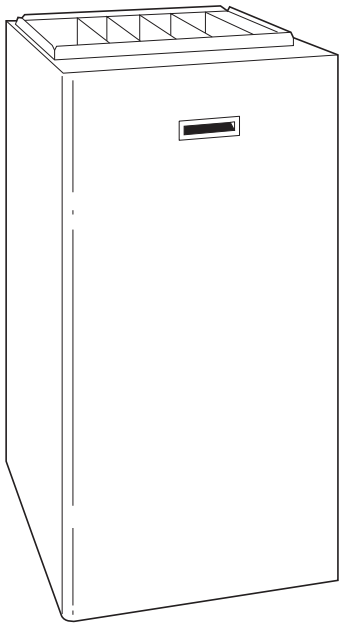
340AAV
4-Way Multipoise Fixed-Capacity Condensing Gas Furnace
Sizes 040 thru 140

Product Data



A05086

The model 340AAV Multipoise Condensing Furnace is specifically designed to meet the needs of the new construction market. This high-efficiency furnace utilizes a unique 4-way multipoise design and compact size to fit where other furnaces will not. The model 340AAV can be installed in any of 4 positions including horizontally in attics or crawlspaces, freeing space formerly used as a utility or furnace room. Except for the 140 size, all sizes of the model 340AAV can be installed in a manufactured (mobile) home when the optional kit is used. With the exception of the 140 size, all sizes can be installed with 2-pipe or 1-pipe venting. The 140 size can be installed only as a 2-pipe system. Sidewall or through-the-roof venting options and the use of PVC pipe eliminate the need for dedicated chimneys or chaseways to facilitate furnace venting. Time-saving installation features yield a very cost effective way to provide new home buyers with a high-efficiency and high-quality home comfort system.

FEATURES

Energy Star Compliant Gas Furnace

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.

Combustion Air and Ventilation - The 340AAV advanced design allows Schedule 40PVC, PVC-DWV, SDR-21 PVC, SDR-26 PVC (not approved in Canada), ABS-DWV, or ABSF628 Schedule 40 pipe to bring outdoor air into the furnace for combustion. The extracted heat lowers the temperature of the combustion products to a point (typically below 115°F (46°C) that any of the approved types of 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 one of our approved vent termination kits.

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 dependable performance. The heat exchanger is positioned in the furnace to extract additional heat from the combustion products regardless of furnace orientation.

Perfect Light™ Igniter - The unique Bryant 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 340AAV gas furnace and continues Bryant's tradition of technology leadership and innovation in providing a reliable and durable product.

Control Center - The printed-circuit board and all internal wiring are factory installed. Convenient terminals permit quickconnection of a thermostat and air conditioning control circuits. Connections for a humidifier and air cleaner are also provided.

4-Way Multipoise Design - Allows a model 340AAV to be installed in an upflow, downflow, or horizontal orientation.

The model 340AAV is available in 12 heat/airflow combinations, and when combined with the 4-way design, allows for 48 different applications. Factory configured for upflow application, this furnace can easily be made ready for downflow or horizontal installations.

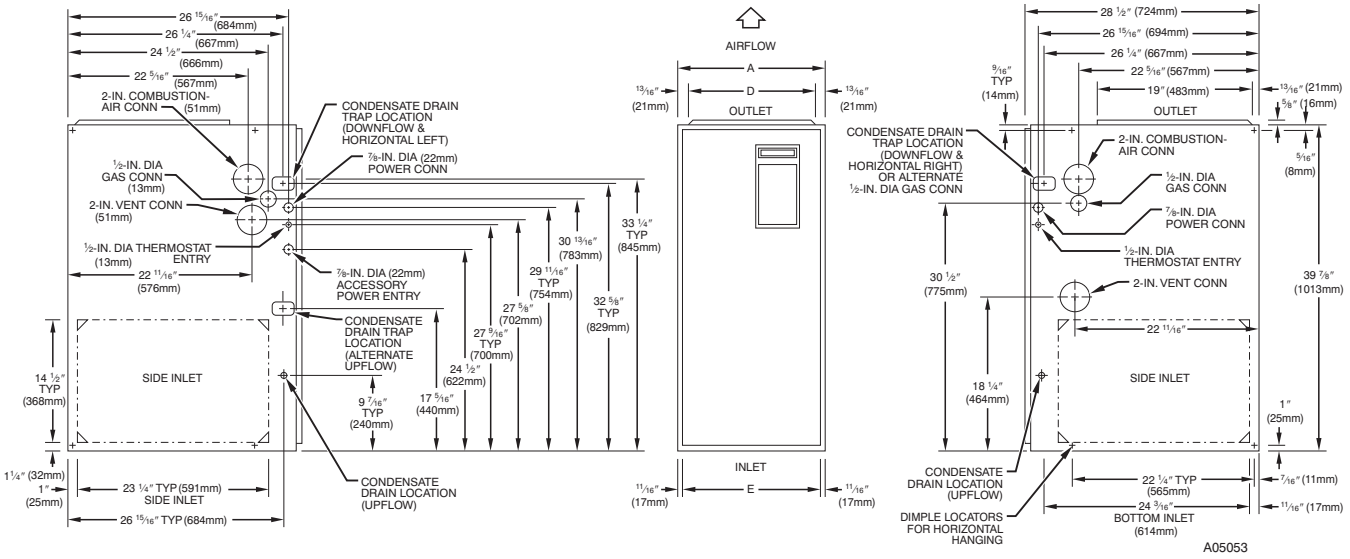
Direct or Non-direct Venting - The 340AAV can be installed as a 1 pipe/Non-Direct vent or 2 pipe/Direct vent furnace except the 140 size which can be installed as 2-pipe only. This provides added flexibility to meet diverse installation needs.

Insulated Casing - Foil-faced insulation in the heat exchanger section cuts heat loss. The casing also has the required openings for left- or right-side connection of gas, electric, drain, and vent connections.

Certifications - The 340AAV units are CSA (A.G.A./C.G.A.) design certified for use with natural and propane gases, as well as AHRI efficiency rating certified. The furnace is factory shipped for use with natural gas. A CSA (A.G.A./C.G.A.) listed gas conversion kit is required to convert furnace for use with propane gas. The model 340AAV meets California Air Quality Management District emission requirements. Except for the 140 size unit, all 340AAV models can be installed in a manufactured (mobile) home when the optional kit is used, and in elevations up to 10,000 ft. (3048 M) (140 size unit limitation of 7,000 ft. (2133.6 M).

Quality Registration - The 340AAV is engineered and manufactured under an ISO 9001 registered quality system.

DIMENSIONS



NOTES: 1. Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer's recommendation for equivalent diameters.
2. Minimum return-air opening at furnace:
   a. For 800 CFM 16-in . (406mm) round or 14 1/2 (368mm) x 12-in. (305mm) rectangle.
   b. For 1200 CFM 20-in . (508mm) round or 14 1/2 (368mm) x 19 1/2-in. (495mm) rectangle.
   c. For 1600 CFM 22-in .(559mm) round or 14 1/2 (368mm) x 23 1/4-in.(591mm)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. (mm)

UNIT SIZE	A	D	E
024040	17-1/2 (445)	15-7/8 (403)	16 (406)
036040	17-1/2 (445)	15-7/8 (403)	16 (406)
024060	17-1/2 (445)	15-7/8 (403)	16 (406)
036060	17-1/2 (445)	15-7/8 (403)	16 (406)
048060	17-1/2 (445)	15-7/8 (403)	16 (406)
036080	17-1/2 (445)	15-7/8 (403)	16 (406)
048080	17-1/2 (445)	15-7/8 (403)	16 (406)
060080	21 (533)	19-3/8 (492)	19-1/2 (495)
048100	21 (533)	19-3/8 (492)	19-1/2 (495)
060100	21 (533)	19-3/8 (492)	19-1/2 (495)
060120	24-1/2 (622)	22-7/8 (581)	23 (584)
060140	24-1/2 (622)	22-7/8 (581)	23 (584)

CLEARANCE TO COMBUSTIBLES

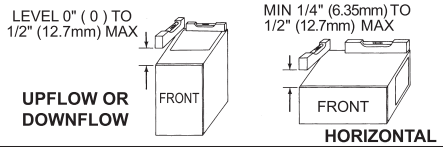
INSTALLATION

- 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 Inches Clearance To Combustible Construction** as described below.
- This furnace requires a special venting system. Refer to the installation instructions for parts list and method of installation. In the US 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. In Canada, refer to installation instructions for vent materials. Construction through which vent/air intake pipes may be installed is maximum 24 inches (610 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 - 7,000pi).
- 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 pulse 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 **Dégagement Minimum En Pouces Avec Éléments De Construction Combustibles.**
- Cette fournaise nécessite un système d´évacuation spécial. La méthode d´installation et la liste des pièces nécessaires figurent dans les instructions d´installation. Aux Etats-Unis, 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. Au Canada, referer aux instructions d'installation pour lex matériaux à ventiler. Épaisseur de la construction au travers de laquelle il est possible de faire passer les tuyaux d'aération (admission/évacuation): 24 po (610 mm) maximum, 3/4 po (19mm) minimum (y compris la toiture).

