



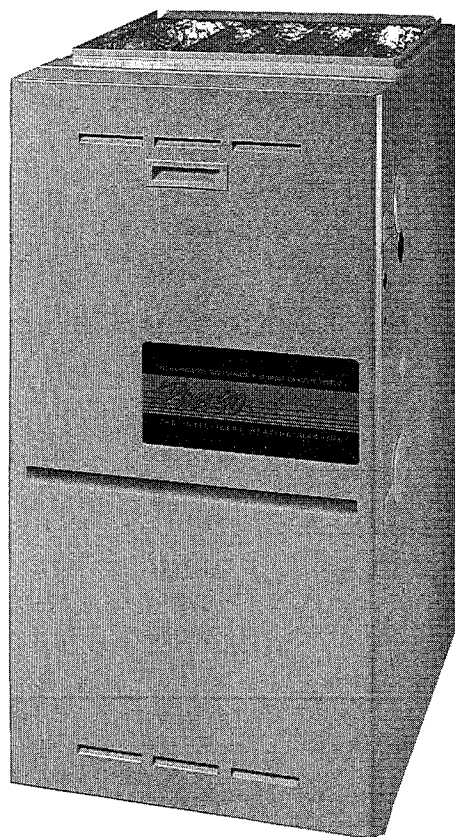
Payne
Air Conditioning

Indianapolis, IN

DELUXE 4-WAY MULTIPOISE VARIABLE-CAPACITY CONDENSING GAS FURNACE

MODEL 355MAV

Sizes 040, 060, 080, and 100
Series A



Building on our industry-leading condensing furnace technology, the model 355MAV is our greatest innovation in comfort control and operating efficiency.

Modern technology provides the Plus 90i™ design with great reliability, high-efficiency, and ultra-quiet operation. Efficiencies are up to 96.6% Annual Fuel Utilization Efficiency (AFUE).

The model 355MAV Plus 90i™ Condensing Gas-Fired Furnace incorporates the electronic intelligence of a microprocessor. The microprocessor control center interacts with a 2-stage gas valve, a variable speed inducer motor, and a variable speed blower motor, allowing the Plus 90i to adjust combustion air, firing rate, and airflow to maintain peak efficiency throughout the operating cycle.

The variable-capacity system provides the ultimate in heating comfort while minimizing electrical and gas consumption.

FEATURES

4-Way Multipoise Design—Allows the 355MAV model to be installed in an upflow, downflow, or horizontal orientation. Simple changes in the drain connections are all it takes to change to any of the 4 possible positions.

The model 355MAV is available in 4 heat/airflow combinations. When combined with the 4-way design, the 355MAV allows for 16 different application types.

Electronic Variable-Speed Motors—Special motors provide variable-speed operation to improve the comfort levels in the home. They are also more economical to operate than standard motors. Variable-speed motors have the ability to adapt to changing conditions and provide consistent, comfortable and quiet heating. Motors and electronic controls are covered by a 5-year Limited Warranty.

2-Stage Gas Valve—The 355MAV has a special 2-stage gas valve to vary the amount of gas being used. This intelligent heating machine constantly monitors operating conditions to adjust for greater efficiency and comfort. The control reserves the high-firing rate for times when the heating demand is high.

Integrated Control Center—The microprocessor controls the Plus 90i to provide superior comfort. The integrated control center has these additional features:

- dedicated terminals for electrical connections of electronic air cleaners or humidifiers
- adjustable blower-off time
- LED fault code display to aid in servicing
- selectable airflow to match cooling unit
- emergency heat setting
- setting to increase airflow for bypass type humidifier
- selectable constant fan airflow
- a multizone setting for use with zoned air distribution systems
- a special dehumidification terminal to provide greater humidity control in summer months.

Sealed Combustion (Direct Vent) System—Enclosed burner assembly isolates operating noise without the expense of sound-deadening devices. With the sealed combustion (direct vent) system, outdoor air is brought directly into the combustion chamber, cutting cold air infiltration into the structure and reducing heat loss.

3-Pass Primary Heat Exchangers—This design accelerates heat transfer and extracts heat that conventional heat exchangers waste up the flue. The primary heat exchanger is made of aluminized steel for corrosion resistance.

