

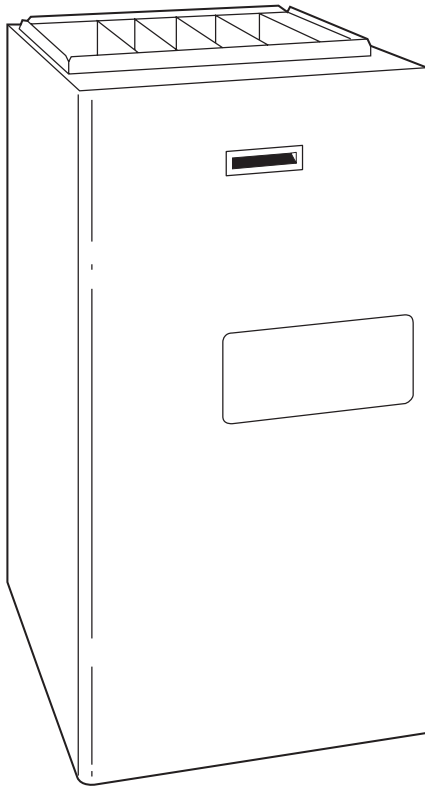
352AAV

## 4-Way Multipoise Two-Stage Condensing Gas Furnace

Sizes 060 thru 120



# Product Data



A05085



Utilizing the extensive resources available to Bryant, a new standard of excellence has been achieved with the model 352AAV Plus 90t™ 4-Way Multipoise Furnace.

The model 352AAV is a unique 4-way multipoise condensing furnace with features like no other product in its class. The 352AAV builds on the many Bryant successes in the furnace industry and establishes a new standard for all high-efficiency gas furnaces.

### FEATURES

**Perfect Heat™** — The Plus 90t™ combines two heating stages to vary the amount of gas being used from low-heat to high-heat stage. The low-stage operation allows longer running periods, which helps maintain your most comfortable temperature, prevents drafts, reduces noise, and enhances the air quality of your home. During extreme cold, the high-heat stage will run to ensure that you are still comfortable.

**Primary Heat Exchanger & Secondary Heat Exchanger** — The primary heat exchanger is corrosion resistant and maintains a proven track record for long-term reliability and high-efficiency performance. The secondary heat exchanger is built with a patented lamination process that bonds a corrosion-proof lining of polypropylene to a heavy, galvanized steel shell. The unique secondary clamshell design allows wider spacing between cells for reduced air resistance through the furnace, reduced load on the blower motor, and reduced need for cleaning.

**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 Bryant's 352AAV 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 furnaces. When installed as a part of your system, this cabinet allows for an easy and convenient addition of a Bryant high-efficiency air filter.

**Adaptive Logic Control Board** — This self-adjusting control board contains a microprocessor which automatically calculates the precise amount of time your furnace should run and at what speed it should run to obtain the best comfort and energy efficiency. This control board also includes an extensive troubleshooting and component test sequence that can monitor your heating system to ensure that it is operating properly.

**4-Way Multipoise Design** — Allows the model 352AAV to be installed in an upflow, downflow, or horizontal orientation. Factory configured for upflow applications with only simple drain connection changes required for conversion to downflow or horizontal.

**Direct or Non-direct Venting** — The 352AAV can be installed as a Non-Direct 1-pipe vent or Direct 2-pipe vent furnace. This provides added flexibility to meet diverse installation needs.