For upflow and downflow applications, furnace must be installed level, or pitched within 1/2" (12.7mm) of level. For a horizontal application, the furnace must be pitched minimum 1/4" (6.35mm) to maximum of 1/2" (12.7mm) 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" (12.7mm) du niveau. Pour une application horizontale, la fournaise doit être inclinée entre minimum 1/4" (6.35mm) et maximum 1/2" (12.7mm) 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.



MINIMUM INCHES CLEARANCE TO COMBUSTIBLE CONSTRUCTION

ALL POSITIONS:

* Minimum front clearance for service 24 inches (610mm).

† † 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 or NAHA01101SB, Coil Assembly, Part No. CAR, CAP, CNPV, CNRV or Coil Casing, Part No. KCAKC, or WENC or WTNC.

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 24 po (610mm) 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 nº KGASB0201ALL ou NAHA01101SB, l´ensemble serpentin, pièce nº CAR, CAP, CNPV, CNRV, ou le carter de serpentin, pièce nº KCAKC ou WENC ou WTNC.

POUR LA POSITION HORIZONTALE:

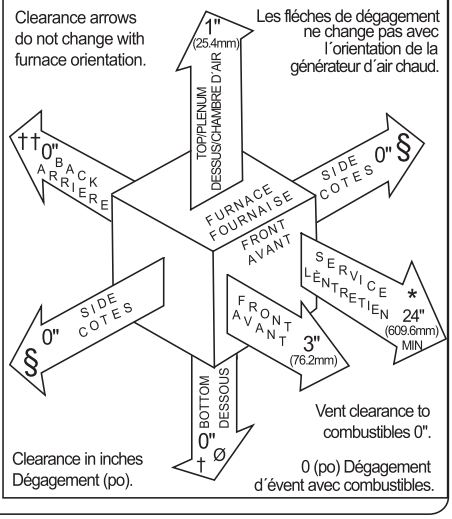
Le contact n´est permis qúentre les lignes formées par les intersections du dessus et des deuxcôtés de la chemise de la fournaise, et des solives, des montants ou de la charpente du bâtiment.

§ La distance indiquée conceme 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.



335122-201 REV. B LIT TOP

A08435

340AAV

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

Always Ask For FACTORY AUTHORIZED PARTS

CONTROLS - THERMOSTATS AND ZONING

Non-Programmable Thermostat Selection

T6–NAC, T2–NAC	For use with 1–speed Air Conditioner – deg. F/C, Auto Changeover
T6–NHP, T2–NHP	For use with 1 or 2–speed Heat Pumps – deg. F/C, Auto Changeover
T6–NRH†‡	For multi-use / stage configurations – deg. F/C, Auto Changeover/Temperature and Humidity Control

Programmable Thermostat Selection

T2–PAC	For use with 1-speed Air Conditioner - deg. F/C, Auto Changeover, 7-Day Programmable
T2–PHP	For use with 1 or 2-speed Heat Pumps - deg. F/C, Auto Changeover, 5-2 Day Programmable
T6–PAC	For use with 1-speed Air Conditioner - deg. F/C, 7 Day Programmable
T6–PHP	For use with 1 or 2-speed Heat Pumps F/C, Auto Changeover, 7-Day Programmable
T6–PRH‡	For multi-use / stage configurations - deg. F/C, Auto Changeover, 7-Day Programmable/Temperature and Humidity Control

Zoning Control Selection

ZONEBB3ZAC01 ZONEBB3ZHP01	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

†Thermidistat™ Control control can be configured for multiple use and staging. It must be configured for each specific application.
‡HYBRID HEAT™ thermostat is used with furnace and heat pump application.

SPECIFICATIONS

UNIT SIZE			024040	036040	024060	036060	048060	036080
Shipping Weight – Lb. (KG)			164 (74)	165 (75)	172 (78)	170 (77)	170 (77)	189 (86)
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	37,000	37,000	56,000	56,000	56,000	74,000
		Downflow	37,000	37,000	56,000	56,000	56,000	74,000
		Horizontal	37,000	37,000	56,000	56,000	56,000	74,000
	Non–Direct Vent (1–Pipe)	Upflow	37,000	37,000	56,000	56,000	56,000	74,000
		Downflow	37,000	37,000	56,000	56,000	56,000	74,000
		Horizontal	37,000	37,000	56,000	56,000	56,000	74,000
AFUE%† Nonweatherized ICS	Direct Vent (2–Pipe)	Upflow	92.3	92.3	92.3	92.3	92.3	92.3
		Downflow	91.2	91.2	91.2	91.2	91.2	91.2
		Horizontal	92.1	92.1	92.1	92.1	92.1	92.1
	Non–Direct Vent (1–Pipe)	Upflow	92.1					
		Downflow	91					
		Horizontal	91					
Certified Temperature Rise Range °F (°C)			30–60 (17–33)	15–45 (8–25)	45–75 (25–41)	30–60 (17–33)	20–50 (11–28)	40–70 (22–39)
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	7.4	6.1	7.2	9.6	7.7
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 (M)‡‡			44 (13.4)	37 (11.2)	44 (13.4)	38 (11.5)	29 (8.8)	36 (10.9)
Maximum Fuse Size or Ckt Bkr Amps (Time–Delay Type 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)			Factory–Set at 135 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. W.C.)	4.5 (Natural Gas)					
		Max Inlet Pressure (In. W.C.)	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.)–Sold Separately			(1) 16 x 25 x 3/4					
FACTORY–AUTHORIZED AND LISTED, DEALER–INSTALLED OPTIONS								
Gas Conversion Kit–Natural–to–Propane			KGANP4601ALL					
Gas Conversion Kit–Propane–to–Natural			KGAPN3901ALL					
Twinning Kit			N/A				KGATW 0601HSI	N/A
Manufactured (Mobile) Home Kit			KGAMH0301KIT					
Downflow Base***			KGASB0301ALL					
Vent Termination Kit (Bracket Only for 2 Pipes)			2–in.–KGAVT0101BRA			3–in.–KGAVT0201BRA		
Concentric Vent Termination Kit (Single Exit)			2–in.–KGAVT0701CVT			3–in.–KGAVT0801CVT		
Condensate Freeze Protection Kit			KGAHT0101CFP					
Condensate Neutralizer Kit (Obtained Thru RCD)			P908–0001					
Side Filter Rack (Without Filter)–Upflow ONLY			KGAFR0206ALL					
Electronic/Mechanical Air Cleaner			Model EACA, EZXCAB, or FILCAB					
Humidifier			Model HUM					
Heat/Energy Recovery Ventilator			Model HRV					
UV Lights			Model UVL					
Door Gasket Kit			KGBAC0110DGK					
Unframed Filter Permanent Washable 3/4–in. thick 16 x 25 (406 x 635 mm) 24 x 25 (610 x 635 mm)			KGAWF1306UFR KGAWF1506UFR					

SPECIFICATIONS (CONTINUED)