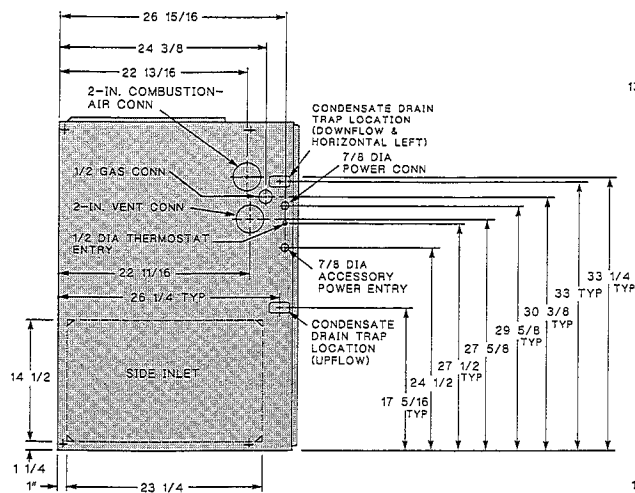
Flow-Through Secondary Heat Exchangers—Each cell is laminated with our patented Everlastic™ Polypropylene for greater resistance to corrosion and is epoxy coated externally to prevent oxidation. This breakthrough in heating technology (Patent No. 4,738,307) helps extend the life of the furnace for years of reliable performance. The heat exchanger is positioned in the furnace to extract additional heat from the combustion products regardless of furnace orientation.

Warranty—Limited Lifetime Warranty on the heat exchangers for the lifetime of the original owner in single-family residence; 20 years in other residential and commercial applications. Contact your dealer for details. Five-year warranty on microprocessor control, variable-speed motors, and a 3-year warranty on all other parts.

Form No. PDS 355M.40.1P

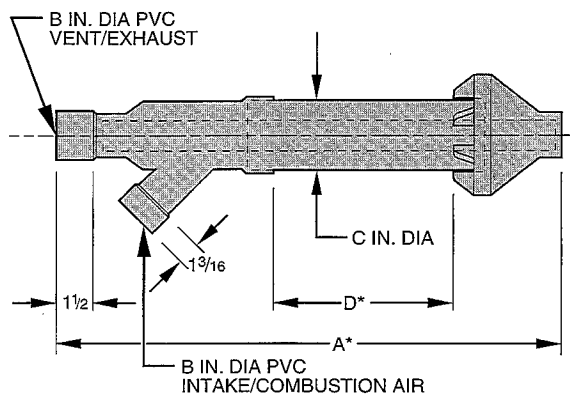
Monoport Inshot Burners—Produce precise air-to-gas mixture for clean burning. The large monoport on the inshot (or injection-type) burners seldom, if ever, need cleaning.

Combustion Air and Ventilation—The 355MAV design is so advanced that Schedule 40PVC, PVC-DWV, SDR-21 PVC, SDR-26 PVC, ABS-DWV, or ABS-F628 Schedule 40 pipe can be used to bring outdoor air into the furnace for combustion. The extracted heat lowers the temperature of the combustion products (typically below 115°F) to a point that PVC pipe can also be used for venting combustion products outside the structure. The combustion-air and vent pipes can terminate through a side wall or through the roof when using our approved vent termination kits.



NOTES: Minimum return-air opening and type:

1. For 800 cfm — 16-in. round or 14-1/2 x 12 in. rectangle
2. For 1200 cfm — 20-in. round or 14-1/2 x 19-1/2 in. rectangle
3. For 1600 cfm — 22-in. round or 14-1/2 x 23-1/4 in. rectangle
4. For airflow requirements above 1800 cfm, use both side inlets, a combination of 1 side inlet and the bottom, or the bottom only.



*DIMENSION MAY BE LENGTHENED BY USING FIELD SUPPLIED MATERIALS. SEE KIT INSTALLATION INSTRUCTIONS.