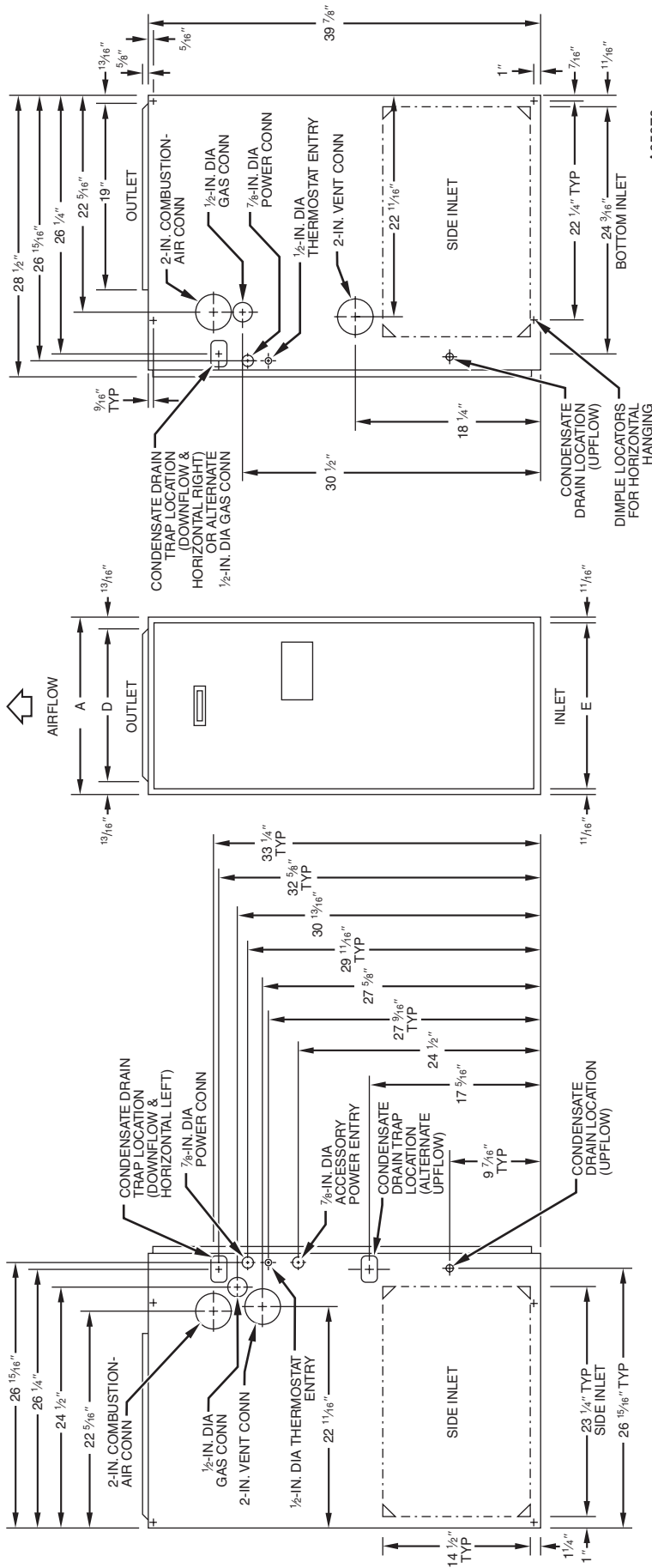
**Full Cabinet Insulation** — This insulation completely surrounds the internal furnace casing allowing for reduced and dampened sounds and maintained efficiencies.

**Two-Speed Inducer Motor** — This motor works with the inducer fan to optimize combustion efficiency and exhaust the flue gases out of the house. The motor has two speeds and an incorporated fan to keep the motor cool while reducing sound.

**Permanent Split Capacitor (PSC) Blower Motor** — The 352AAV has a PSC blower motor that has several preselected fixed speeds which can be customized to duct work installation requirements. The motor has a wide application of use, a basic control scheme, and is extremely reliable.

**Soft Motor Mounts** — These motor mounts help to absorb shock, decrease the vibration of the motor, and minimize noise.

**Two Stage Gas Valve** — The 352AAV has a 2-stage gas valve to vary the amount of gas being used from low-heat to high-heat stage. The low-stage operation allows longer running periods, which helps maintain your most comfortable temperature, prevents drafts, reduces noise, and enhances the air quality of your home. During the extreme cold, the high-heat levels will run to ensure that you are still comfortable.



A05070

- 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)
036060	17-1/2	15-7/8	16	189
036080	17-1/2	15-7/8	16	200
048080	17-1/2	15-7/8	16	205
048100	21	19-3/8	19-1/2	231
060100	21	19-3/8	19-1/2	234
060120	24-1/2	22-7/8	23	262

# 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 quelques 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 spécifiée 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 conjointement 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.

LEVEL (0")  
TO  
1/2" MAX

UPFLOW OR  
DOWNFLOW

MIN 1/4"  
TO  
1/2" MAX

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

**DÉGAGEMENT MINIMUM EN POUCHES 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-arrière.

**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 qu'entre les lignes formées par les intersections du dessus et des deux côtés 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.
- § Pour les fournaises de 120 et 140 taille, 1 po (25mm) dégagement des matériaux combustibles est requis au-dessous.

A02148

324999-201 REV. D (LIT TOP)

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.

Clearance arrows do not change with furnace orientation. Les flèches de dégagement ne change pas avec l'orientation de la générateur d'air chaud.

Clearance in inches / Dégagement (po).

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



MEETS DOE RESIDENTIAL CONSERVATION SERVICES PROGRAM STANDARDS.

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



REGISTERED QUALITY SYSTEM

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

## Non-Programmable Thermostat Selection

<b>TSTATBBNAC01-C</b>	For use with 1-spd. Air Conditioner - deg. F/C, Auto Changeover
<b>TSTATBBNHP01-C*</b>	For use with 1-spd. Air Conditioner - deg. F/C, Auto Changeover
<b>TSTATBBN2S01-C*</b>	For use with 2-spd. Air Conditioner - deg. F/C, Auto Changeover
<b>TSTATBBBAC01-B</b>	For use with 1-spd. Air Conditioner - deg. F/C
<b>TSTATBBPRH01-B**</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.