UNIT SIZE				048080	060080	048100	060100	060120	060140
Shipping Weight – Lb. (KG)				193 (88)	201 (91)	215 (98)	218 (99)	246 (112)	249 (113)
RATINGS AND PERFORMANCE									
Input Btuh*				80,000	80,000	100,000	100,000	120,000	138,000
Output Capacity BTUH* (ICS) (Shaded capacities are specified on rating plate)	Direct Vent (2–Pipe)		Upflow	74,000	74,000	93,000	93,000	112,000	127,000
			Downflow	74,000	74,000	93,000	93,000	112,000	127,000
			Horizontal	74,000	74,000	93,000	93,000	112,000	127,000
	Non–Direct Vent (1–Pipe)		Upflow	74,000	74,000	93,000	93,000	112,000	NA
			Downflow	74,000	74,000	93,000	93,000	112,000	NA
			Horizontal	74,000	74,000	93,000	93,000	112,000	NA
AFUE%† Nonweatherized ICS	Direct Vent (2–Pipe)		Upflow	92.3	92.3	92.3	92.3	92.3	92.3
			Downflow	91.2	91.2	91.2	91.2	91.2	91.2
			Horizontal	92.1	92.1	92.1	92.1	92.1	92
	Non–Direct Vent (1–Pipe)		Upflow	92.1					NA
			Downflow	91					NA
			Horizontal	91					NA
Certified Temperature Rise Range ° F (° C)				30–60 (17–33)	20–50 (11–28)	45–75 (25–41)	30–60 (17–33)	40–70 (22–39)	50–80 (28–44)
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				10.1	14.1	10.2	14.8	14.6	14.6
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 (M)‡‡				28 (8.5)	31 (9.4)	27 (8.2)	30 (9.1)	30 (9.1)	30 (9.1)
Maximum Fuse Size or Ckt Bkr Amps (Time–Delay Type Recommended)				15	20	15	20	20	20
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)				Factory–Set at 135 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. W.C.)	4.5 (Natural Gas)					
			Max Inlet Pressure (In. W.C.)	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. (mm)				11 x 8 (279x203)	11 x 10 (279x254)	11 x 8 (279x203)	11 x 10 (279x254)	11 x 10 (279x254)	11 x 10 (279x254)
Filter Size – in. (mm)–Sold Separately				(1) 20 x 25 x 3/4 (508 x 635 x 19)				(2)16 x 25 x 3/4 (406 x 635 x 19)	
FACTORY–AUTHORIZED AND LISTED, DEALER–INSTALLED OPTIONS									
Gas Conversion Kit–Natural–to–Propane				KGANP4601ALL					
Gas Conversion Kit–Propane–to–Natural				KGAPN3901ALL					
Twinning Kit				KGATW0601HSI					N/A
Manufactured (Mobile) Home Kit				KGAMH0301KIT					N/A
Downflow Base***				KGASB0301ALL					
Vent Termination Kit (Bracket Only for 2 Pipes)				2–in.–KGAVT0101BRA			3–in.–KGAVT0201BRA		
Concentric Vent Termination Kit (Single Exit)				2–in.–KGAVT0701CVT			3–in.–KGAVT0801CVT		
Condensate Freeze Protection Kit				KGAHT0101CFP					
Condensate Neutralizer Kit (Obtained Thru RCD)				P908–0001					
Side Filter Rack (Without Filter)–Upflow ONLY				KGAFR0206ALL					
Electronic/Mechanical Air Cleaner				Model EACB, EZXCAB, or FILCAB					
Humidifier				Model HUM					
Heat/Energy Recovery Ventilator				Model HRV					
UV Lights				Model UVL					
Door Gasket Kit				KGBAC0110DGK					
Unframed Filter Permanent Washable 3/4–in. (19 mm) thick 16 x 25 (406 x 635 mm) 24 x 25 (610 x 635 mm)				 KGAWF1306UFR KGAWF1506UFR					

* Gas input ratings are certified for elevations to 2000 ft. (610 M) In U.S., for elevations above 2000 ft. (610 M), reduce ratings 2% for each 1000 ft. (305 M) above sea level. In Canada, derate the unit 5% from 2000 to 4500 ft. (610 to 1372 M) above sea level.

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

‡ Airflow shown is for bottom only return–air supply with 3/4–in. (19 mm) filter(s). Air delivery above 1800 CFM may require that both sides, a combination of 1 side and bottom, or bottom only of the furnace be used for return air, see Air Delivery table. Where 2 sets of data are listed, the first set is for bottom only return–air supply. The second set is for both sides, or 1 side and bottom return–air supply. A filter is required for each return–air supply.

** 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, CK5, CAP(R), CNP(R), or KCAKC cased coil is used.

N/A – Not applicable

ICS – Isolated Combustion System

MAXIMUM ALLOWABLE PIPE LENGTH - FT (M)

ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
0 to 2000 (0 to 610)	40,000	2 Pipe or 2-in Concentric	1 (25)	1 (25)	5 (1.5)	NA	NA	NA	NA	NA
			1-1/2 (38)	1-1/2 (38)	70 (21.3)	70 (21.3)	65 (19.8)	60 (18.3)	60 (18.3)	55 (16.8)
			2 (51)	2 (51)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	20 (6.1)	15 (4.6)	10 (3.0)	5 (1.5)	NA	NA
			2 (51)	2 (51)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	80,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	10 (3.0)	NA	NA	NA	NA	NA
			2 (51)	2 (51)	55 (16.8)	50 (15.2)	35 (10.7)	30 (9.1)	30 (9.1)	20 (6.1)
			2-1/2 (64)	2-1/2 (64)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	100,000	2 Pipe or 3-in Concentric	2 (51)	2 (51)	5 (1.5)	NA	NA	NA	NA	NA
			2-1/2 (64)	2-1/2 (64)	40 (12.2)	30 (9.1)	20 (6.1)	20 (6.1)	10 (3.0)	NA
			3 (76)	3 (76)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	120,000	2 Pipe or 3-in. Concentric	2-1/2 (64) one disk	2-1/2 (64)	10 (3.0)	NA	NA	NA	NA	NA
			3 (76)†	NA	45 (13.7)	40 (12.2)	35 (10.7)	30 (9.1)	25 (7.6)	20 (6.1)
			3 (76) † no disk	3 (76)†	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	140,000	2 Pipe or 3-in. Concentric	2-1/2 (64) one disk	NA	5 (1.5)	NA	NA	NA	NA	NA
			3 (76)†	NA	40 (12.1)	35 (10.6)	30 (9.1)	25 (7.6)	20 (6.1)	15 (4.6)
			3 (76) † no disk	NA	60 (18.3)	56 (17.0)	52 (15.8)	48 (14.6)	44 (13.4)	40 (12.2)
			4 (102) † no disk	NA	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
2001 to 3000 (610 to 914) Canada	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	67 (20.4)	62 (18.9)	57 (17.4)	52 (15.8)	52 (15.8)	47 (14.3)
			2 (51)	2 (51)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	17 (5.2)	12 (3.7)	7 (2.1)	NA	NA	NA
			2 (51)	2 (51)	70 (21.3)	67 (20.4)	66 (20.1)	61 (18.6)	61 (18.6)	61 (18.6)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	49 (14.9)	44 (13.4)	30 (9.1)	25 (7.6)	25 (7.6)	15 (4.6)
			2-1/2 (64)	2-1/2 (64)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	35 (10.7)	26 (7.9)	16 (4.9)	16 (4.9)	6 (1.8)	NA
			3 (76)	3 (76)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	66 (20.1)	61 (18.6)
	120,000	2 Pipe or 3-in. Concentric	3 (76)	NA	14 (4.3)	9 (2.7)	NA	NA	NA	NA
			NA	3 (76)†	63 (19.2)	62 (18.9)	62 (18.9)	61 (18.6)	61 (18.6)	61 (18.6)
			3 (76)† no disk	NA	70 (21.3)	70 (21.3)	63 (19.2)	56 (17.1)	50 (15.2)	43 (13.1)
			4 (102)† no disk	4 (102)† no disk	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	140,000	2 Pipe or 3-in. Concentric	3 (76) one disk†	NA	20 (6.1)	15 (4.6)	10 (3.0)	5 (1.5)	NA	NA
			3 (76)† no disk	NA	39 (11.8)	35 (10.6)	31 (11.9)	27 (8.2)	23 (7.0)	19 (5.8)
			4 (102)† no disk	NA	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)

See notes at end of table.