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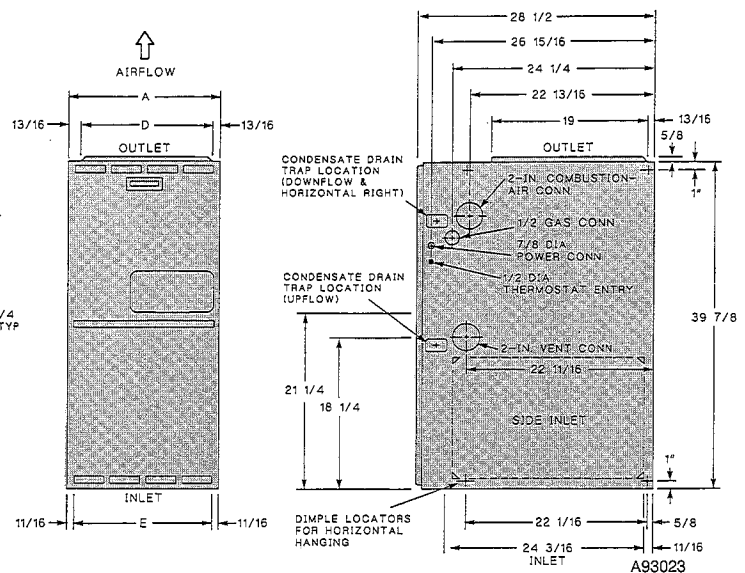
DIMENSIONS (IN.)

PART NO.	A	B	C	D
KGAVT0501CVT	41-1/8	2	3-1/2	27-1/4
KGAVT0601CVT	46-3/4	3	4-1/2	31-7/8

CONCENTRIC VENT

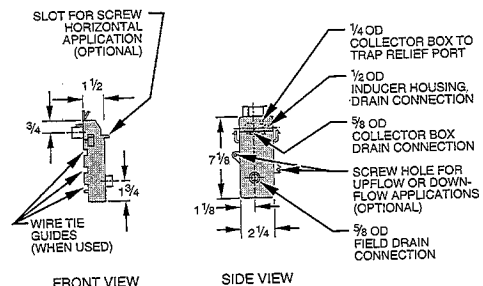
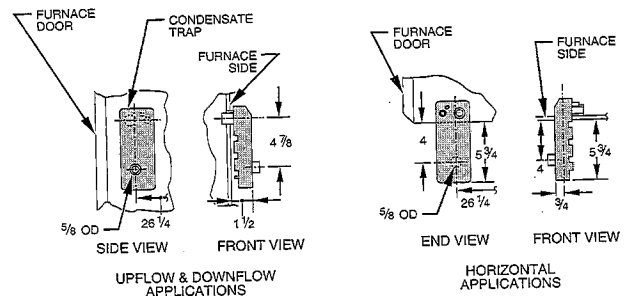
Fully-Insulated Casing—Foil-faced insulation in the heat exchanger section cuts the heat loss; double-density insulation in the blower section reduces noise levels. The casing also has the required openings for left- or right-side connection of gas, electric, drain, and vent connections.

Certifications—The 355MAV units are A.G.A. and C.G.A. design certified for use with natural and propane gases, as well as GAMA efficiency rating certified. The model 355MAV meets the oxides of nitrogen (NO_x) emission levels set by South Coast and Bay Area Air Quality Management Districts in California.



DIMENSIONS (IN.)

UNIT SIZE	A	D	E	SHIP WEIGHT
042040	24-1/2	22-7/8	22	205
042060	17-1/2	15-7/8	16	170
042080	21	19-3/8	18-1/2	182
060100	21	19-3/8	18-1/2	203

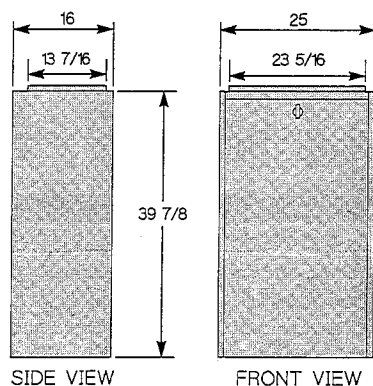


CONDENSATE TRAP

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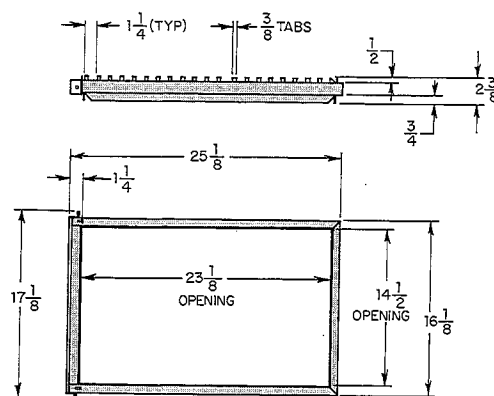
ACCESSORIES

RETURN-AIR PLENUM



A93078

SIDE FILTER RACK



A80199

This unit complies with CAN/CGA 2.3 M86, CAN/CSA C22.2 No. 0-M91, CSA C22.2 No.3-1988 standards.

