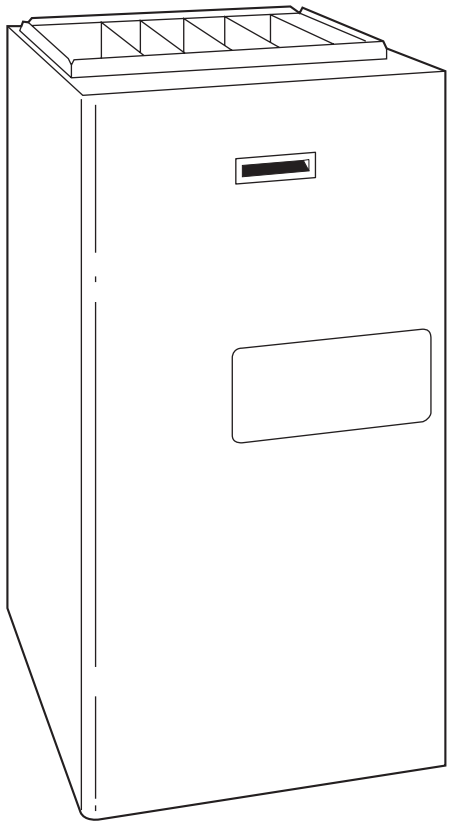
bryant
Heating & Cooling Systems

HIGHLY-EFFICIENT 4-WAY MULTIPOISE FIXED-CAPACITY DELUXE CONDENSING GAS FURNACE

350AAV

Sizes 040 thru 140



A05085

Utilizing the extensive resources available to Bryant, a new standard of excellence has been achieved with the model 350AAV Plus 90™ 4-Way Multipoise Furnace.

The model 350AAV was designed around requirements established by customer focus groups. The result is a unique 4-way multipoise condensing furnace with features like no other product in its class. The 350AAV builds on the many Bryant successes in the furnace industry and establishes a new standard for all high-efficiency gas furnaces.

FEATURES

3-Pass Primary Heat Exchangers—This design accelerates heat transfer and extracts heat that conventional heat exchangers waste up the flue. The weld-free primary heat exchangers are 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. This breakthrough in heating technology helps extend the life of the furnace for years of trouble-free Plus 90 performance. The heat exchanger is positioned in the furnace to extract additional heat from the combustion products regardless of furnace orientation.

Perfect Light™ Igniter—Bryant's unique SiN igniter is not only physically robust but it is also electrically robust. It is capable of running at line voltage and does not require complex voltage regulators as do other brands. This unique feature further enhances the reliability of 350AAV gas furnace and continues Bryant's tradition of providing a reliable and durable product.

Fan On *Plus*™—Improves comfort all year long by allowing you to select the continuous fan speed right at the thermostat.

SmartEvap™—Allows your system to reduce summertime humidity levels by nearly 10% over standard systems.

Media Filter Cabinet—Enhanced indoor air quality in your home is made easier with our media filter cabinet—a standard accessory on all Deluxe furnaces. When installed as a part of your system, this cabinet allows for easy and convenient addition of a Bryant high-efficiency air filter.

Warranty—Limited Lifetime Warranty on the heat exchangers for the lifetime of original owner in single family residence; 20 years in other residential and commercial applications. Five-year Limited Warranty on entire unit.

Microprocessor Control Center—The printed-circuit board and all internal wiring are factory installed. Convenient terminals permit quick-connection of a thermostat, a humidifier, an air cleaner, and air conditioning control circuits.

The control has adjustable blower off delay switches. As an added feature, the control has a built-in status indicator and self-test feature. The status indicator flashes to indicate a problem condition and assists the servicer in diagnosis. The self-test feature allows for a complete check of the major components in only seconds.

4-Way Multipoise Design—Allows a 350AAV model to be installed in an upflow, downflow, or horizontal orientation. Factory configured for upflow applications. Simple changes in the drain connections are all it takes to change to any of the 3 other possible positions.

The model 350AAV is available in 12 heat/airflow combinations, and when combined with the 4-way design, allows for 48 different applications.

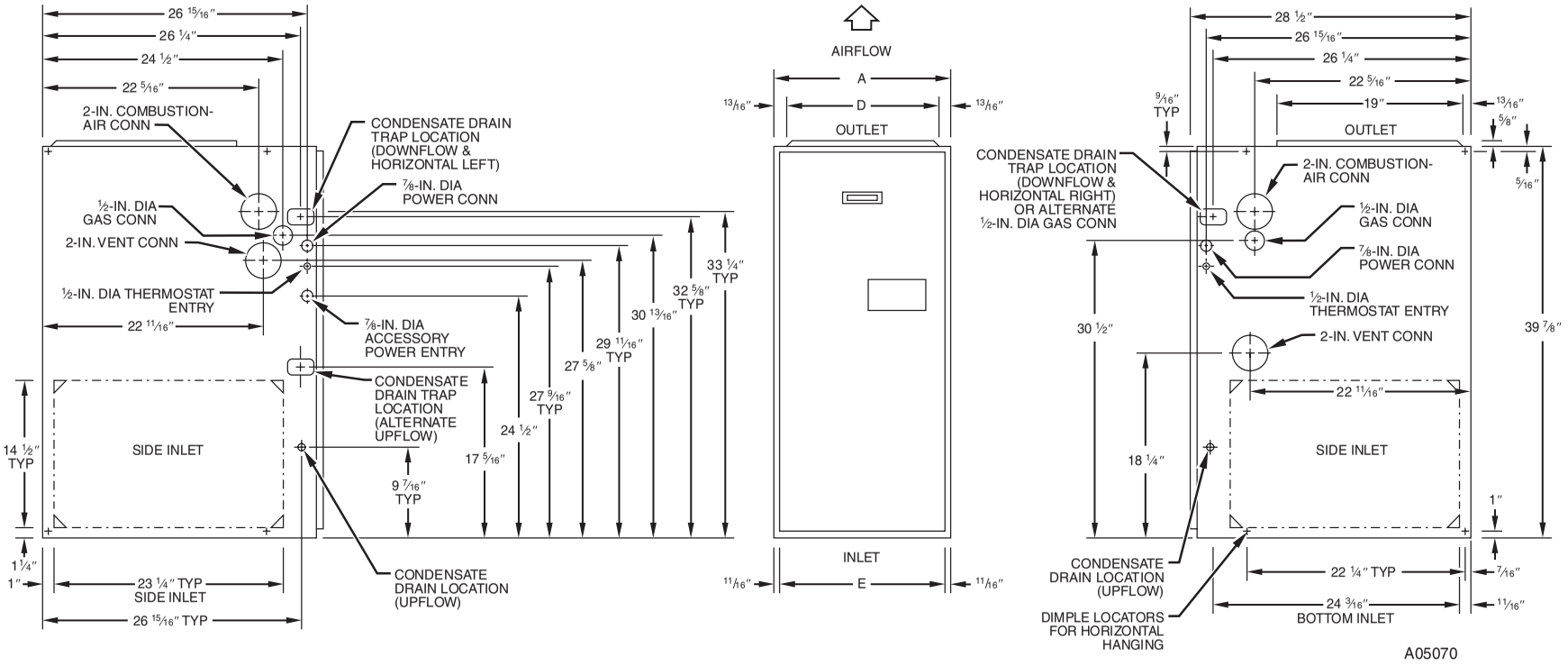
Direct or Non-direct Venting—The 350AAV can be installed as a 1 pipe/Non-Direct vent or 2 pipe/Direct vent furnace (except 140 size unit and in manufactured/mobile home installations). This provides added flexibility to meet diverse installation needs.

Fully-Insulated Casing—Foil-faced insulation in the heat exchanger section cuts heat loss, and 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.

Monoport Inshot Burners—Produce precise air-to-gas mixture which gives a clean burn. The large monoport on the inshot or injection-type burners seldom, if ever, needs cleaning.

Quality Registration—The 350AAV is engineered and manufactured under an ISO 9001 registered quality system.

Certifications—The 350AAV units are CSA (A.G.A. and C.G.A.) design certified for use with natural and propane gases, as well as GAMA efficiency rating certified. The furnace is factory-shipped for use with natural gas. A CSA listed gas conversion kit is required to convert furnace for use with propane gas. The model 350AAV meets the California Air Quality Management District emission requirements. Except for the 140 size unit, all 350AAV models can be installed in a manufactured (mobile) home when the optional kit is used in direct vent (2-pipe) application, and in elevations up to 10,000 ft (140 size unit limitation 7,000 ft).