MAXIMUM ALLOWABLE PIPE LENGTH - FT (M)

ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA – IN (mm)*	PIPE DIA – IN (mm)*	1	2	3	4	5	6
3001 to 4000 (914 to 1219)	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	64 (19.5)	59 (18.0)	54 (16.5)	49 (14.9)	48 (14.6)	43 (13.1)
			2 (51)	2 (51)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	16 (4.9)	11 (3.4)	6 (1.8)	NA	NA	NA
			2 (51)	2 (51)	68 (20.7)	63 (19.2)	62 (18.9)	57 (17.4)	57 (17.4)	56 (17.1)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	46 (14.0)	41 (12.5)	28 (8.5)	23 (7.0)	22 (6.7)	13 (4.0)
			2-1/2 (64)	2-1/2 (64)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	33 (10.1)	24 (7.3)	15 (4.6)	14 (4.3)	5 (1.5)	NA
			3 (76)	3 (76)	70 (21.3)	70 (21.3)	70 (21.3)	66 (20.1)	61 (18.6)	56 (17.1)
	120,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	65 (19.8)	58 (17.7)	51 (15.5)	44 (13.4)	38 (11.6)	31 (9.4)
			NA	3 (76)†	59 (18.0)	59 (18.0)	58 (17.7)	57 (17.4)	57 (17.4)	56 (17.1)
		4† no disk	4 (102)† no disk	4 (102) † no disk	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	140,000	2 Pipe or 3-in. Concentric	3 (76) one disk†	NA	11 (3.4)	6 (1.8)	NA	NA	NA	NA
			3 (76)† no disk	NA	30 (9.1)	26 (7.9)	22 (6.7)	18 (5.5)	14 (4.3)	10 (3.0)
			4 (102)† no disk	NA	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
4001 to 5000‡ (1219 to 1524)	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	60 (18.3)	55 (16.8)	50 (15.2)	45 (13.7)	44 (13.4)	39 (11.9)
			2 (51)	2 (51)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	15 (4.6)	10 (3.0)	5 (1.5)	NA	NA	NA
			2 (51)	2 (51)	64 (19.5)	59 (18.0)	58 (17.7)	53 (16.2)	52 (15.8)	52 (15.8)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	44 (13.4)	39 (11.9)	26 (7.9)	21 (6.4)	20 (6.1)	11 (3.4)
			2-1/2 (64)	2-1/2 (64)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	31 (9.4)	22 (6.7)	13 (4.0)	12 (3.7)	NA	NA
			3 (76)	3 (76)	70 (21.3)	70 (21.3)	67 (20.4)	62 (18.9)	57 (17.4)	52 (15.8)
	120,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	53 (16.2)	46 (14.0)	40 (12.2)	33 (10.1)	26 (7.9)	20 (6.1)
			NA	3 (76)†	56 (17.1)	55 (16.8)	54 (16.5)	53 (16.2)	52 (15.8)	52 (15.8)
			4 (102)† no disk	4 (102)† no disk	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	140,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	21 (6.4)	17 (5.1)	13 (3.9)	9 (2.7)	5 (1.5)	NA
			4 (102)† no disk	NA	69 (21.0)	64 (19.5)	59 (17.9)	54 (16.4)	49 (15.0)	44 (13.4)

See notes at end of table.

MAXIMUM ALLOWABLE PIPE LENGTH - FT (M)

ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
5001 to 6000‡ (1524 to 1829)	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	57 (17.4)	52 (15.8)	47 (14.3)	42 (12.8)	40 (12.2)	35 (10.7)
			2 (51)	2 (51)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	14 (4.3)	9 (2.7)	NA	NA	NA	NA
			2 (51)	2 (51)	60 (18.3)	55 (16.8)	54 (16.5)	49 (14.9)	48 (14.6)	47 (14.3)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	41 (12.5)	36 (11.0)	23 (7.0)	18 (5.5)	17 (5.2)	8 (2.4)
			2-1/2 (64)	2-1/2 (64)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	29 (8.8)	21 (6.4)	12 (3.7)	11 (3.4)	NA	NA
			3 (76)	3 (76)	70 (21.3)	67 (20.4)	62 (18.9)	57 (17.4)	52 (15.8)	47 (14.3)
	120,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	42 (12.8)	35 (10.7)	29 (8.8)	22 (6.7)	15 (4.6)	9 (2.7)
			NA	3 (76)†	53 (16.2)	52 (15.8)	50 (15.2)	49 (14.9)	48 (14.6)	47 (14.3)
			4 (102)† no disk	4 (102)† no disk	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)	70 (21.3)
	140,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	12 (3.6)	8 (2.4)	NA	NA	NA	NA
			4 (102)† no disk	NA	42 (12.8)	37 (11.2)	32 (9.7)	27 (8.2)	22 (6.7)	17 (5.1)
ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
6001 to 7000‡ (1829 to 2134)	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	53 (16.2)	48 (14.6)	43 (13.1	38 (11.6)	37 (11.3)	32 (9.8)
			2 (51)	2 (51)	70 (21.3)	70 (21.3)	68 (20.7)	67 (20.4)	66 (20.1)	64 (19.5)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	13 (4.0)	8 (2.4)	NA	NA	NA	NA
			2 (51)	2 (51)	57 (17.4)	52 (15.8)	50 (15.2)	45 (13.7)	44 (13.4)	43 (13.1)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	38 (11.6)	33 (10.1)	21 (6.4)	16 (4.9)	15 (4.6)	6 (1.8)
			2-1/2 (64)	2-1/2 (64)	70 (21.3)	70 (21.3)	68 (20.7)	67 (20.4)	66 (20.1)	64 (19.5)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	27 (8.2)	19 (5.8)	10 (3.0)	9 (2.7)	NA	NA
			3 (76)	3 (76)	68 (20.7)	63 (19.2)	58 (17.7)	53 (16.2)	48 (14.6)	43 (13.1)
	120,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	31 (9.4)	24 (7.3)	18 (5.5)	11 (3.4)	NA	NA
			NA	3 (76)†	49 (14.9)	48 (14.6)	47 (14.3)	45 (13.7)	44 (13.4)	43 (13.1)
	140,000	2 Pipe or 3-in. Concentric	4 (102)† no disk	NA	17 (5.1)	12 (3.6)	7 (2.1)	NA	NA	NA

See notes at end of table.

MAXIMUM ALLOWABLE PIPE LENGTH - FT (M)

ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
7001 to 8000‡ (2134 to 2438)	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	49 (14.9)	44 (13.4)	39 (11.9)	34 (10.4)	33 (10.1)	28 (6.5)
			2 (51)	2 (51)	66 (20.1)	65 (19.8)	63 (19.2)	62 (18.9)	60 (18.3)	59 (18.0)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	12 (3.7)	7 (2.1)	NA	NA	NA	NA
			2 (51)	2 (51)	53 (16.2)	48 (14.6)	46 (14.0)	41 (12.5)	40 (12.2)	38 (11.6)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	36 (11.0)	31 (9.4)	19 (5.8)	14 (4.3)	12 (3.7)	NA
			2-1/2 (64)	2-1/2 (64)	66 (20.1)	65 (19.8)	63 (19.2)	62 (18.9)	60 (18.3)	59 (18.0)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	25 (7.6)	17 (5.2)	8 (2.4)	7 (2.1)	NA	NA
			3 (76)	3 (76)	63 (19.2)	58 (17.7)	53 (16.2)	48 (14.6)	43 (13.1)	38 (11.6)
	120,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	20 (6.1)	13 (4.0)	7 (2.1)	NA	NA	NA
			NA	3 (76)†	46 (14.0)	44 (13.4)	43 (13.1)	41 (12.5)	40 (12.2)	38 (11.6)
			4 (102)† no disk	4 (102)† no disk	61 (18.6)	56 (17.1)	51 (15.5)	46 (14.0)	41 (12.5)	36 (11.0)
	140,000	NA								

ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
8001 to 9000‡ (2438 to 2743)	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	46 (14.0)	41 (12.5)	36 (11.0)	31 (9.4)	29 (8.8)	24 (7.3)
			2 (51)	2 (51)	62 (18.9)	60 (18.3)	58 (17.7)	56 (17.1)	55 (16.8)	53 (16.2)
	60,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	11 (3.4)	6 (1.8)	NA	NA	NA	NA
			2 (51)	2 (51)	49 (14.9)	44 (13.4)	42 (12.8)	37 (11.3)	35 (10.7)	34 (10.4)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	33 (10.1)	28 (8.5)	17 (5.2)	12 (3.7)	10 (3.0)	NA
			2-1/2 (64)	2-1/2 (64)	62 (18.9)	60 (18.3)	58 (17.7)	56 (17.1)	55 (16.8)	53 (16.2)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	23 (7.0)	15 (4.6)	7 (2.1)	5 (1.5)	NA	NA
			3 (76)	3 (76)	59 (18.0)	54 (16.5)	49 (14.9)	44 (13.4)	39 (11.9)	34 (10.4)
	120,000	2 Pipe or 3-in. Concentric	3 (76)† no disk	NA	10 (3.0)	NA	NA	NA	NA	NA
			NA	3 (76)†	43 (13.1)	41 (12.5)	39 (11.9)	37 (11.3)	35 (10.7)	34 (10.4)
			4 (102)† no disk	4† no disk	35 (10.7)	30 (9.1)	25 (7.6)	20 (6.1)	15 (4.6)	10 (3.0)
	140,000	NA								

See notes at end of table.

MAXIMUM ALLOWABLE PIPE LENGTH - FT (M)

ALTITUDE FT (M)	UNIT SIZE (BTUH)	DIRECT VENT (2-PIPE) ONLY		NON-DIRECT VENT (1-PIPE) ONLY	NUMBER OF 90° ELBOWS					
		TERMINATION TYPE	PIPE DIA IN. (mm)*	PIPE DIA IN. (mm)*	1	2	3	4	5	6
9001 to 10,000‡ (2743 to 3048)	40,000	2 Pipe or 2-in Concentric	1-1/2 (38)	1-1/2 (38)	42 (12.8)	37 (11.3)	32 (9.8)	27 (8.2)	25 (7.6)	20 (6.1)
			2 (51)	2 (51)	57 (17.4)	55 (16.8)	53 (16.2)	51 (15.5)	49 (14.9)	47 (14.3)
	60,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	45 (13.7)	40 (12.2)	38 (11.6)	33 (10.1)	31 (9.4)	29 (8.8)
	80,000	2 Pipe or 2-in Concentric	2 (51)	2 (51)	30 (9.1)	25 (7.6)	14 (4.3)	9 (2.7)	7 (2.1)	NA
			2-1/2 (64)	2-1/2 (64)	57 (17.4)	55 (16.8)	53 (16.2)	51 (15.5)	49 (14.9)	47 (14.3)
	100,000	2 Pipe or 3-in Concentric	2-1/2 (64)	2-1/2 (64)	21 (6.4)	13 (4.0)	5 (1.5)	NA	NA	NA
			3 (76)	3 (76)	54 (16.5)	49 (14.9)	44 (13.4)	39 (11.9)	34 (10.4)	29 (8.8)
	120,000	2 Pipe or 3-in. Concentric	NA	3 (76)†	39 (11.9)	37 (11.3)	35 (10.7)	33 (10.1)	31 (9.4)	29 (8.8)
			4 (102)† no disk	4 (102)† no disk	10 (3.0)	5 (1.5)	NA	NA	NA	NA
	140,000	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. (1372 M) above sea level are subject to acceptance by the local authorities having jurisdiction. NA-Not Allowed; pressure switch will not make.

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 (1.5 M) for all applications.
6. Use 3-in. (76 mm) diameter vent termination kit for installations requiring 4-in (102 mm) diameter pipe.

VENT LENGTH FOR OUTLET RESTRICTOR USAGE (60,000 BTU MODEL ONLY) FT (M)‡

ALTITUDE – FT (M)	UNIT SIZE	DIRECT VENT (2–PIPE)	NON–DIRECT VENT (1–PIPE ONLY)	NO. OF 90° ELBOWS				
		PIPE DIA. (IN / mm)	PIPE DIA. (IN / mm)	1	2	3	4	5
0 – 2000 (0 – 610)	60,000	2–in. (51)	2–in. (51)	28 (8.5)	20 (6)	15 (4.2)	10 (3)	
2001 – 3000 (610 – 914)*		2–in. (51)	2–in. (51)	24 (7.3)	17 (5.1)	12 (3.6)	7 (2.1)	
3001 – 4000 (914 – 1219)		2–in. (51)	2–in. (51)	21 (6.4)	13 (3.9)	8 (2.4)		
4001 – 5000 (1219 – 1524)		2–in. (51)	2–in. (51)	17 (5.1)	10 (3)	5 (1.5)		
5001 – 6000 (1524 – 1829)		2–in. (51)	2–in. (51)	14 (4.2)	6 (1.8)			
6001 – 7000 (1829 – 2134)		2–in. (51)	2–in. (51)	10 (3)				
7001 – 8000 (2134 – 2438)		2–in. (51)	2–in. (51)	6 (1.8)				
8001 – 9000 (2438 – 2743)		2–in. (51)	2–in. (51)					
9001 – 10000 (2743 – 3048)		2–in. (51)	2–in. (51)					

*Canada

‡Discard outlet restrictor if vent lengths or elbows exceed the above table Discard restrictor if using 11/2–in. (38mm) diameter pipe. Refer to installation instructions for outlet restrictor installation guidelines.

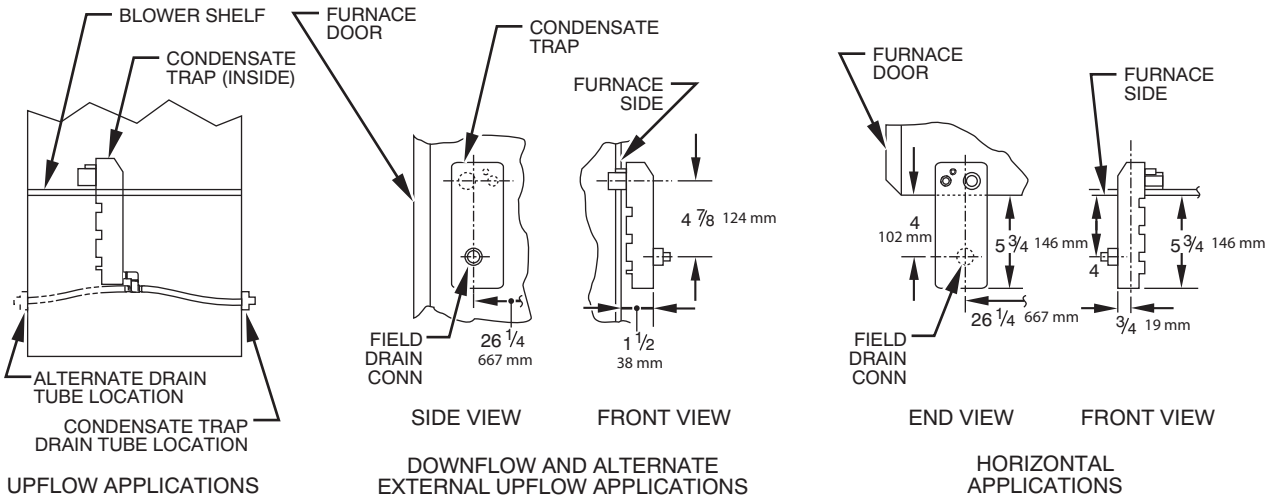
MAXIMUM ALLOWABLE EXPOSED VENT PIPE LENGTH (FT/M) WITH AND WITHOUT INSULATION IN WINTER DESIGN TEMPERATURE AMBIENT*