This appliance is equipped only for altitudes 0 - 2,000 ft (0-610 m) for use with natural gas and propane. A conversion kit, supplied by the manufacturer, shall be used to convert to the alternate fuel or elevation.

This direct-vent, forced-air furnace is for indoor installation in a building constructed on site. For installation in alcove or closet at minimum clearances from combustible material as shown below, minimum front clearance for service is 30 inches. (762 mm).

Upflow furnace only: For installation on combustible flooring.

Downflow furnace only: For installation on non-combustible floors only. For installation on combustible floors only when installed on special base No. KGASB0201ALL.

Horizontal position: Line contact is permissible only between lines formed by intersections of top and two sides of furnace jacket, and building joists, studs, or framing. This furnace is for use with schedule-40 PVC, PVC-DWV, or ABS-DWV pipe, and must not be vented in common with other gas-fired appliances. Construction through which vent/air intake pipes may be installed is maximum 24 inches (600 mm), minimum 3/4 inches (19 mm) thickness (including roofing materials).

Special venting system required. In Canada use certified venting system provided by furnace manufacturer. See Installation Instructions provided with furnace. Flue gas temperature 131°F (55°C) vent pressure positive.

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIAL

INCHES	TOP	SIDES	BACK	FRONT	VENT	
	1	0	0	3	0	UPFLOW
	1	0	0	3	0	DOWNFLOW
	1	1 *	0	3	0	HORIZONTAL

* Clearance shown is for air inlet and air outlet end.

A93060



MEETS DOE RESIDENTIAL CONSERVATION SERVICES PROGRAM STANDARDS.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

SPECIFICATIONS

UNIT SIZES	042040	042060	042080	060100
RATINGS AND PERFORMANCE				
Input Btuh* (Low/High)	26,000/40,000	39,000/60,000	52,000/80,000	65,000/100,000
Output Capacity Btuh† (Low/High)	(ICS)‡ 24,700/38,000	37,100/57,000	49,400/76,000	61,800/95,000
AFUE%†	(ICS)‡ 96.6	94.0	94.0	94.0
Certified Temperature Rise Range °F (Low/High)	40—50/40—50	60—70/50—60	60—70/50—60	60—70/60—70
Certified External Static Pressure (ESP) (in. wc)	Heating	0.10	0.12	0.20
	Cooling	0.50	0.50	0.50
Airflow, Cfm (Low/High)**	Heating	500/780	515/925	690/1235
	Cooling	1400	1400	1400
ELECTRICAL				
Unit Volts—Hertz—Phase	115—60—1			
Minimum Wire Size, AWG	14	14	14	12
Maximum Wire Length (ft)††	44	44	44	44
Maximum Unit Amps	9.0	9.0	9.0	13.0
Operating Voltage Range Min—Max‡‡	104—127			
Maximum Fuse Size or Ckt Bkr Amps***	15	15	15	20
Transformer (24v)	60va			
External Control	Heating	16va		
	Cooling	24va		
Power Available				
Accessory Relay	Standard			
CONTROLS				
Limit Control	SPST			
Heating Blower Control (Off-Delay)	Selectable 90, 135, 180 or 225 Sec Intervals			
Burners (Monoport)	2	3	4	5
Gas Connection Size	1/2-in. NPT			
GAS CONTROLS				
Gas Valve (Redundant 2-Stage)	Manufacturer	White-Rodgers		
	Min Inlet Pressure (in. wc)	4.5 (Natural gas)		
	Max Inlet Pressure (in. wc)	13.6 (Natural gas)		
Ignition Device	Hot Surface			
BLOWER DATA				
Direct-Drive Motor HP—Type	1/2—ICM	1/2—ICM	1/2—ICM	1—ICM
Motor Full Load Amps	7.0	7.0	7.0	12.0
RPM (Nominal)—Speeds	Variable 300—1300			
Blower Wheel Diameter x Width	11 x 10	10 x 7	11 x 10	11 x 10
Filter Size—Permanent Washable	(1) 16 x 25 x 1	(1) 16 x 25 x 1	(1) 20 x 25 x 1	(2) 16 x 25 x 1
DEALER-INSTALLED OPTIONS				
Electronic Air Cleaner	Model 901K			
Humidifier	Model 913B			
Side Filter Rack†††	KGAFR0106ALL (with Permanent, Washable Filter Size 16 x 25 x 1 in.)			
Return-Air Drop Duct	KGARP0201ALL (with Permanent, Washable Filter Size 2—20 x 25 x 1 in.)			
Downflow Base	KGASB0201ALL			
Return-Air Duct Flange Kit	KGARF0110ALL (Used on Downflow/Horizontal)			
Gas Conversion Kit—Natural-to-Propane	KGANP24012SP			
Gas Conversion Kit—Propane-to-Natural	KGAPN20012SP			
Vent Termination Kit (Bracket Only for 2 Pipes)	2-in.—KGAVT0101BRA		3-in.—KGAVT0201BRA	
Concentric Vent Termination Kit (Single Pipe)	2-in.—KGAVT0501CVT		3-in.—KGAVT0601CVT	
Side-Wall Vent Terminal Cover	2-in.—KGAVT0301COV		3-in.—KGAVT0401COV	