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

## Programmable Thermostat Selection

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

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

## Zoning Control Selection

<b>ZONEBB3Z(AC/HP)01</b>	Zone Perfect Two-Zone kit
<b>ZONEBB2KIT01-B</b>	Zone Perfect Plus 2-Zone kit/Temperature and Humidity Control
<b>ZONEBB4KIT01-B</b>	Zone Perfect Plus 4-Zone kit/Temperature and Humidity Control
<b>ZONEBB8KIT01-B</b>	Zone Perfect Plus 8-Zone kit/Temperature and Humidity Control

## SPECIFICATIONS

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UNIT SIZE		036060	036080	048080	048100	060100	060120		
<b>RATINGS AND PERFORMANCE</b>									
Input BtuH†	Low	39,000	52,000	52,000	65,000	65,000	78,000		
	High	60,000	80,000	80,000	100,000	100,000	120,000		
Output Capacity BTUH* (ICS) (Shaded capacities are specified on rating plate)	Direct Vent (2-Pipe)	Low	Upflow	37,000	49,000	49,000	61,000	61,000	74,000
			Downflow	37,000	49,000	49,000	61,000	61,000	74,000
			Horizontal	37,000	49,000	49,000	61,000	61,000	73,000
	High	Upflow	56,000	75,000	75,000	94,000	94,000	113,000	
		Downflow	57,000	75,000	75,000	94,000	94,000	113,000	
		Horizontal	56,000	75,000	75,000	94,000	94,000	112,000	
	Non-Direct Vent (1-Pipe)	Low	Upflow	37,000	49,000	49,000	61,000	61,000	73,000
			Downflow	37,000	49,000	49,000	61,000	61,000	73,000
			Horizontal	36,000	48,000	48,000	60,000	61,000	73,000
High		Upflow	56,000	75,000	75,000	94,000	94,000	112,000	
		Downflow	56,000	75,000	75,000	94,000	94,000	112,000	
		Horizontal	56,000	74,000	75,000	93,000	93,000	112,000	
AFUE† Nonweatherized ICS	Direct Vent (2-Pipe)	Upflow	93.0	93.0	93.0	93.0	93.0	93.0	
			Downflow	91.5	91.5	91.5	91.5	91.5	91.5
			Horizontal	92.3	92.3	92.3	92.3	92.3	92.3
	Non-Direct Vent (1-Pipe)	Upflow	92.4	92.4	92.4	92.4	92.4	92.4	
			Downflow	91.4	91.4	91.4	91.4	91.4	91.4
			Horizontal	91.4	91.4	91.4	91.4	91.4	91.4
Certified Temperature Rise Range °F	Low	20—50	30—60	30—60	25—55	30—60	30—60		
	High	30—60	40—70	30—60	45—75	30—60	40—70		
Certified External Static Pressure (ESP) (In. wc)	Heating	0.12	0.15	0.15	0.2	0.2	0.2		
	Cooling	0.5	0.5	0.5	0.5	0.5	0.5		
Airflow CFM‡	Heating Low	680	790	775	1175	1205	1215		
	Heating High	1010	1130	1190	1315	1795	1770		
	Cooling	1275	1380	1565	1570	2035	2075		
<b>ELECTRICAL</b>									
Unit Volts—Hertz—Phase	115—60—1								
Operating Voltage Range Min-Max**	104—127								
Maximum Unit Amps	8.4	8.1	11.6	11.6	13.3	12.9			
Unit Ampacity††	11.3	10.8	15.3	15.4	17.5	16.8			
Minimum Wire Size	14	14	12	12	12	12			
Maximum Wire Length (Ft)‡‡	33	34	37	37	33	34			
Maximum Fuse Size or Ckt Bkr Amps †††	15	15	20	20	20	20			
Transformer (24v)	40va								
External Control Power Available	Heating	19							
	Cooling	35							
Air Conditioning Blower Relay	Standard								
<b>CONTROLS</b>									
Limit Control	SPST								
Heating Blower Control (Off Delay)	Selectable 90, 120, 150, or 180 Seconds								
Burners (Monoport)	3	4	4	5	5	6			
Gas Connection Size	1/2-in. NPT								
<b>GAS CONTROLS</b>									
2-Stage Redundant Gas Valve	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								
<b>BLOWER DATA</b>									
Direct-Drive Motor HP (Permanent Split Capacitor)	1/3	1/3	1/2	1/2	3/4	3/4			
Motor Full Load Amps	5.1	5.1	7.4	7.9	11	11			
RPM (Nominal)—Speeds	1075—5	1075—5	1075—5	1075—4	1075—5	1075—5			
Blower Wheel Diameter x Width (In.)	10 × 7	10 × 7	11 × 8	11 × 8	11 × 10	11 × 10			
Filter Size (In.)—Permanent Washable	(1) 16 × 25 × 1			(1) 20 × 25 × 1		(1) 24 × 25 × 1			

See notes on page 5.