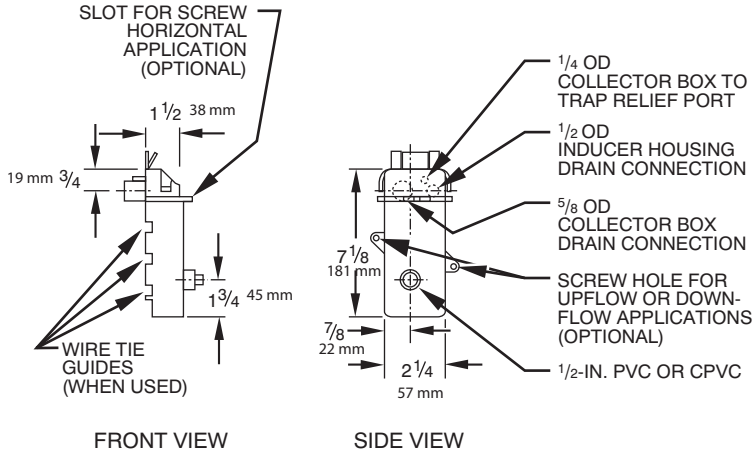
FURNACE SIZE	WINTER DESIGN TEMPERATURE °F (°C)	MAX PIPE DIAMETER IN (mm)	WITHOUT INSULATION FT (M)	WITH 3/8–IN. (10 mm) OR THICKER INSULATION† FT (M)
040	20 (–7)	1.5 (38)	51 (16)	70 (21)
	0 (–18)	1.5 (38)	28 (9)	70 (21)
	–20 (–29)	1.5 (38)	16 (5)	70 (21)
	20 (–7)	2 (51)	45 (14)	70 (21)
	0 (–18)	2 (51)	22 (7)	70 (21)
	–20 (–29)	2 (51)	10 (3)	58 (18)
060	20 (–7)	2 (51)	65 (20)	70 (21)
	0 (–18)	2 (51)	35 (11)	70 (21)
	–20 (–29)	2 (51)	20 (6)	70 (21)
080	20 (–7)	2 (51)	55 (17)	55 (17)
	0 (–18)	2 (51)	48 (15)	55 (17)
	–20 (–29)	2 (51)	30 (9)	55 (17)
	20 (–7)	2.5 (64)	70 (21)	70 (21)
	0 (–18)	2.5 (64)	47 (14)	70 (21)
	–20 (–29)	2.5 (64)	28 (9)	70 (21)
100	20 (–7)	2.5 (64)	40 (12)	40 (12)
	0 (–18)	2.5 (64)	40 (12)	40 (12)
	–20 (–29)	2.5 (64)	38 (12)	40 (12)
	20 (–7)	3 (76)	70 (21)	70 (21)
	0 (–18)	3 (76)	50 (15)	70 (21)
	–20 (–29)	3 (76)	28 (9)	70 (21)
120	20 (–7)	3 (76)	70 (21)	70 (21)
	0 (–18)	3 (76)	61 (19)	70 (21)
	–20 (–29)	3 (76)	37 (11)	70 (21)
	20 (–7)	4 (102)	70 (21)	70 (21)
	0 (–18)	4 (102)	48 (15)	70 (21)
	–20 (–29)	4 (102)	23 (7)	70 (21)
140	20 (–7)	3 (76)	60 (18)	60 (18)
	0 (–18)	3 (76)	60 (18)	60 (18)
	–20 (–29)	3 (76)	44 (13)	60 (18)
	20 (–7)	4 (102)	70 (21)	70 (21)
	0 (–18)	4 (102)	57 (17)	70 (21)
	–20 (–29)	4 (102)	30 (9)	70 (21)

* Pipe length (Ft. / M) specified for maximum pipe lengths located in unconditioned spaces. Pipes located in unconditioned space cannot exceed total allowable pipe length as specified in the “Maximum Allowable Pipe Length” chart.

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

CONDENSATE TRAP

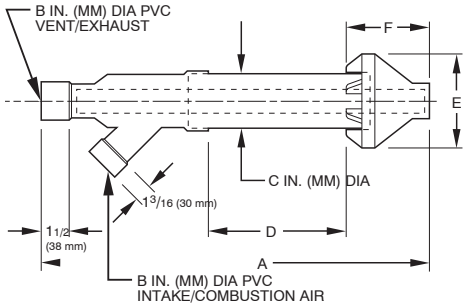




A93026

340AAV

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

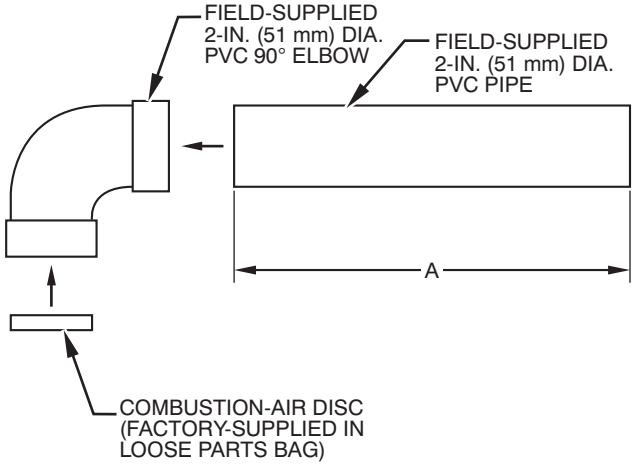


A97110

PART NO.	A*	B	C	D†	E	F
KGAVT0701CVT	33–3/8 (848)	2 (51)	3–1/2 (89)	16–5/8 (422)	6–1/4 (159)	5–3/4 (146)
KGAVT0801CVT	38–7/8 (987)	3 (76)	4–1/2 (114)	21–1/8 (537)	7–3/8 (187)	6–1/2 (165)

* Dimension A will change accordingly as dimension D is lengthened or shortened.
†Dimension D may be lengthened to 60 in. (1524 mm) maximum. Dimension D may also be shortened by cutting the pipes provided in the kit to 12 in. (305 mm) minimum.
NOTE: See furnace Installation Instructions when venting multiple furnaces near each other.

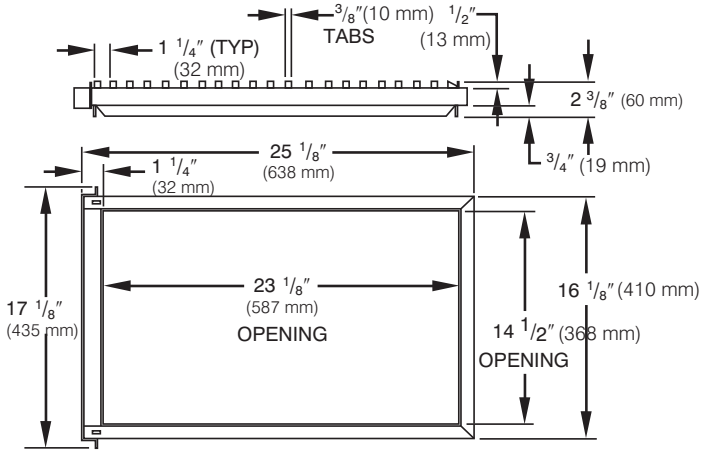
COMBUSTION-AIR PIPE FOR NON-DIRECT VENT (1-PIPE) APPLICATION (SIZES 040 THRU 120 ONLY)



A96211

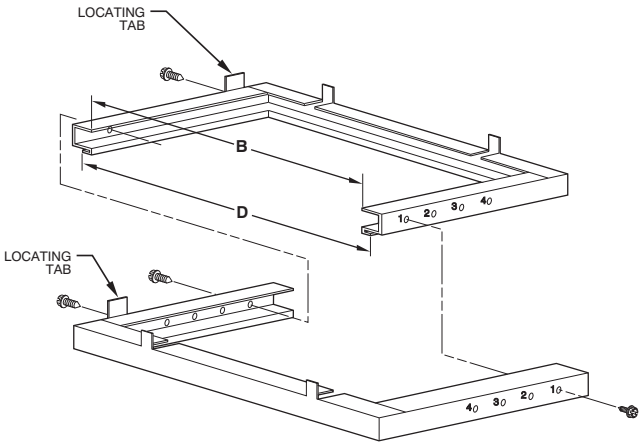
CASING WIDTH IN (mm)	A IN (mm)
17–1/2 (445)	8-1/2 ± 1/2 (216 ± 13)
21 (533)	10-1/2 ± 1/2 (267 ± 13)
24–1/2 (622)	12 ± 1/2 (305 ± 13)