* Gas input ratings are certified for elevations to 2000 ft. For elevations above 2000 ft, reduce ratings 4% for each 1000 ft above sea level. In Canada, from 2000 to 4500 ft above sea level, derate the unit 10%.

† Capacity and AFUE in accordance with U.S. Government DOE test procedures.

‡ ICS—Isolated Combustion System.

** Air delivery above 1800 cfm requires that both sides, a combination of 1 side and bottom, or bottom only of the furnace be used for return air. A filter is required for each return-air supply.

†† Length shown is measured 1 way along wire path between unit and service panel for maximum 2% voltage drop.

‡‡ Permissible voltage limits for proper furnace operation.

*** Time-delay fuse is recommended.

††† Side filter rack is required for right-side return-air installations.

COMBUSTION-AIR AND VENT PIPING
MAXIMUM ALLOWABLE PIPE LENGTH (FT)

ALTITUDE ABOVE SEA LEVEL (FT)	UNIT SIZE	TERMINATION TYPE	PIPE SIZE DIA (IN.)	NUMBER OF 90° ELBOWS					
				1	2	3	4	5	6
0 to 2000	040	2 Pipe or 2-In. Concentric	1-1/2	70	70	65	65	60	55
			2	70	70	70	70	70	70
	060	2 Pipe or 2-In. Concentric	1-1/2	70	70	65	65	60	55
			2	70	70	70	70	70	70
	080	2 Pipe or 2-In. Concentric	1-1/2	40	35	30	25	20	15
			2	70	70	70	70	70	70
	100	2 Pipe or 2-In. Concentric	2	60	55	45	40	35	25
			2-1/2	70	70	70	70	70	70
2001 to 3000	040	2 Pipe or 2-In. Concentric	1-1/2	63	62	57	57	52	47
			2	70	70	70	70	70	70
	060	2 Pipe or 2-In. Concentric	1-1/2	63	62	57	57	52	47
			2	70	70	70	70	70	70
	080	2 Pipe or 2-In. Concentric	1-1/2	35	30	25	20	15	10
			2	70	70	70	70	70	70
	100	2 Pipe or 2-In. Concentric	2	54	49	39	34	29	20
			2-1/2	70	70	70	70	70	70
3001 to 4000	040	2 Pipe or 2-In. Concentric	1-1/2	59	59	54	53	48	43
			2	70	70	70	70	70	70
	060	2 Pipe or 2-In. Concentric	1-1/2	59	59	54	53	48	43
			2	70	70	70	70	70	70
	080	2 Pipe or 2-In. Concentric	1-1/2	33	28	23	18	13	8
			2	70	70	70	70	70	70
	100	2 Pipe or 2-In. Concentric	2	51	46	36	31	26	17
			2-1/2	70	70	70	70	70	70
4001 to 5000*	040	2 Pipe or 2-In. Concentric	1-1/2	56	55	50	49	44	39
			2	70	70	70	70	70	70
	060	2 Pipe or 2-In. Concentric	1-1/2	56	55	50	49	44	39
			2	70	70	70	70	70	70
