4 Constructed of heavy gauge steel with a pre-painted, textured finish.
- Entire heating section is lined with foil faced fiberglass insulation keeping cabinet surface temperatures low.
- Removal of louvered heating section door allows access to oil burner, inspection door and control compartment.
- Door is equipped with handhold for ease of removal.
- Control compartment is totally enclosed to provide a safe, compact and clean area.
- Large blower access door gives complete service access to blower.
- Blower compartment is completely insulated.
- Blower assembly easily slides completely out of unit for service.
- Oil line and electrical inlet openings are provided in sides of cabinet, see dimension drawing.
- Return air entry is possible on either side or bottom of cabinet.

### FILTER

#### Side Filter Adaptor Kit

Furnished with the unit and field installed.

Adaptor is completely assembled and can be installed on either side of the cabinet.

A large cleanable frame type filter is also furnished and slides in the rack.

Adaptor has flanges for ease of duct connection. See dimension drawing.

## SPECIFICATIONS

		Model Number	O23V2/3-70/90	O23V3/4-105/120	O23V5-140/154
<b>Oil Heating Performance</b>	Input - Btuh	Low Fire	70,000	105,000	140,000
		<sup>1</sup> High Fire	90,000	119,000	154,000
	Output - Btuh	Low Fire	58,000	85,000	113,000
		<sup>1</sup> High Fire	74,000	97,000	125,000
		<sup>2</sup> A.F.U.E.	83.0%	81.0%	81.0%
	Flue Size Diameter - in.	6	6	6	
	Temperature rise range	50 - 80°F	50 - 80°F	55 - 85°F	
<b>Oil Burner</b>	Nozzle rating - gph	Low Fire	.50	.65	.85
		<sup>1</sup> High Fire	.65	.75	1.00
	Nozzle spray angle	Low Fire	80° hollow	80° solid	80° solid
		<sup>1</sup> High Fire	80° solid	80° solid	80° solid
		Oil Burner Pump	1 Stage	1 Stage	1 Stage
	Oil Burner Pump Pressure - psig	100	140	140	
	Air Inlet Connection (diameter) - in.	4	4	4	
<b>Indoor Blower</b>	Blower Motor Output - hp	1/2	1/2	3/4	
	Nominal add-on cooling - ÷ Tons	1.5 thru 3	2.5 thru 3.5	3 thru 5	
	Blower wheel nom. diameter x width - in.	10 x 8	10 x 10	12 x 11	
<sup>3</sup> Filter	Number of filters	1	1	<sup>4</sup> 2	
	Size of filters - in.	16 x 25 x 1	16 x 25 x 1	16 x 25 x 1	
<b>Shipping weight - lbs. 1 package</b>		225	225	275	
<b>Electrical</b>	Characteristics	120V-60hz-1ph	120V-60hz-1ph	120V-60hz-1ph	
	Maximum time delay breaker or fuse size	15 Amps	15 Amps	15 Amps	

## OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

<b>Oil Filters</b>	10 micron without mounting bracket	81P89	81P89	81P89
	10 micron with mounting bracket	53P92	53P92	53P92
	Replacement cartridge - 10 micron, 45 gph	53P93	53P93	53P93
	Filter restriction indicator gauge	53P90	53P90	53P90
<b>ComfortSense® 7000 Thermostat</b>		Y2081	Y2081	Y2081
<b>Remote Outdoor Temperature Sensor (for ComfortSense 7000)</b>		X2658	X2658	X2658
<b>Two-Stage Oil Pump</b>		65A44	65A44	65A44

<sup>1</sup> Nozzle must be field provided for field conversion to higher heating input.

<sup>2</sup> Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations. Isolated combustion system rating for non-weatherized furnaces.

<sup>3</sup> Cleanable frame type filters. Furnished with unit in Side Filter Adaptor Kit for field installation external to the cabinet.

<sup>4</sup> Requires return air from both sides of cabinet.

## BLOWER DATA

### O23V2/3-70/90 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	A Do Not Use	B Do Not Use	C 90 kBtuh Heat Input	D 70 kBtuh Heat Input	A	B	C	D
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	N/A	N/A	Same as NORM		1380	1150	920	690
NORM	N/A	N/A	1000	750	1200	1000	800	600
—	N/A	N/A	Same as NORM		1020	850	680	510

NOTE - Continuous Fan air volume is 50% of COOL speed.