SIDE FILTER RACK



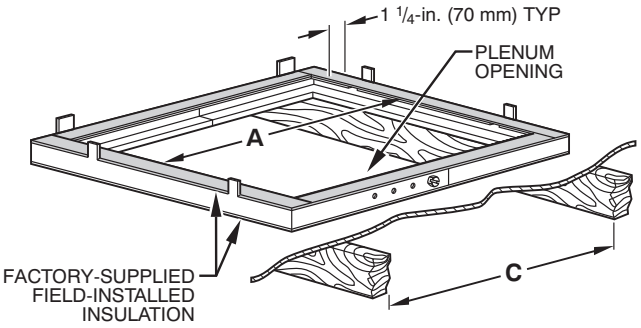
A80199

ACCESSORY DOWNFLOW SUBBASE



A88207

Disassembled



A97427

Assembled

340AAV

FURNACE CASING WIDTH IN (mm)	FURNACE IN DOWNFLOW APPLICATION	PLENUM OPENING* IN (MM)		FLOOR OPENING IN (MM)		HOLE NO. FOR WIDTH ADJUSTMENT
		A	B	C	D	
17–1/2 (445 mm)	Furnace with or without Cased Coil Assembly or Coil Box	15–1/8 (384 mm)	19 (483 mm)	16–3/4 (426 mm)	20–3/8 (518 mm)	3
21 (533 mm)	Furnace with or without Cased Coil Assembly or Coil Box	18–5/8 (473 mm)	19 (483 mm)	20–1/4 (514 mm)	20–3/8 (518 mm)	2
24–1/2 (622 mm)	Furnace with or without Cased Coil Assembly or Coil Box	22–1/8 (562 mm)	19 (483 mm)	23–3/4 (603 mm)	20–3/8 (518 mm)	1

*The plenum should be constructed 1/4 in. (6 mm) smaller in width and depth than the plenum dimensions shown above.

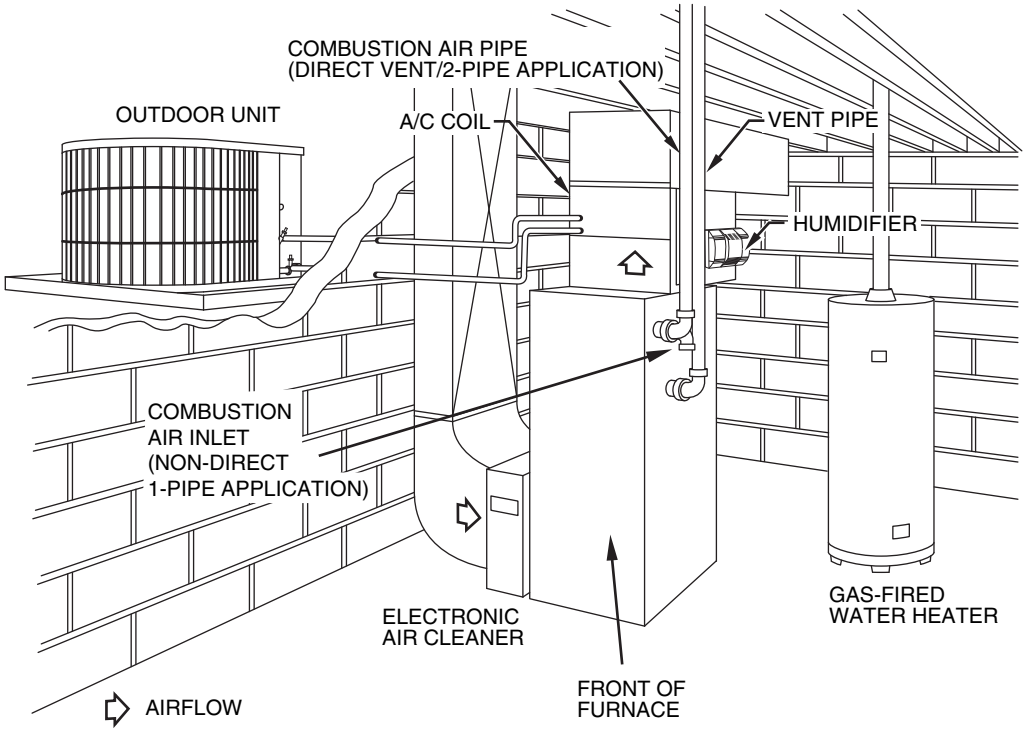
AIR DELIVERY-CFM (WITH FILTER)*

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

***** A filter is required for each return-air supply.

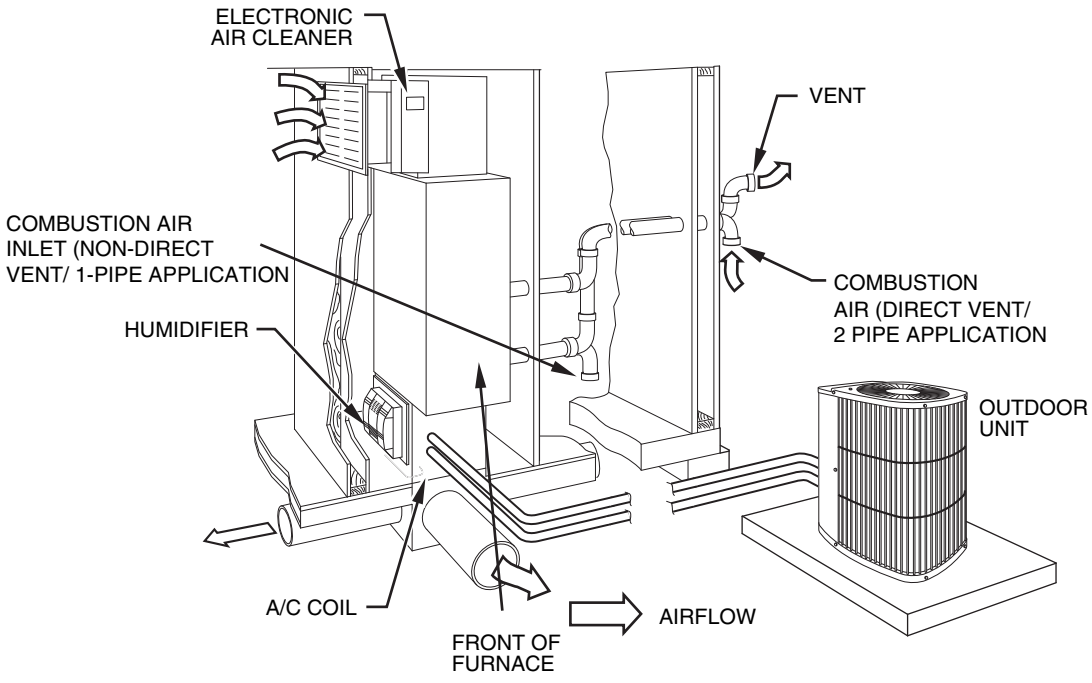
• For horizontal and downflow applications, use “1 side or bottom” or “bottom only” as airflow reference.