	080	2 Pipe or 2-In. Concentric	1-1/2	31	26	21	16	11	6
			2	70	70	70	70	70	70
	100	2 Pipe or 2-In. Concentric	2	48	43	34	29	24	15
			2-1/2	70	70	70	70	70	70
5001 to 6000*	040	2 Pipe or 2-In. Concentric	1-1/2	53	52	47	45	40	35
			2	70	70	70	70	70	70
	060	2 Pipe or 2-In. Concentric	1-1/2	53	52	47	45	40	35
			2	70	70	70	70	70	70
	080	2 Pipe or 2-In. Concentric	1-1/2	29	24	19	14	9	4
			2	70	70	70	70	70	70
	100	2 Pipe or 2-In. Concentric	2	45	40	31	26	21	12
			2-1/2	70	70	70	70	70	70
6001 to 7000*	040	2 Pipe or 2-In. Concentric	1-1/2	49	48	43	42	37	32
			2	70	70	68	67	66	64
	060	2 Pipe or 2-In. Concentric	1-1/2	49	48	43	42	37	32
			2	70	70	68	67	66	64
	080	2 Pipe or 2-In. Concentric	1-1/2	27	22	17	12	7	2
			2	70	70	68	67	66	64
	100	2 Pipe or 2-In. Concentric	2	42	37	28	23	18	10
			2-1/2	70	70	68	67	66	64
7001 to 8000*	040	2 Pipe or 2-In. Concentric	1-1/2	46	44	39	38	33	28
			2	66	65	63	62	60	59
	060	2 Pipe or 2-In. Concentric	1-1/2	46	44	39	38	33	28
			2	66	65	63	62	60	59
	080	2 Pipe or 2-In. Concentric	1-1/2	25	20	15	10	5	0
			2	66	65	63	62	60	59
	100	2 Pipe or 2-In. Concentric	2	39	34	26	21	16	7
			2-1/2	66	65	63	62	60	59

See notes on page 6.

MAXIMUM ALLOWABLE PIPE LENGTH (FT) Continued

ALTITUDE ABOVE SEA LEVEL (FT)	UNIT SIZE	TERMINATION TYPE	PIPE SIZE DIA (IN.)	NUMBER OF 90° ELBOWS					
				1	2	3	4	5	6
8001 to 9000*	040	2 Pipe or 2-In. Concentric	1-1/2	43	41	36	34	29	24
			2	62	60	58	56	55	53
	060	2 Pipe or 2-In. Concentric	1-1/2	43	41	36	34	29	24
			2	62	60	58	56	55	53
	080	2 Pipe or 2-In. Concentric	1-1/2	23	18	13	8	3	0
			2	62	60	58	56	55	53
	100	2 Pipe or 2-In. Concentric	2	36	31	23	18	13	5
			2-1/2	62	60	58	56	55	53
9001 to 10,000*	040	2 Pipe or 2-In. Concentric	1-1/2	39	37	32	30	25	20
			2	57	55	53	51	49	47
	060	2 Pipe or 2-In. Concentric	1-1/2	39	37	32	30	25	20
			2	57	55	53	51	49	47
	080	2 Pipe or 2-In. Concentric	1-1/2	21	16	11	6	1	0
			2	51	55	53	51	49	47
	100	2 Pipe or 2-In. Concentric	2	33	28	20	15	10	2
			2-1/2	57	55	53	51	49	47

* Vent sizing for Canadian installations above 4500 ft (1730 m) above sea level are subject to acceptance by the local authorities having jurisdiction.