NOTES:
1. Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer s recommendations for equivalent diameters.
2. Minimum return-air opening at furnace:
   a. For 800 CFM–16-in. round or 14 1/2 x 12-in. rectangle.
   b. For 1200 CFM–20-in. round or 14 1/2 x 19 1/2-in. rectangle.
   c. For 1600 CFM–22-in. round or 14 1/2 x 23 1/4-in. rectangle.
   d. For airflow requirements above 1800 CFM, see Air Delivery table in Product Data literature for specific use of single side inlets. The use of both side inlets, a combination of 1 side and the bottom, or the bottom only will ensure adequate return air openings for airflow requirements above 1800 CFM at 0.5” W.C. ESP.

DIMENSIONS (In.)

UNIT SIZE	A	D	E	SHIP. WEIGHT (Lb)
024040	17-1/2	15-7/8	16	174
036040	17-1/2	15-7/8	16	175
024060	17-1/2	15-7/8	16	180
036060	17-1/2	15-7/8	16	182
048060	17-1/2	15-7/8	16	183
036080	17-1/2	15-7/8	16	198
048080	17-1/2	15-7/8	16	205
060080	21	19-3/8	19-1/2	214
048100	21	19-3/8	19-1/2	229
060100	21	19-3/8	19-1/2	232
060120	24-1/2	22-7/8	23	261
060140	24-1/2	22-7/8	23	261

Clearance to Combustibles

INSTALLATION

This forced air furnace is equipped for use with natural gas at altitudes 0 - 10,000 ft (0 - 3,050m), except 140 size Furnaces are only approved for altitudes 0 - 7,000 ft. (0 - 2,135m). An accessory kit, supplied by the manufacturer, shall be used to convert to propane gas use or may be required for some natural gas applications.

This furnace is for indoor installation in a building constructed on site. This furnace may be installed in a manufactured (mobile) home when stated on rating plate and using factory authorized kit.

This furnace may be installed on combustible flooring in alcove or closet at minimum clearance from combustible material.

This appliance requires a special venting system. Refer to the installation instructions for parts list and method of installation. This furnace is for use with schedule-40 PVC, PVC-DWV, CPVC, 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).

Cette fournaise à air pulsé est équipée pour utilisation avec gaz naturel et altitudes comprises entre 0 - 3,050m (0-10,000 pi), excepté queles fournaises de 140 taille sont pour altitudes comprises entre 0 - 2,135m (0 - 7,000 pi).

Utiliser une trousse de conversion, fournie par le fabricant, pour passer au gaz propane ou pour certaines installations au gaz naturel.

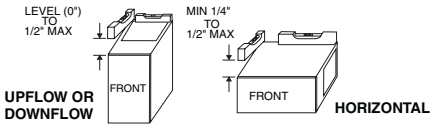
Cette fournaise à air pulsé est pour installation à l´intérieur dans un bâtiment construit sur place. Cette fournaise à air pulsé peut être installée dans une maison préfabriquée (maison mobile) si prescrit par la plaque signalétique et si l´on utilise une trousse specifiée par le fabricant.

Cette fournaise peut être installée sur un plancher combustible dans un enfoncement ou un placard en observant les dégagements minimums avec les matériaux combustibles.

Cet appareil nécessite un système d´évacuation spécial. La méthode d´installation et la liste des pièces nécessaires figurent dans les instructions d´installation.Cette fournaise doit s´utiliser avec la tuyauterie des nomenclatures 40 PVC, PVC-DWV, CPVC, ou ABS-DWV et elle ne peut pas être ventilée conjointment avec d´autres appareils à gaz. Épaisseur de la construction au travers de laquelle il est possible de faire passer les tuyaux d´aération (admission/évacuation): 24 po (600 mm) maximum, 3/4 po (19 mm) minimum (y compris la toiture).

For upflow and downflow applications, furnace must be installed level, or pitched within 1/2" of level. For a horizontal application, the furnace must be pitched minimum 1/4" to maximum of 1/2" forward for proper drainage. See Installation Manual for IMPORTANT unit support details on horizontal applications.

Pour des applications de flux ascendant et descendant, la fournaise doit être installée de niveau ou inclinée à pas plus de 1/2" du niveau. Pour une application horizontale, la fournaise doit être inclinée entre minimum 1/4" et maximum 1/2" du niveau pour le drainage approprié. En cas d'installation en position horizontale, consulter les renseignements IMPORTANTS sur le support dans le manuel d'installation.



UPFLOW OR DOWNFLOW **HORIZONTAL**

MINIMUM INCHES CLEARANCE TO COMBUSTIBLE CONSTRUCTION

ALL POSITIONS:

* Minimum front clearance for service 30 inches (762mm).

†† 140 size furnaces require 1 inch back clearance to combustible materials.

DOWNFLOW POSITIONS:

† For installation on combustible floors only when installed on special base No. KGASB0201ALL, Coil Assembly, Part No. CD5 or CK5, or Coil Casing, Part No. KCAKC.

HORIZONTAL POSITIONS:

Line contact is permissible only between lines formed by intersections of top and two sides of furnace jacket, and building joists, studs, or framing.

§ Clearance shown is for air inlet and air outlet ends.

Ø 120 and 140 size furnaces require 1 inch bottom clearance to combustible materials.

DÉGAGEMENT MINIMUM EN POUCES AVEC ÉLÉMENTS DE CONSTRUCTION COMBUSTIBLES

POUR TOUS LES POSITIONS :

* Dégagement avant minimum de 762mm (30 po) pour l´entretien.

†† Pour les fournaises de 140 taille, 1 po (25mm) dégagement des matériaux combustibles est requis au-arriere.

POUR LA POSITION COURANT DESCENDANT:

† Pour l´installation sur le plancher combustible seulement quand on utilise la base spéciale, pièce n° KGASB0201ALL, l´ensemble serpentin, pièce n° CD5 ou CK5, ou le carter de serpentin, pièce n° KCAKC.

POUR LA POSITION HORIZONTALE:

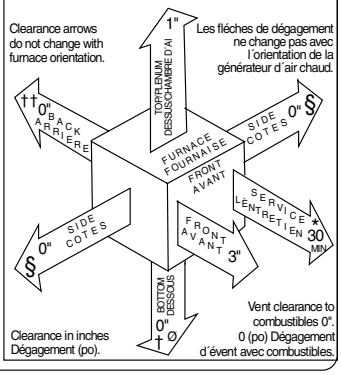
Le contact n´est permis qúentre les lignes formées par les intersections du dessus et des deuxcôtés de la chemise de la fournaise, et des solives, des montants ou de la charpente du bâtiment.

§ La distance indiquée concerne l´extrémité du tuyau d´arrivée d´air et l´extrémité du tuyau de sortie d´air.

Ø Pour les fournaises de 120 et 140 taille, 1 po (25mm) dégagement des matériaux combustibles est requis au-dessous.

This furnace is approved for UPFLOW, DOWNFLOW and HORIZONTAL installations.

Cette fournaise est approuvée pour l´installation HORIZONTALE et la circulation d´air VERS LE HAUT et VERS LE BAS.



324999-201 REV. D (LIT TOP)

A02148

Controls—Thermostats and Zoning

Non-Programmable Thermostat Selection

TSTATBBNAC01-C	For use with 1-spd. Air Conditioner - deg. F/C, Auto Changeover
TSTATBBNHP01-C*	For use with 1-spd. Air Conditioner - deg. F/C, Auto Changeover
TSTATBBN2S01-C*	For use with 2-spd. Air Conditioner - deg. F/C, Auto Changeover
TSTATBBBAC01-B	For use with 1-spd. Air Conditioner - deg. F/C
TSTATBBPRH01-B**	For multi-use / stage configurations - deg. F/C, Auto Changeover/Temperature and Humidity Control

* Model HP and 2S thermostat must be field converted to air conditioner operation.

**Thermidistat Control is versatile and can be configured for multiple use and staging, it must be configured for each specific application.