TYPICAL INSTALLATIONS



A05064

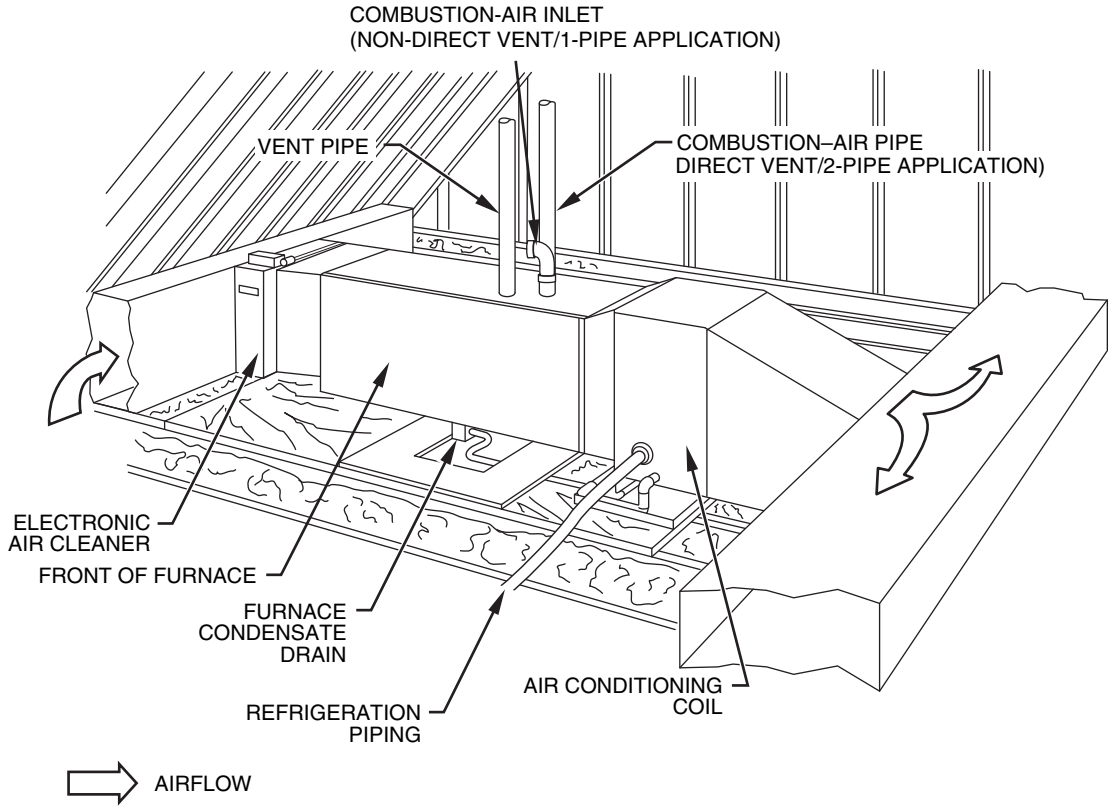
Basement - Upflow Application



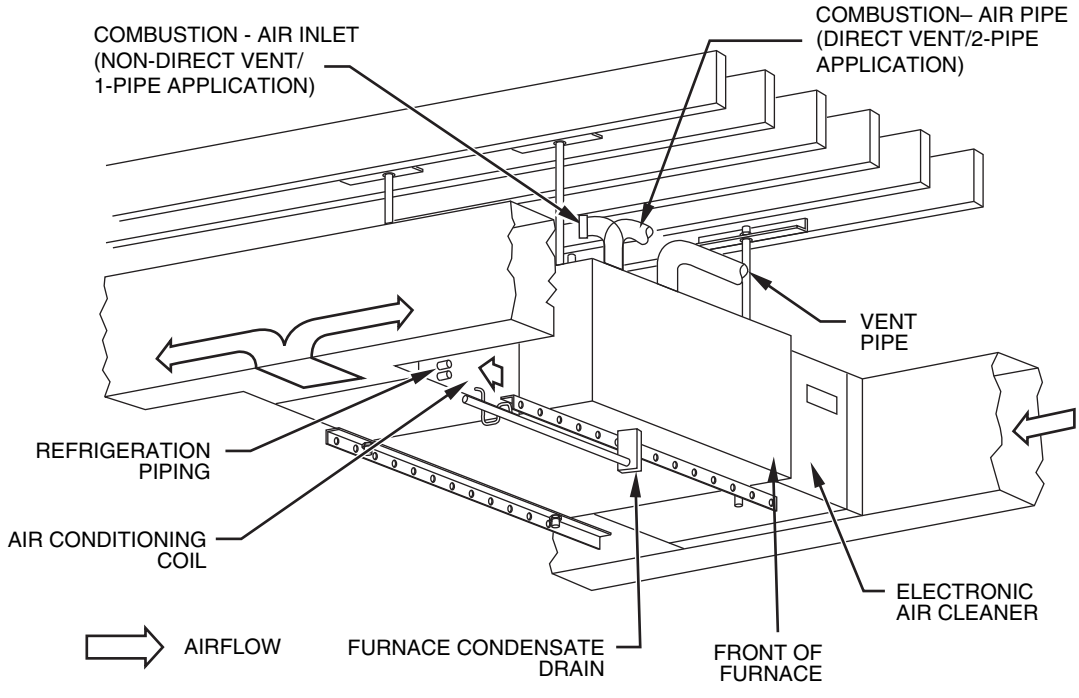
A05065

Closet- Downflow Application

TYPICAL INSTALLATIONS (CONTINUED)



Attic - Horizontal Application



Crawlspace - Horizontal Application

GUIDE SPECIFICATIONS

GENERAL

System Description

Furnish a _____ (4-way multipoise) fixed capacity gas-fired condensing furnace for use with natural gas or propane (factory authorized conversion kit required for propane); furnish cold air return plenum; furnish side (external) filter rack.

Quality Assurance

Unit will be designed, tested and constructed to the current ANSI Z21.47/CSA 2.3 design standard for gas-fired central furnaces. Unit will be 3rd party certified by CSA to the current ANSI Z21.47/CSA 2.3 design standard for gas-fired central furnaces. Unit will carry the CSA Blue Star® and Blue Flame® labels.

Unit efficiency testing will be performed per the current DOE test procedure as listed in the Federal Register.

Unit will be certified for capacity and efficiency and listed in the latest AHRI Consumer's Directory of Certified Efficiency Ratings.

Unit will carry the current Federal Trade Commission Energy Guide efficiency label.

Delivery, Storage, and Handling

Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer) U.S. and Canada only. Warranty certificate available upon request.

PRODUCTS

Equipment

Components shall include: slow-opening gas valve to reduce ignition noise, regulate gas flow, with electric switch gas shut-off; flame proving sensor, hot surface igniter, pressure switch assembly verifies inducer operation; flame rollout switch, drain tubing and installed condensate drain trap, blower and inducer assembly, 40va transformer; low-voltage (heating) (heating/ cooling) thermostat.

Blower Wheel and Blower Motor

Galvanized blower wheel shall be centrifugal type, statically and dynamically balanced. Blower motor of PSC type shall be permanently lubricated with sealed bearings, of _____ hp, and shall be multiple-speed direct drive. Blower motor shall be soft mounted to the blower scroll to reduce vibration transmission.

Filters

Furnace shall have reusable-type filters. Filter shall be _____ in. (mm) x _____in. (mm).

Casing

Casing shall be of .030 in. (.76 mm) thickness minimum, pre-painted galvanized steel.

Inducer Motor

Inducer motor shall be soft mounted to reduce vibration transmission.

Primary Heat Exchangers

Primary Heat exchangers shall be 3-Pass 20 gauge corrosion resistant aluminized steel of fold-and-crimp sectional design, which operates under negative pressure. Secondary Heat Exchangers Secondary Heat exchangers shall be of a flow-through design having a patented interior laminate coating of polypropylene for greater corrosion resistance with fold-and-crimp design, which operates under negative pressure.

Controls

Controls shall include a microprocessor based integrated electronic control board with at least 11 service troubleshooting codes displayed via diagnostic flashing LED light on the control, has ability to store fault codes, when activated a self-test feature checks all major functions of the furnace within one minute, and a replaceable automotive-type circuit protection fuse. Multiple operational settings available including separate blower speeds. Cooling airflow will be selectable between 350 or 400 CFM per ton of air conditioning.

Operating Characteristics

Heating Capacity shall be _____ Btuh input; _____ Btuh output capacity. Fuel Gas Efficiency shall be 92% AFUE. Air delivery shall be _____ cfm minimum at 0.50 in. wg. external static pressure. Dimensions shall be: depth _____ in. (mm); width _____ in. (mm); height _____ in. (mm) (casing only). Height shall be _____ in. (mm) with A/C coil and _____ in. (mm) overall with plenum.

Electrical Requirements

Electrical supply shall be 115 volts, 60 Hz, single-phase (nominal). Minimum wire size shall be _____ AWG; maximum fuse size or HACR-type, designated circuit breaker shall be _____ Amps.

Special Features

Refer to section of the product data sheet identifying accessories and descriptions for specific features and available enhancements.

 Printed in U.S.A. Edition Date: 11/10 **Catalog No. PDS340A.40.8**

 Replaces: PDS340A.40.7