NOTES:

1. Do not use pipe size greater than those specified in table or incomplete combustion, flame disturbance, or flame sense lockout may occur.
2. Size both the combustion-air and vent pipe independently, then use the larger diameter for both pipes.
3. Assume two 45° elbows equal one 90° elbow. Long radius elbows are desirable and may be required in some cases.
4. Elbows and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
5. The minimum pipe length is 5 ft for all applications.

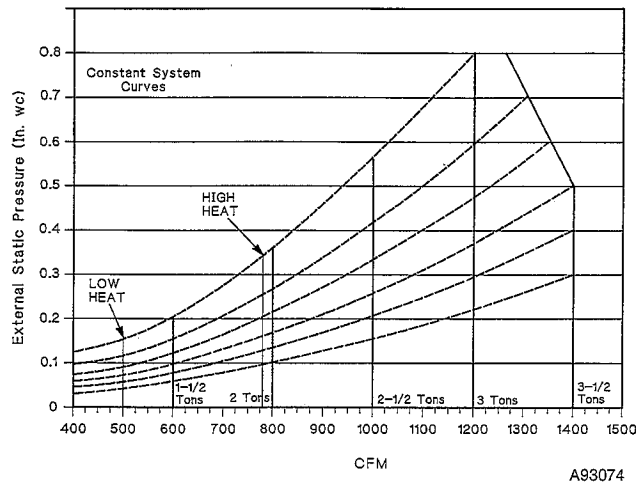
MAXIMUM ALLOWABLE EXPOSED PIPE LENGTH (Ft) WITH INSULATION IN WINTER DESIGN TEMPERATURE AMBIENT*

UNIT MODEL	WINTER DESIGN TEMP °F	MAX PIPE DIA (IN.)	INSULATION THICKNESS (IN.)†				
			0	3/8	1/2	3/4	1
040	20	2	21	37	42	50	57
	0	2	10	22	25	30	35
	-20	2	5	14	17	21	25
060	20	2	30	55	61	70	70
	0	2	16	33	38	46	53
	-20	2	9	23	26	33	38
080	20	2-1/2	37	65	70	70	70
	0	2-1/2	20	39	45	55	63
	-20	2-1/2	11	27	31	39	45
100	20	3	41	70	70	70	70
	0	3	21	42	48	59	68
	-20	3	11	28	33	41	49

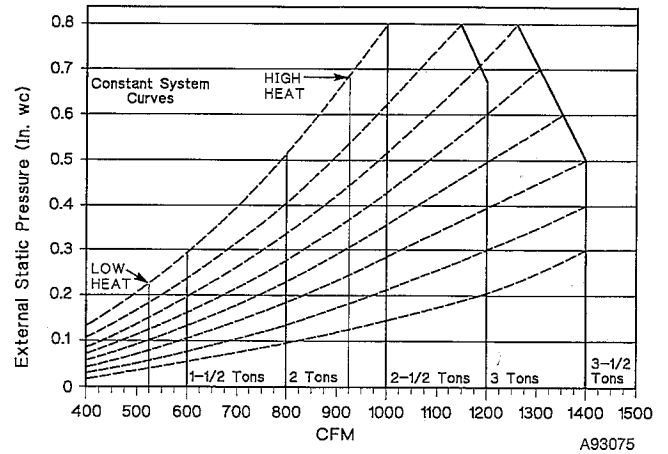
* Pipe length (ft) specified for maximum vent pipe lengths located in unconditioned spaces. Vent pipes located in unconditioned space cannot exceed the total allowable pipe length as specified in maximum allowable pipe length table.

† Insulation thickness based on R value of 3.5 per in.