### O23V3/4-105/120 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	A Do Not Use	B Do Not Use	C 120 kBtuh Heat Input	D 105 kBtuh Heat Input	A	B	C	D
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	N/A	N/A	Same as NORM		1620	1380	1150	920
NORM	N/A	N/A	1300	1200	1400	1200	1000	800
—	N/A	N/A	Same as NORM		1190	1020	850	680

NOTE - Continuous Fan air volume is 50% of COOL speed.

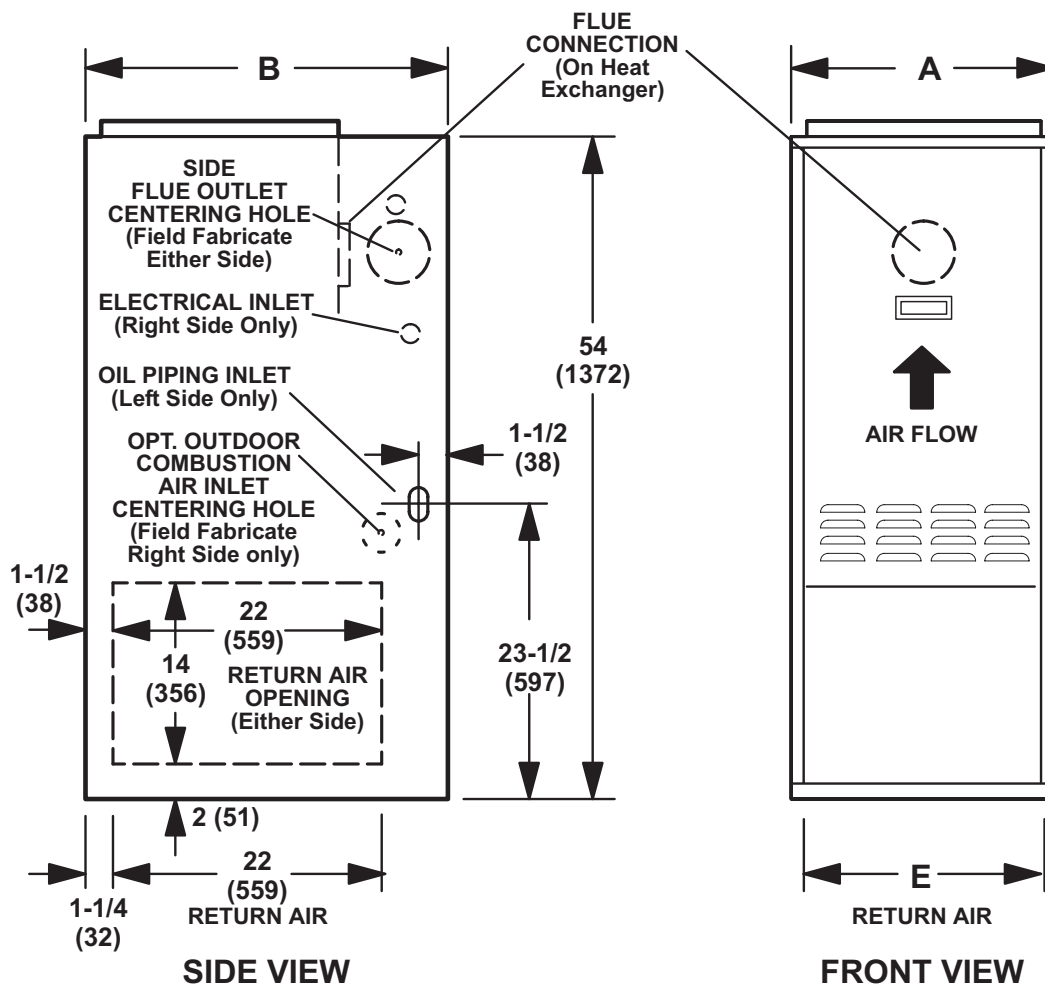
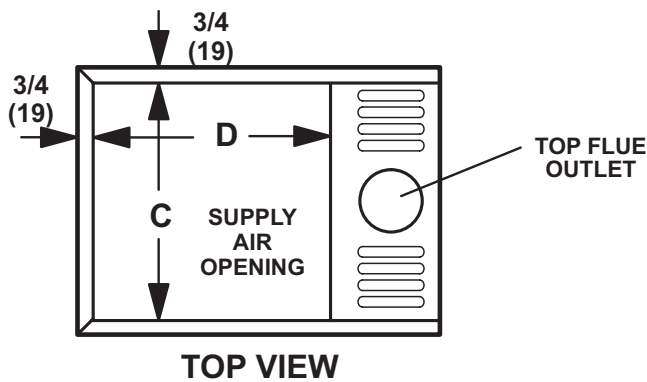
### O23V5-140/154 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	A Do Not Use	B 154 kBtuh Heat Input	C Do Not Use	D 140 kBtuh Heat Input	A	B	C	D
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	N/A	Same as NORM	N/A	Same as NORM	2300	2070	1840	1380
NORM	N/A	1730	N/A	1400	2000	1800	1600	1200
—	N/A	Same as NORM	N/A	Same as NORM	1700	1530	1360	1020