Programmable Thermostat Selection

TSTATBBPAC01-B	For use with 1-spd. Air Conditioner - deg. F/C, Auto Changeover, 7-Day Programmable
TSTATBBPHP01-B*	For use with 1-spd. Air Conditioner - deg. F/C, Auto Changeover, 7-Day Programmable
TSTATBBP2S01-B*	For use with 2-spd. Air Conditioner - deg. F/C, Auto Changeover, 7-Day Programmable
TSTATBBSAC01	For use with 1-spd. Air Conditioner - deg. F/C, 5-2 Day Programmable
TSTATBBPDF01-B**	For use with multi-stage applications - deg. F/C, Auto Changeover, 7-Day Programmable
TSTATBBPRH01-B***	For multi-use / stage configurations - deg. F/C, Auto Changeover, 7-Day Programmable/Temperature and Humidity Control

* Model HP and 2S thermostat must be field converted to air conditioner operation.

**Dual Fuel thermostat is used with furnace and heat pump application

***Thermidistat Control can be configured for multiple use and staging, it must be configured for each specific application.

Zoning Control Selection

ZONEBB32(AC/HP)01	Zone Perfect Two-Zone kit
ZONEBB2KIT01-B	Zone Perfect *Plus* 2-Zone kit/Temperature and Humidity Control
ZONEBB4KIT01-B	Zone Perfect *Plus* 4-Zone kit/Temperature and Humidity Control
ZONEBB8KIT01-B	Zone Perfect *Plus* 8-Zone kit/Temperature and Humidity Control

MEETS DOE RESIDENTIAL CONSERVATION SERVICES PROGRAM STANDARDS.

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

As an ENERGY STAR® Partner, Bryant Heating & Cooling Systems has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

ISO 9001:2000

REGISTERED QUALITY SYSTEM

These products are engineered and manufactured under an ISO 9001 registered quality system.

SPECIFICATIONS

UNIT SIZE				024040	036040	024060	036060	048060	036080
RATINGS AND PERFORMANCE									
Input Btuh†				40,000	40,000	60,000	60,000	60,000	80,000
Output Capacity BTUH† (ICS) (Shaded capacities are specified on rating plate)	Direct Vent (2-Pipe)		Upflow	38,000	38,000	56,000	56,000	56,000	75,000
			Downflow	38,000	38,000	56,000	56,000	56,000	75,000
			Horizontal	38,000	38,000	56,000	56,000	56,000	74,000
	Non-Direct Vent (1-Pipe)		Upflow	38,000	38,000	56,000	56,000	56,000	75,000
			Downflow	38,000	38,000	56,000	56,000	56,000	74,000
			Horizontal	38,000	38,000	56,000	56,000	56,000	74,000
AFUE† Nonweatherized ICS	Direct Vent (2-Pipe)		Upflow	94.3	95.5	93.0	93.0	93.0	93.0
			Downflow	92.9	94	91.5	91.5	91.5	91.5
			Horizontal	93.7	94.9	92.3	92.3	92.3	92.3
	Non-Direct Vent (1-Pipe)		Upflow	93.9	95.1	92.4			
			Downflow	92.5	93.7	91.4			
			Horizontal	93.3	94.5	91.4			
Certified Temperature Rise Range °F				30—60	15—45	45—75	30—60	20—50	40—70
Certified External Static Pressure			Heating	0.10	0.10	0.12	0.12	0.12	0.15
			Cooling	0.50	0.50	0.50	0.50	0.50	0.50
Airflow CFM‡			Heating	850	1125	885	1065	1320	1190
			Cooling	895	1215	900	1200	1545	1245
ELECTRICAL									
Unit Volts—Hertz—Phase				115—60—1					
Operating Voltage Range Min—Max**				104—127					
Maximum Unit Amps				6.1	7.3	6.1	7.1	9.5	7.6
Unit Ampacity††				8.4	10.0	8.4	9.8	12.8	10.4
Minimum Wire Size				14	14	14	14	14	14
Maximum Wire Length (Ft)‡‡				44	37	44	38	29	36
Maximum Fuse Size or Ckt Bkr Amps (Time-Delay Fuse Recommended)				15	15	15	15	15	15
Transformer (24v)				40va					
External Control Power Available			Heating	12va					
			Cooling	21va					
Air Conditioning Blower Relay				Standard					
CONTROLS									
Limit Control				SPST					
Heating Blower Control (Off Delay)				Selectable 90, 120, 150, or 180 Sec					
Burners (Monoport)				2	2	3	3	3	4
Gas Connection Size				1/2-in. NPT					
GAS CONTROLS									
Gas Valve (Redundant)		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 (Permanent Split Capacitor)				1/5	1/3	1/5	1/3	1/2	1/3
Motor Full Load Amps				4.9	5.8	4.9	5.8	7.9	5.8
RPM (Nominal)—Speeds				1075—3	1075—4	1075—3	1075—4		
Blower Wheel Diameter x Width (In.)				10 x 6	10 x 7	10 x 6	10 x 7	11 x 8	10 x 7
Filter Size (In.)—Permanent Washable				(1) 16 x 25 x 1					
FACTORY-AUTHORIZED AND LISTED, DEALER-INSTALLED OPTIONS									
Gas Conversion Kit—Natural-to-Propane				KGANP4001ALL					
Gas Conversion Kit—Propane-to-Natural				KGAPN3301ALL					
Twinning Kit				N/A		KGATW0601HSI#			
Manufactured (Mobile) Home Kit				KGAMH0102KIT					
Downflow Base***				KGASB0201ALL					
Vent Termination Kit (Bracket Only for 2 Pipes)				2-in.—KGAVT0101BRA 3-in.—KGAVT0201BRA					
Concentric Vent Termination Kit (Single Exit)				2-in.—KGAVT0501CVT 3-in.—KGAVT0601CVT					
Condensate Freeze Protection Kit				KGAHT0101CFP					
Condensate Neutralizer Kit (Obtained thru RCD)				P908-0001					
Electronic/Mechanical Air Cleaner				Model EACB, EZXCAB or FILCAB					
Humidifier				Model HUM					
Heat/Energy Recovery Ventilator				Model HRV, ERV					
UV Lights				Model UVL					
Vent/Exhaust Pipe External Trap Kit				KGAET0106ETK					
Door Gasket Kit				KGBAC0110DGK					

See notes on page 5.