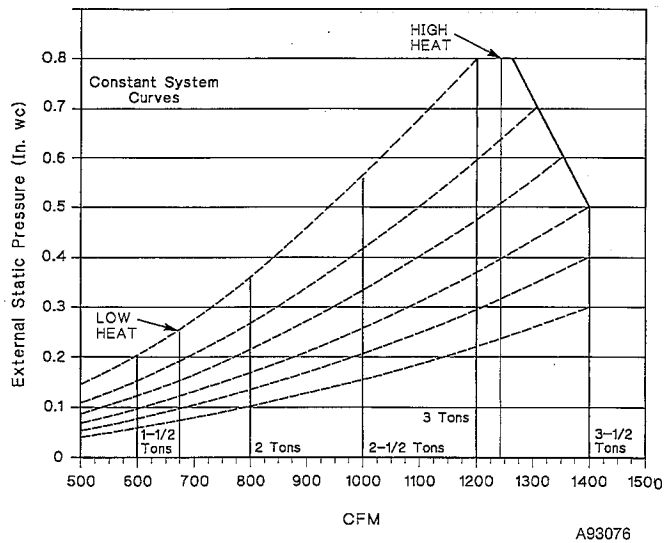
AIR DELIVERY CURVE—042040



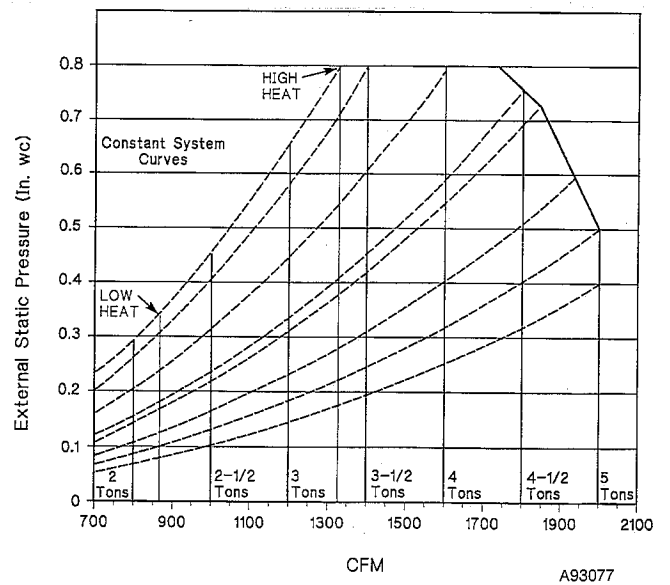
AIR DELIVERY CURVE—042060



AIR DELIVERY CURVE—042080



AIR DELIVERY CURVE—060100



AIR DELIVERY—CFM* (WITH FILTER)

AIRFLOW CFM		OPERATIONAL EXTERNAL STATIC PRESSURE RANGE*
042040		
Low Heat	500	0—0.15
High Heat	780	0—0.35
1-1/2-Ton A/C Setting	600	0—0.29†
2-Ton A/C Setting	800	0—0.50†
2-1/2-Ton A/C Setting	1000	0—0.80†
3-Ton A/C Setting	1200	0—0.68†
3-1/2-Ton A/C Setting	1400	0—0.50
042060		
Low Heat	500	0—0.21
High Heat	925	0—0.68‡
1-1/2-Ton A/C Setting	600	0—0.28†
2-Ton A/C Setting	800	0—0.51†
2-1/2-Ton A/C Setting	1000	0—0.80
3-Ton A/C Setting	1200	0—0.68
3-1/2-Ton A/C Setting	1400	0—0.50
042080		
Low Heat	690	0—0.25
High Heat	1235	0—0.80
1-1/2-Ton A/C Setting	600	0—0.29†
2-Ton A/C Setting	800	0—0.50†
2-1/2-Ton A/C Setting	1000	0—0.80†
3-Ton A/C Setting	1200	0—0.68†
3-1/2-Ton A/C Setting	1400	0—0.50
060100		
Low Heat	860	0—0.35
High Heat	1320	0—0.80
2-Ton A/C Setting	800	0—0.30†
2-1/2-Ton A/C Setting	1000	0—0.46†
3-Ton A/C Setting	1200	0—0.67†
3-1/2-Ton A/C Setting	1400	0—0.80
4-Ton A/C Setting	1600	0—0.80
4-1/2-Ton A/C Setting	1800	0—0.75
5-Ton A/C Setting	2000	0—0.50

* Actual external static pressure (ESP) can be determined by using the fan laws (cfm² proportional to ESP); i.e., a system with 925 cfm at 0.5 ESP would operate at cooling airflow of 800 cfm at 0.37 ESP and low-heating airflow of 515 cfm at 0.15 ESP. (See fan curves.)

† Ductwork must be sized for high-heating cfm within the operational range of ESP.

‡ 0.8-in. wc when used with a 1-1/2 or 2-ton air conditioner.



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE
WITH INSTALLATION INSTRUCTIONS