NOTE - Continuous Fan air volume is 50% of COOL speed.

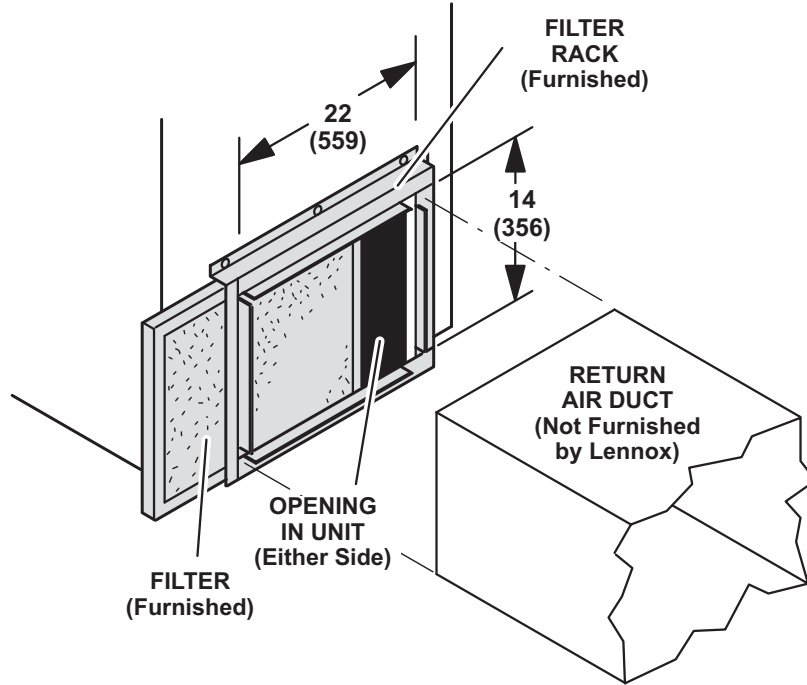
# DIMENSIONS - INCHES (MM)



Model No.	A		B		C		D		E	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
O23V2/3-70/90 O23V3/4-105/120	19-1/2	495	30-5/8	778	18	457	19-5/8	498	16	406
O23V5-140/154	22-1/2	572	33-1/8	841	21	533	22-1/8	562	18	457

## ACCESSORY DIMENSIONS - INCHES (MM)

### SIDE FILTER ADAPTOR KIT (Furnished)



### INSTALLATION CLEARANCES

Approved for closet or alcove installation. When installing in a confined space, two ventilation openings must be provided into the space; one 6 in. (152 mm) from the top and one 6 in. (152 mm) from the bottom. Each opening should be 8 x 16 in. (203 x 406 mm).

Top of Cabinet	2 in.	51 mm
Sides & Rear of Cabinet	0 in.	0 mm
Front of Cabinet	4 in.	102 mm
Service Clearance (Front)	24 in.	610 mm
Top of Plenum	2 in.	51 mm
Sides of Plenum	3 in.	76 mm
Horizontal Warm Air Duct within 3 feet (1 m) of furnace	2 in.	51 mm
Flue Pipe Vertical or Horizontal	6 in.	152 mm
Floor	Combustible	Combustible

## REVISIONS

Sections	Description of Change
Document	Updated to new publishing software. No changes to data.



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

Contact us at 1-800-4-LENNOX

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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