SPECIFICATIONS Continued

UNIT SIZE			048080	060080	048100	060100	060120	060140
RATINGS AND PERFORMANCE								
Input Btuh†			80,000	80,000	100,000	100,000	120,000	138,000
Output Capacity BTUH† (ICS)	Direct Vent (2-Pipe)	Upflow	75,000	75,000	94,000	94,000	113,000	129,000
(Shaded capacities are specified		Downflow	75,000	75,000	94,000	94,000	113,000	129,000
on rating plate)		Horizontal	75,000	75,000	93,000	93,000	112,000	128,000
	Non-Direct Vent (1-Pipe)	Upflow	75,000	75,000	94,000	94,000	112,000	NA
		Downflow	75,000	75,000	93,000	93,000	113,000	NA
		Horizontal	75,000	75,000	93,000	93,000	112,000	NA
AFUE†	Direct Vent (2-Pipe)	Upflow	93.0					92.6
Nonweatherized ICS		Downflow	91.5					91.2
		Horizontal	92.3					92
	Non-Direct Vent (1-Pipe)	Upflow	92.4					NA
		Downflow	91.4					NA
		Horizontal	91.4					NA
Certified Temperature Rise Range °F			30—60	20—50	45—75	30—60	40—70	50—80
Certified External Static Pressure		Heating	0.15	0.15	0.20	0.20	0.20	0.20
		Cooling	0.50	0.50	0.50	0.50	0.50	0.50
Airflow CFM‡		Heating	1285	1785	1315	1690	1720	1970
		Cooling	1525	1925	1570	1930	2000	1990
ELECTRICAL								
Unit Volts—Hertz—Phase			115—60—1					
Operating Voltage Range Min—Max**			104—127					
Maximum Unit Amps			10.0	14.1	10.2	14.8	14.6	14.3
Unit Ampacity††			13.4	18.4	13.5	19.3	19.1	18.8
Minimum Wire Size			14	12	14	12	12	12
Maximum Wire Length (Ft)‡‡			28	31	27	30	30	30
Maximum Fuse or Ckt Bkr Amps (Time-Delay Type Recommended)			15	20	15	20	20	20
Transformer (24v)			40va					
External Control		Heating	12va					
Power Available		Cooling	21va					
Air Conditioning Blower Relay			Standard					
CONTROLS								
Limit Control			SPST					
Heating Blower Control (Off Delay)			Selectable 90, 120, 150, or 180 Sec					
Burners (Monoport)			4	4	5	5	6	6
Gas Connection Size			1/2-in. NPT					
GAS CONTROLS								
Gas Valve (Redundant)		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 (Permanent Split Capacitor)			1/2	3/4	1/2	3/4	3/4	3/4
Motor Full Load Amps			7.9	11.1	7.9	11.1	11.1	11.1
RPM (Nominal)—Speeds			1075—4					
Blower Wheel Diameter x Width (In.)			11 x 8	11 x 10	11 x 8	11 x 10	11 x 10	11 x 10
Filter Size (In.)—Permanent Washable			(1) 16 x 25 x 1	(1) 20 x 25 x 1			(1) 24 x 25 x 1	
FACTORY-AUTHORIZED AND LISTED, DEALER-INSTALLED OPTIONS								
Gas Conversion Kit—Natural-to-Propane			KGANP4001ALL					
Gas Conversion Kit—Propane-to-Natural			KGAPN3301ALL					
Twinning Kit			KGATW0601HSI#					N/A
Manufactured (Mobile) Home Kit			KGAMH0102KIT					N/A
Downflow Base***			KGASB0201ALL					
Vent Termination Kit (Bracket Only for 2 Pipes)			2-in.—KGAVT0101BRA 3-in.—KGAVT0201BRA					
Concentric Vent Termination Kit (Single Exit)			2-in.—KGAVT0501CVT 3-in.—KGAVT0601CVT					
Condensate Freeze Protection Kit			KGAHT0101CFP					
Condensate Neutralizer Kit (Obtained thru RCD)			P908-0001					
Electronic/Mechanical Air Cleaner			Model EACB, EZXCAB, or FILCAB					
Humidifier			Model HUM					
Heat/Energy Recovery Ventilator			Model HRV, ERV					
UV Lights			Model UVL					
Vent/Exhaust Pipe External Trap Kit			KGAET0106ETK					
Door Gasket Kit			KGBAC0110DGK					

* Gas input ratings are certified for elevations to 2000 ft. For elevations above 2000 ft, reduce ratings 2% for each 1000 ft above sea level. In Canada, derate the unit 5% from 2000 to 4500 ft above sea level.

† Capacity and AFUE in accordance with U.S. Government DOE test procedures effective November 10, 1997.

‡ • Airflow shown is for bottom only return-air supply with factory-supplied 1-in. washable filter(s).
• For air delivery above 1800 CFM, see Air Delivery table for other options.
• An airflow reduction of up to 7% may occur when using the factory-specified 4 5/16-inch wide, high efficiency media filter.
• For best furnace efficiency when using the 4 5/16-inch wide media filter, adjust the blower speed tap to near the mid-point of the rise range.

** Permissible voltage limits for proper furnace operation.

†† Unit ampacity = 125% of largest component's full load amps plus 100% of all other potential operating components (EAC, humidifier, etc.).

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

*** Required for installation on combustible floors when no coil box is used, or when any coil box other than a Bryant CD5 or CK5 cased coil is used.

N/A—Not applicable

ICS—Isolated Combustion System

\# Per 4 tons and 5 tons airflow sizes only (except 060140 size unit) see kit installation instructions for details.

COMBUSTION-AIR AND VENT PIPING FOR DIRECT VENT/2-PIPE (ALL SIZES) AND NON-DIRECT VENT/1-PIPE (SIZES 040 THROUGH 120 ONLY) APPLICATIONS

MAXIMUM ALLOWABLE PIPE LENGTH (FT)

ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN.)*	PIPE DIA (IN.)*	1	2	3	4	5	6
0 to 2000	40,000	2 Pipe or 2-in Concentric	1	1	5	NA	NA	NA	NA	NA
			1-1/2	1-1/2	70	70	65	60	60	55
			2	2	70	70	70	70	70	70
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	20	15	10	5	NA	NA
			2	2	70	70	70	70	70	70
	80,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	10	NA	NA	NA	NA	NA
			2	2	55	50	35	30	30	20
			2-1/2	2-1/2	70	70	70	70	70	70
	100,000	2 Pipe or 3-in Concentric	2	2	5	NA	NA	NA	NA	NA
			2-1/2	2-1/2	40	30	20	20	10	NA
			3	3	70	70	70	70	70	70
	120,000	2 Pipe or 3-in. Concentric	2-1/2 one disk	2-1/2	10	NA	NA	NA	NA	NA
			3†	NA	45	40	35	30	25	20
			3† no disk	3†	70	70	70	70	70	70
	138,000	2 Pipe or 3-in. Concentric	2-1/2 one disk	NA	5	NA	NA	NA	NA	NA
			3† one disk	NA	40	35	30	25	20	15
			3† no disk	NA	60	56	52	48	44	40
			4† no disk	NA	70	70	70	70	70	70
ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN.)*	PIPE DIA (IN.)*	1	2	3	4	5	6
2001 to 3000	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	67	62	57	52	52	47
			2	2	70	70	70	70	70	70
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	17	12	7	NA	NA	NA
			2	2	70	67	66	61	61	61
	80,000	2 Pipe or 2-in Concentric	2	2	49	44	30	25	25	15
			2-1/2	2-1/2	70	70	70	70	70	70
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	35	26	16	16	6	NA
			3	3	70	70	70	70	66	61
	120,000	2 Pipe or 3-in. Concentric	3	NA	14	9	NA	NA	NA	NA
			NA	3†	63	62	62	61	61	61
			3† no disk	NA	70	70	63	56	50	43
			4† no disk	4† no disk	70	70	70	70	70	70
	138,000	2 Pipe or 3-in. Concentric	3† one disk	NA	20	15	10	5	NA	NA
			3† no disk	NA	39	35	31	27	23	19
			4† no disk	NA	70	70	70	70	70	70
ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN)*	PIPE DIA (IN.)*	1	2	3	4	5	6
3001 to 4000	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	64	59	54	49	48	43
			2	2	70	70	70	70	70	70
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	16	11	6	NA	NA	NA
			2	2	68	63	62	57	57	56
	80,000	2 Pipe or 2-in Concentric	2	2	46	41	28	23	22	13
			2-1/2	2-1/2	70	70	70	70	70	70
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	33	24	15	14	5	NA
			3	3	70	70	70	66	61	56
	120,000	2 Pipe or 3-in. Concentric	3† no disk	NA	65	58	51	44	38	31
			NA	3†	59	59	58	57	57	56
		4† no disk	4† no disk	4† no disk	70	70	70	70	70	70
	138,000	2 Pipe or 3-in. Concentric	3† one disk	NA	11	6	NA	NA	NA	NA
			3† no disk	NA	30	26	22	18	14	10
			4† no disk	NA	70	70	70	70	70	70

See notes at end of table

COMBUSTION-AIR AND VENT PIPING FOR DIRECT VENT/2-PIPE (ALL SIZES) AND NON-DIRECT VENT/1-PIPE (SIZES 040 THROUGH 120 ONLY) APPLICATIONS

MAXIMUM ALLOWABLE PIPE LENGTH (FT) (CONTINUED)

ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN.)*	PIPE DIA (IN.)*	1	2	3	4	5	6
4001 to 5000‡	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	60	55	50	45	44	39
			2	2	70	70	70	70	70	70
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	15	10	5	NA	NA	NA
			2	2	64	59	58	53	52	52
	80,000	2 Pipe or 2-in Concentric	2	2	44	39	26	21	20	11
			2-1/2	2-1/2	70	70	70	70	70	70
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	31	22	13	12	NA	NA
			3	3	70	70	67	62	57	52
	120,000	2 Pipe or 3-in. Concentric	3† no disk	NA	53	46	40	33	26	20
			NA	3†	56	55	54	53	52	52
			4† no disk	4† no disk	70	70	70	70	70	70
	138,000	2 Pipe or 3-in. Concentric	3† no disk	NA	21	17	13	9	5	NA
			4† no disk	NA	69	64	59	54	49	44
ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN.)*	PIPE DIA (IN.)*	1	2	3	4	5	6
5001 to 6000‡	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	57	52	47	42	40	35
			2	2	70	70	70	70	70	70
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	14	9	NA	NA	NA	NA
			2	2	60	55	54	49	48	47
	80,000	2 Pipe or 2-in Concentric	2	2	41	36	23	18	17	8
			2-1/2	2-1/2	70	70	70	70	70	70
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	29	21	12	11	NA	NA
			3	3	70	67	62	57	52	47
	120,000	2 Pipe or 3-in. Concentric	3† no disk	NA	42	35	29	22	15	9
			NA	3†	53	52	50	49	48	47
			4† no disk	4† no disk	70	70	70	70	70	70
	138,000	2 Pipe or 3-in. Concentric	3† no disk	NA	12	8	NA	NA	NA	NA
			4† no disk	NA	42	37	32	27	22	17
ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN)*	PIPE DIA (IN)*	1	2	3	4	5	6
6001 to 7000‡	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	53	48	43	38	37	32
			2	2	70	70	68	67	66	64
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	13	8	NA	NA	NA	NA
			2	2	57	52	50	45	44	43
	80,000	2 Pipe or 2-in Concentric	2	2	38	33	21	16	15	6
			2-1/2	2-1/2	70	70	68	67	66	64
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	27	19	10	9	NA	NA
			3	3	68	63	58	53	48	43
	120,000	2 Pipe or 3-in. Concentric	3† no disk	NA	31	24	18	11	NA	NA
			NA	3†	49	48	47	45	44	43
			4† no disk	4† no disk	70	70	70	70	67	62
	138,000	2 Pipe or 3-in. Concentric	4† no disk	NA	17	12	7	NA	NA	NA

See notes at end of table

COMBUSTION-AIR AND VENT PIPING FOR DIRECT VENT/2-PIPE (ALL SIZES) AND NON-DIRECT VENT/1-PIPE (SIZES 040 THROUGH 120 ONLY) APPLICATIONS

MAXIMUM ALLOWABLE PIPE LENGTH (FT) (CONTINUED)

ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN.)*	PIPE DIA (IN.)*	1	2	3	4	5	6
7001 to 8000‡	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	49	44	39	34	33	28
			2	2	66	65	63	62	60	59
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	12	7	NA	NA	NA	NA
			2	2	53	48	46	41	40	38
	80,000	2 Pipe or 2-in Concentric	2	2	36	31	19	14	12	NA
			2-1/2	2-1/2	66	65	63	62	60	59
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	25	17	8	7	NA	NA
			3	3	63	58	53	48	43	38
	120,000	2 Pipe or 3-in. Concentric	3† no disk	NA	20	13	7	NA	NA	NA
			NA	3†	46	44	43	41	40	38
			4† no disk	4† no disk	61	56	51	46	41	36
	138,000	NA								

ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN.)*	PIPE DIA (IN.)*	1	2	3	4	5	6
8001 to 9000‡	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	46	41	36	31	29	24
			2	2	62	60	58	56	55	53
	60,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	11	6	NA	NA	NA	NA
			2	2	49	44	42	37	35	34
	80,000	2 Pipe or 2-in Concentric	2	2	33	28	17	12	10	NA
			2-1/2	2-1/2	62	60	58	56	55	53
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	23	15	7	5	NA	NA
			3	3	59	54	49	44	39	34
	120,000	2 Pipe or 3-in. Concentric	3† no disk	NA	10	NA	NA	NA	NA	NA
			NA	3†	43	41	39	37	35	34
			4† no disk	4† no disk	35	30	25	20	15	10
	138,000	NA								

ALTITUDE (FT)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA (IN.)*	PIPE DIA (IN.)*	1	2	3	4	5	6
9001 to 10,000‡	40,000	2 Pipe or 2-in Concentric	1-1/2	1-1/2	42	37	32	27	25	20
			2	2	57	55	53	51	49	47
	60,000	2 Pipe or 2-in Concentric	2	2	45	40	38	33	31	29
	80,000	2 Pipe or 2-in Concentric	2	2	30	25	14	9	7	NA
			2-1/2	2-1/2	57	55	53	51	49	47
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	21	13	5	NA	NA	NA
			3	3	54	49	44	39	34	29
	120,000	2 Pipe or 3-in. Concentric	NA	3†	39	37	35	33	31	29
			4† no disk	4† no disk	10	5	NA	NA	NA	NA
	138,000	NA								

*Disk usage-Unless otherwise specified, use perforated disk assembly (factory-supplied in loose parts bag). If one disk is stated, separate 2 halves of perforated disk assembly and use shouldered disk half. When using shouldered disk half, install screen side toward inlet box.
†Wide radius elbow.
‡Vent sizing for Canadian installations over 4500 ft (1370 m) above sea level are subject to acceptance by the local authorities having jurisdiction.
NA-Not Allowed; pressure switch will not make.

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. Wide 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.
6. Use 3-in. diameter vent termination kit for installations requiring 4-in diameter pipe.

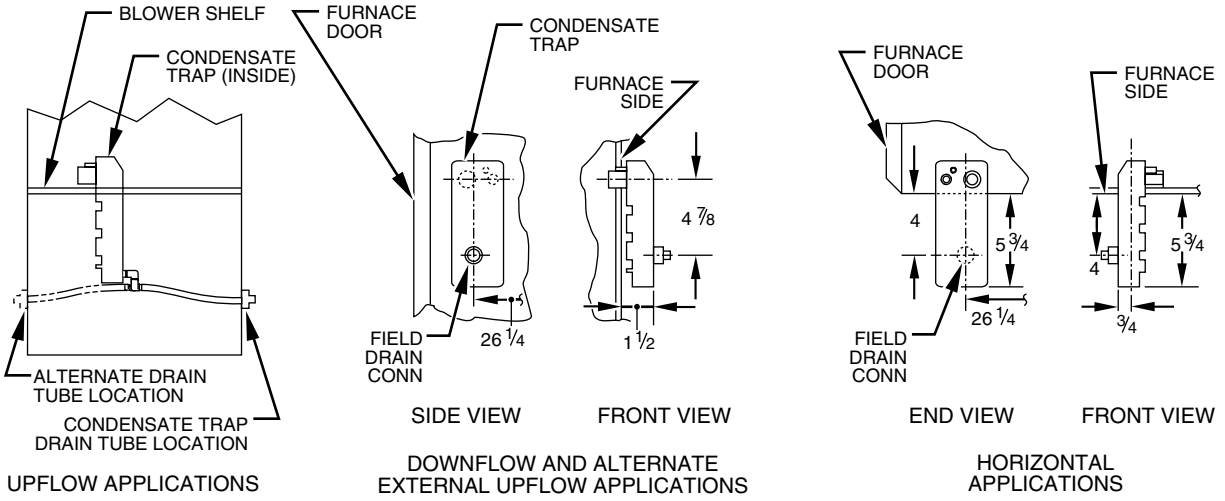
MAXIMUM ALLOWABLE EXPOSED VENT PIPE LENGTH (FT) WITH AND WITHOUT INSULATION IN WINTER DESIGN TEMPERATURE AMBIENT*

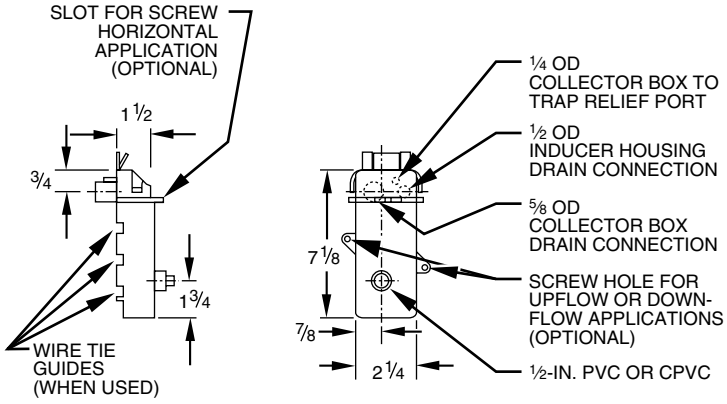
UNIT SIZE	WINTER DESIGN TEMPERATURE (°F)	MAX PIPE DIAMETER (IN.)	WITHOUT INSULATION	WITH 3/8-IN. OR THICKER INSULATION†
024040 036040	20	1-1/2	51	70
	0	1-1/2	28	70
	–20	1-1/2	16	70
024060 036060 048060	20	2	65	70
	0	2	35	70
	–20	2	20	70
036080 048080 060080	20	2-1/2	70	70
	0	2-1/2	47	70
	–20	2-1/2	28	70
048100 060100	20	3	70	70
	0	3	50	70
	–20	3	28	70
060120	20	4	70	70
	0	4	48	70
	–20	4	23	70
060140	20	4	70	70
	0	4	57	70
	–20	4	30	70

* 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.

CONDENSATE TRAP

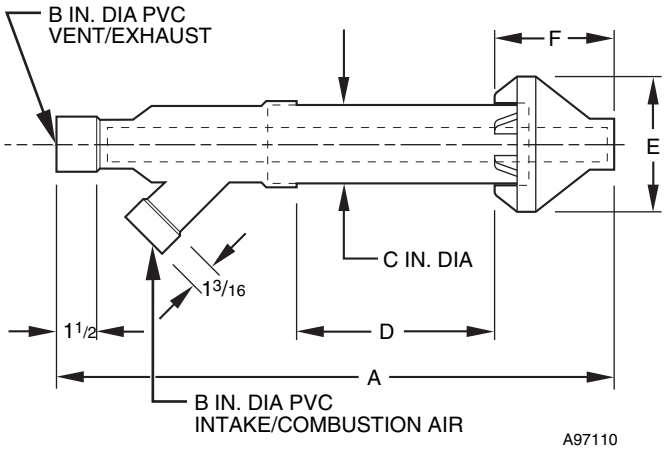




A93026

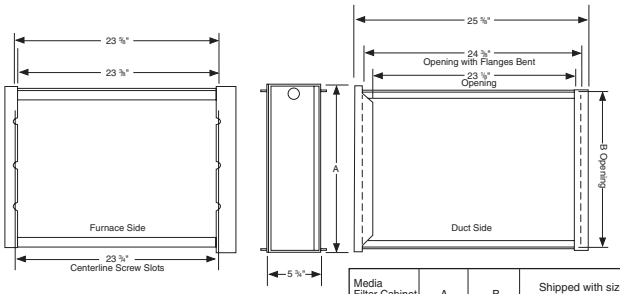
ACCESSORIES

CONCENTRIC VENT FOR DIRECT VENT (2-PIPE) APPLICATION (ALL MODEL SIZES)



A97110

MEDIA FILTER CABINET



Media Filter Cabinet	A	B	Shipped with sizes
16"	17"	16"	024040, 036040, 024060, 036060, 048060, 036080, 048080
20"	21"	20"	060080, 048100, 060100
24"	25"	24"	060120, 060140

A05218

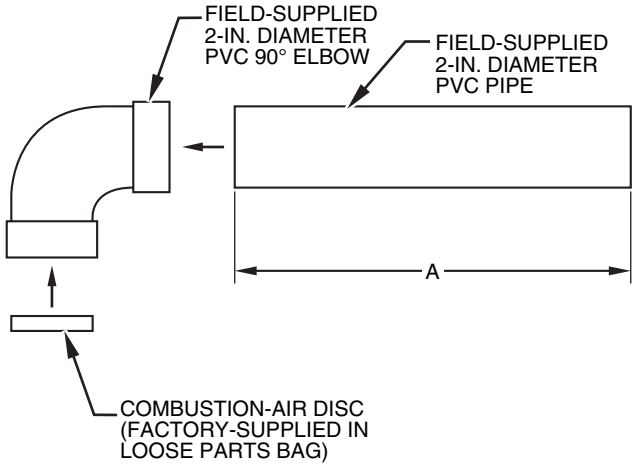
DIMENSIONS (In.)

PART NO.	A*	B	C	D†	E	F
KGAVT0501CVT	33-3/8	2	3-1/2	16-5/8	6-1/4	5-3/4
KGAVT0601CVT	38-7/8	3	4-1/2	21-1/8	7-3/8	6-1/2

* Dimension A will change accordingly as dimension D is lengthened or shortened.
† Dimension D may be lengthened to 60 in. maximum. Dimension D may also be shortened by cutting the pipes provided in the kit to 12 in. minimum.

NOTE: See furnace Installation Instructions when venting multiple furnaces near each other.

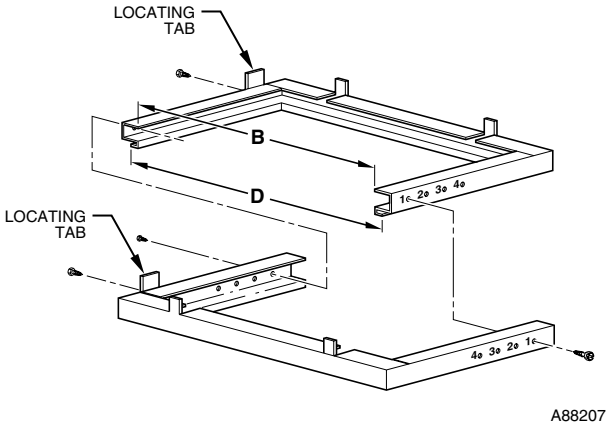
ACCESSORY DOWNFLOW SUBBASE



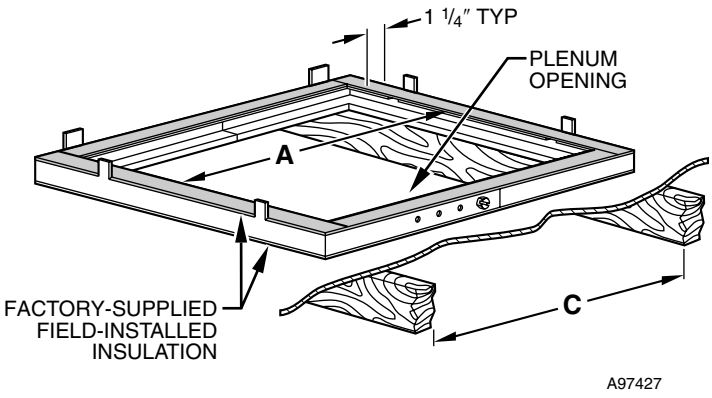
LENGTH OF STRAIGHT PIPE PORTION OF COMBUSTION AIR INLET PIPE ASSEMBLY (IN.)

CASING WIDTH	A
17-1/2	8-1/2 ± 1/2
21	10-1/2 ± 1/2
24-1/2	12 ± 1/2

ACCESSORY DOWNFLOW SUBBASE



Disassembled



Assembled

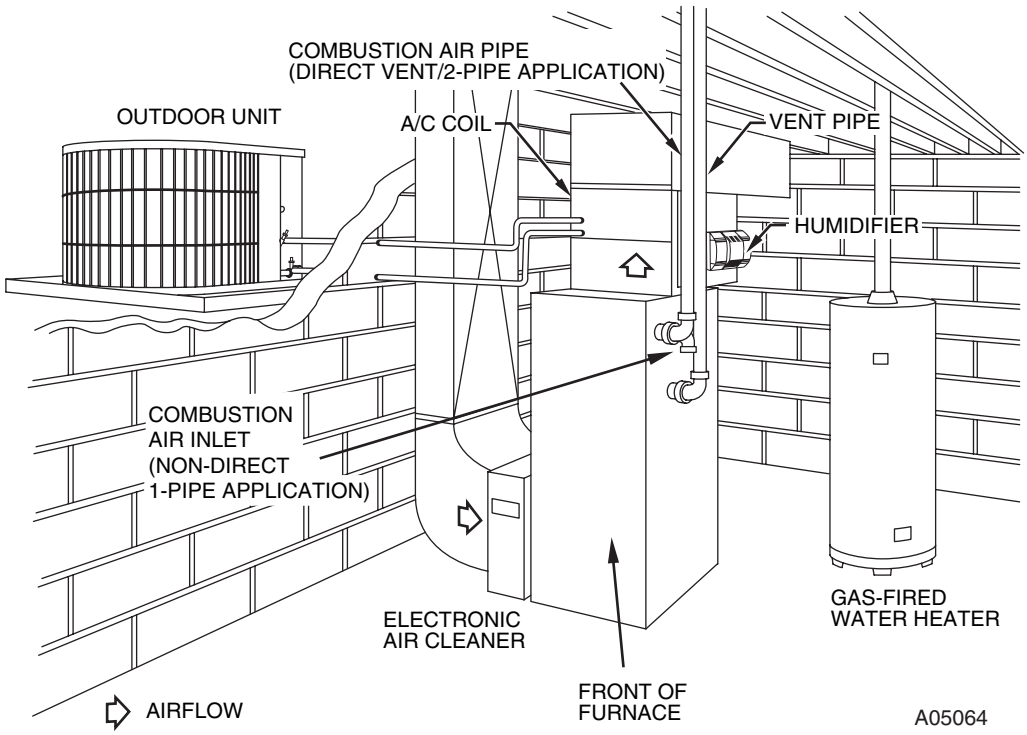
FURNACE CASING WIDTH	FURNACE IN DOWNFLOW APPLICATION	PLENUM OPENING*		FLOOR OPENING		HOLE NO. FOR WIDTH ADJUSTMENT
		A	B	C	D	
17-1/2	Furnace with or without Cased Coil Assembly or Coil Box	15-1/8	19	16-3/4	20-3/8	3
21	Furnace with or without Cased Coil Assembly or Coil Box	18-5/8	19	20-1/4	20-3/8	2
24-1/2	Furnace with or without Cased Coil Assembly or Coil Box	22-1/8	19	23-3/4	20-3/8	1

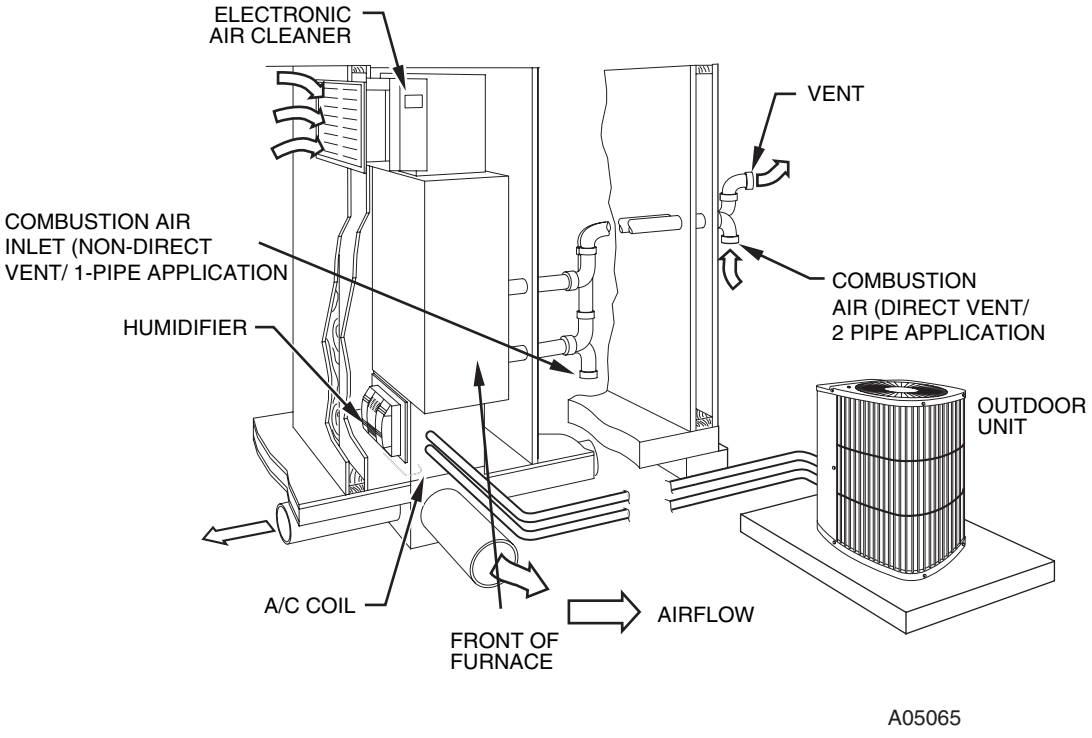
* The plenum should be constructed 1/4 in. smaller in width and depth than the plenum dimensions shown above.

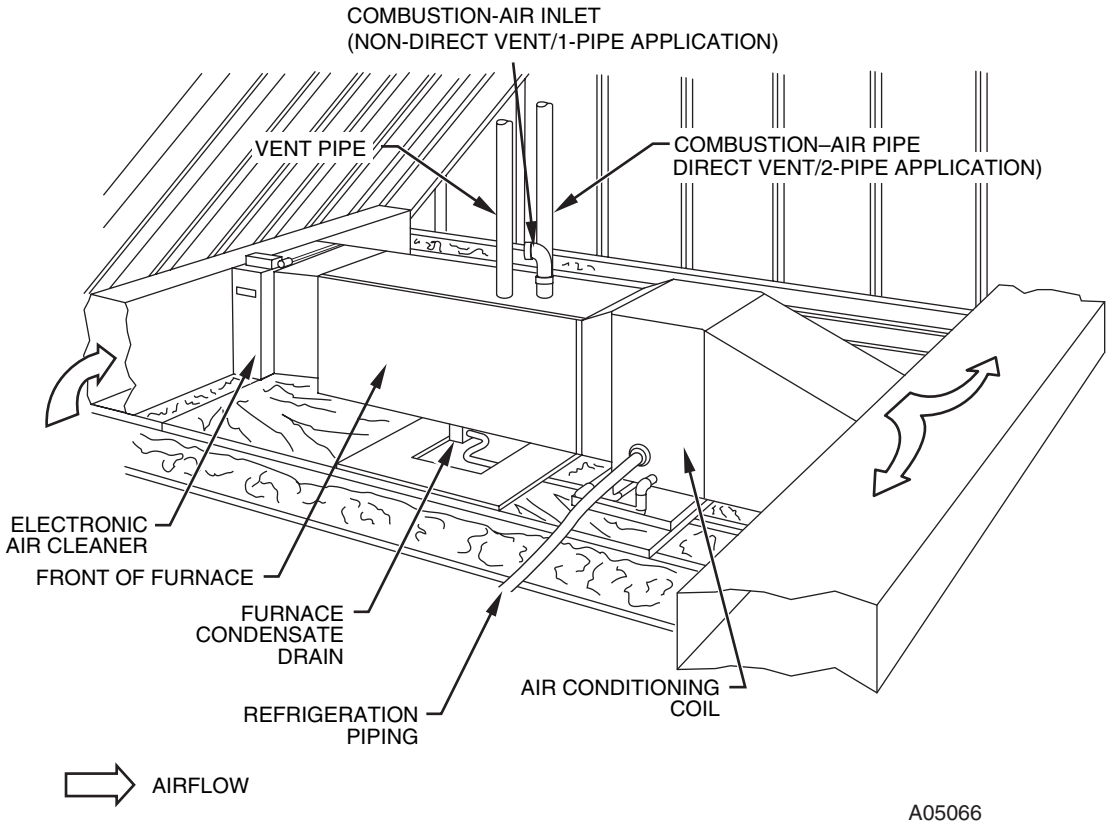
AIR DELIVERY—CFM (With Filter)*

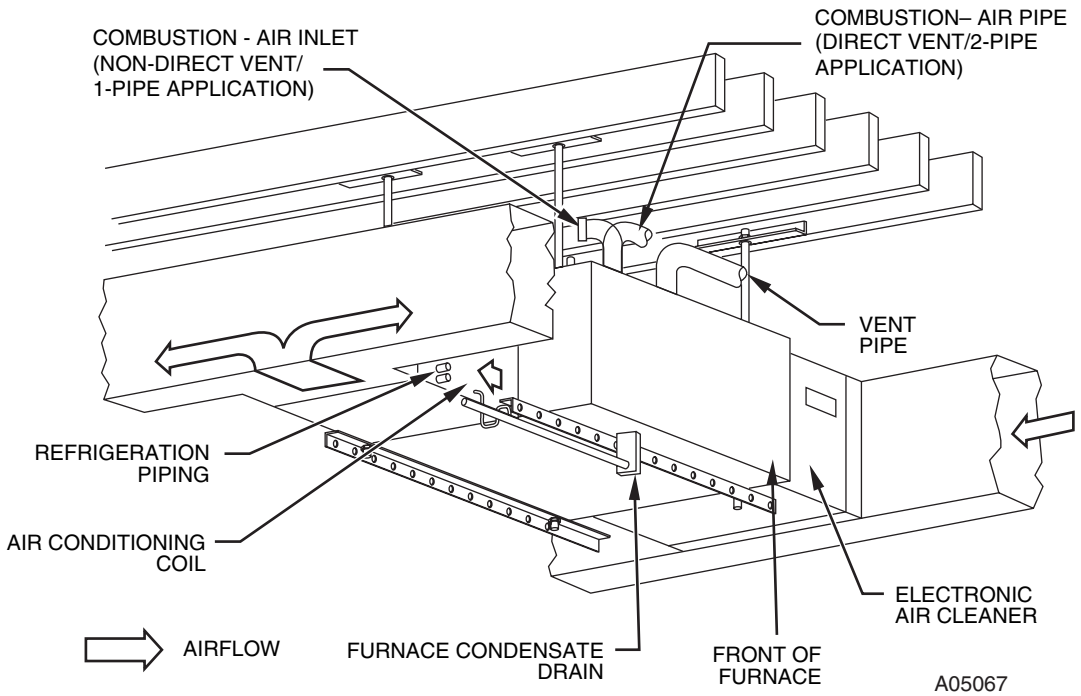
UNIT SIZE	RETURN-AIR SUPPLY	SPEED	EXTERNAL STATIC PRESSURE (In. wc)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
024040	1 side or bottom	High	1075	1040	995	945	895	840	760	670
		Med-Low	850	825	780	740	685	635	560	480
		Low	740	700	650	620	565	515	455	385
036040	1 side or bottom	High	1470	1415	1400	1285	1215	1120	995	890
		Med-High	1315	1280	1235	1180	1115	1035	930	825
		Med-Low	1125	1110	1085	1045	990	915	830	740
		Low	930	925	910	850	830	770	705	635
024060	1 side or bottom	High	1100	1065	1005	945	900	805	730	610
		Med-Low	890	865	810	765	705	620	540	475
		Low	745	710	670	625	565	505	425	360
036060	1 side or bottom	High	1430	1375	1325	1275	1200	1135	1040	935
		Med-High	1270	1260	1215	1160	1105	1035	950	850
		Med-Low	1070	1055	1045	1015	975	920	850	750
		Low	915	895	885	865	840	800	720	650
048060	1 side or bottom	High	1700	1695	1640	1580	1545	1450	1380	1310
		Med-High	1500	1465	1435	1385	1355	1300	1250	1185
		Med-Low	1325	1295	1265	1230	1190	1150	1105	1050
		Low	1205	1170	1145	1110	1080	1035	990	950
036080	1 side or bottom	High	1535	1470	1405	1330	1245	1160	1065	935
		Med-High	1395	1350	1300	1225	1155	1080	985	880
		Med-Low	1200	1175	1125	1065	1030	970	890	780
		Low	1040	1020	990	960	910	860	785	680
048080	1 side or bottom	High	1750	1685	1635	1575	1525	1445	1380	1310
		Med-High	1495	1455	1405	1355	1305	1250	1185	1120
		Med-Low	1310	1260	1225	1170	1125	1095	1040	980
		Low	1135	1105	1075	1040	995	995	910	860
060080	1 side or bottom	High	2200	2175	2085	2025	1925	1820	1735	1635
		Med-High	2100	2025	1945	1865	1785	1700	1620	1540
		Med-Low	1815	1760	1720	1670	1620	1550	1480	1405
		Low	1560	1555	1515	1460	1435	1390	1340	1270
	both sides or 1 side and bottom	High	2360	2280	2210	2130	2035	1960	1875	1790
		Med-High	1965	1925	1870	1830	1760	1710	1670	1575
048100	1 side or bottom	High	1740	1705	1660	1615	1570	1500	1425	1355
		Med-High	1500	1470	1445	1410	1375	1330	1280	1210
		Med-Low	1340	1315	1300	1270	1235	1200	1140	1095
		Low	1195	1175	1165	1130	1100	1070	1030	975
060100	1 side or bottom	High	2250	2175	2090	2020	1930	1855	1760	1670
		Med-High	2020	1950	1900	1840	1790	1710	1640	1545
		Med-Low	1725	1690	1660	1630	1575	1520	1460	1370
		Low	1490	1480	1460	1440	1380	1340	1295	1230
	both sides or 1 side and bottom	High	2360	2315	2265	2200	2130	2055	1965	1890
		Med-High	1960	1940	1930	1900	1850	1800	1740	1660
060120	bottom only	High	2350	2250	2160	2070	2000	1885	1790	1635
		Med-High	2100	2015	1955	1875	1810	1710	1650	1540
		Med-Low	1770	1720	1675	1620	1575	1515	1450	1365
		Low	1545	1520	1465	1415	1365	1325	1265	1185
	both sides or 1 side and bottom	High	2435	2360	2285	2220	2130	2050	1965	1875
		Med-High	2040	2000	1950	1905	1835	1790	1725	1650
	1 side only	High	2255	2190	2115	2045	1965	1890	1800	1710
		Med-High	1985	1930	1890	1840	1780	1720	1645	1560
060140	bottom only	High	2285	2210	2140	2065	1990	1910	1830	1745
		Med-High	2020	1970	1920	1870	1805	1730	1660	1590
		Med-Low	1675	1650	1620	1590	1560	1510	1450	1390
		Low	1460	1445	1430	1400	1370	1320	1275	1230
	both sides or 1 side and bottom	High	2310	2255	2185	2120	2045	1965	1880	1800
		Med-High	1975	1945	1900	1860	1835	1775	1720	1640
	1 side only	High	2140	2080	2025	1945	1875	1795	1725	1625
		Med-High	1930	1850	1800	1740	1725	1660	1580	1495

* • Airflow shown is for bottom only return-air supply with factory-supplied 1-in. washable filter(s).
• For air delivery above 1800 CFM, see Air Delivery table for other options.
• An airflow reduction of up to 7% may occur when using the factory-specified 4 5/16-inch wide, high efficiency media filter.
• For best furnace efficiency when using the 4 5/16-inch wide media filter, adjust the blower speed tap to near the mid-point of the rise range.
• For horizontal and downflow applications, use “1 side or bottom” or “bottom only” as an airflow reference.


COMBUSTION AIR PIPE
(DIRECT VENT/2-PIPE APPLICATION)
OUTDOOR UNIT
A/C COIL
VENT PIPE
HUMIDIFIER
COMBUSTION
AIR INLET
(NON-DIRECT
1-PIPE APPLICATION)
ELECTRONIC
AIR CLEANER
GAS-FIRED
WATER HEATER
FRONT OF
FURNACE
AIRFLOW
A05064


ELECTRONIC
AIR CLEANER
VENT
COMBUSTION AIR
INLET (NON-DIRECT
VENT/ 1-PIPE APPLICATION
HUMIDIFIER
COMBUSTION
AIR (DIRECT VENT/
2 PIPE APPLICATION
OUTDOOR
UNIT
A/C COIL
FRONT OF
FURNACE
AIRFLOW
A05065


COMBUSTION-AIR INLET
(NON-DIRECT VENT/1-PIPE APPLICATION)
VENT PIPE
COMBUSTION–AIR PIPE
DIRECT VENT/2-PIPE APPLICATION)
ELECTRONIC
AIR CLEANER
FRONT OF FURNACE
FURNACE
CONDENSATE
DRAIN
REFRIGERATION
PIPING
AIR CONDITIONING
COIL
AIRFLOW
A05066


COMBUSTION - AIR INLET
(NON-DIRECT VENT/
1-PIPE APPLICATION)
COMBUSTION– AIR PIPE
(DIRECT VENT/2-PIPE
APPLICATION)
VENT
PIPE
REFRIGERATION
PIPING
AIR CONDITIONING
COIL
ELECTRONIC
AIR CLEANER
AIRFLOW
FURNACE CONDENSATE
DRAIN
FRONT OF
FURNACE
A05067

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE
WITH INSTALLATION INSTRUCTIONS

Cancels: PDS 350M.40.11

PRINTED IN U.S.A. Catalog No. PDS 350A.40.1 9-05