## SPECIFICATIONS Continued

FACTORY-AUTHORIZED AND LISTED DEALER-INSTALLED OPTIONS		
Gas Conversion Kit—Natural-to-Propane		KGANP4001ALL
Gas Conversion Kit—Propane-to-Natural		KGAPN3301ALL
Twinning Kit		KGATW0601HSI#
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
Vent/Exhaust Pipe External Trap Kit		KGAET0106ETK
UV Lights		Model UVL
Door Gasket Kit		KGBAC0110DGK

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- \* 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 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  
 # For 048 and 060 airflow sizes only. See kit installation instructions for details.

## COMBUSTION-AIR AND VENT PIPING FOR DIRECT VENT (2-PIPE) AND NON-DIRECT VENT (1-PIPE) APPLICATIONS

### MAXIMUM ALLOWABLE PIPE LENGTH (FT)

ALTITUDE (FT)	UNIT MAX INPUT RATE (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	
<b>0 to 2000</b>	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	
	100,000	2 Pipe or 3-in Concentric	2-1/2	2-1/2	70	70	70	70	70	70	
			2	2	5	NA	NA	NA	NA	NA	
			2-1/2	2-1/2	40	30	20	20	10	NA	
	120,000	2 Pipe or 3-in. Concentric	3	3	70	70	70	70	70	70	
			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
	ALTITUDE (FT)	UNIT MAX INPUT RATE (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	
<b>2001 to 3000</b>	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	
	ALTITUDE (FT)	UNIT MAX INPUT RATE (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
<b>3001 to 4000</b>	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	70	70	70	70	70	70	

See notes at end of table

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**COMBUSTION-AIR AND VENT PIPING FOR DIRECT VENT (2-PIPE)  
AND NON-DIRECT VENT (1-PIPE) APPLICATIONS continued**

**MAXIMUM ALLOWABLE PIPE LENGTH (FT) (CONTINUED)**

ALTITUDE (FT)	UNIT MAX INPUT RATE (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‡	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
		2 Pipe or 3-in. Concentric	3† no disk	NA	53	46	40	33	26	20
			NA	3†	56	55	54	53	52	52
120,000	2 Pipe or 3-in. Concentric	4† no disk	4† no disk	70	70	70	70	70	70	
ALTITUDE (FT)	UNIT MAX INPUT RATE (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‡	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	
ALTITUDE (FT)	UNIT MAX INPUT RATE (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‡	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	

See notes at end of table

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# COMBUSTION-AIR AND VENT PIPING FOR DIRECT VENT (2-PIPE) AND NON-DIRECT VENT (1-PIPE) APPLICATIONS continued

## 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
<b>7001 to 8000‡</b>	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	
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
<b>8001 to 9000‡</b>	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	
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
<b>9001 to 10,000‡</b>	60,000	2 Pipe or 2-in Concentric	2	2	45	40	38	33	31	29
			2	2	30	25	14	9	7	NA
	80,000	2 Pipe or 2-in Concentric	2-1/2	2-1/2	57	55	53	51	49	47
			2-1/2	2-1/2	21	13	5	NA	NA	NA
	100,000	2 Pipe or 3-in Concentric	3	3	54	49	44	39	34	29
			NA	3†	39	37	35	33	31	29
120,000	2 Pipe or 3-in Concentric	4† no disk	4† no disk	10	5	NA	NA	NA	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.

352AAV



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

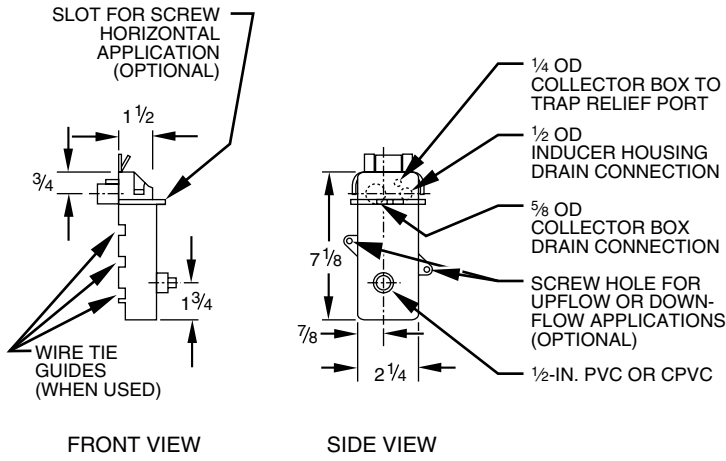
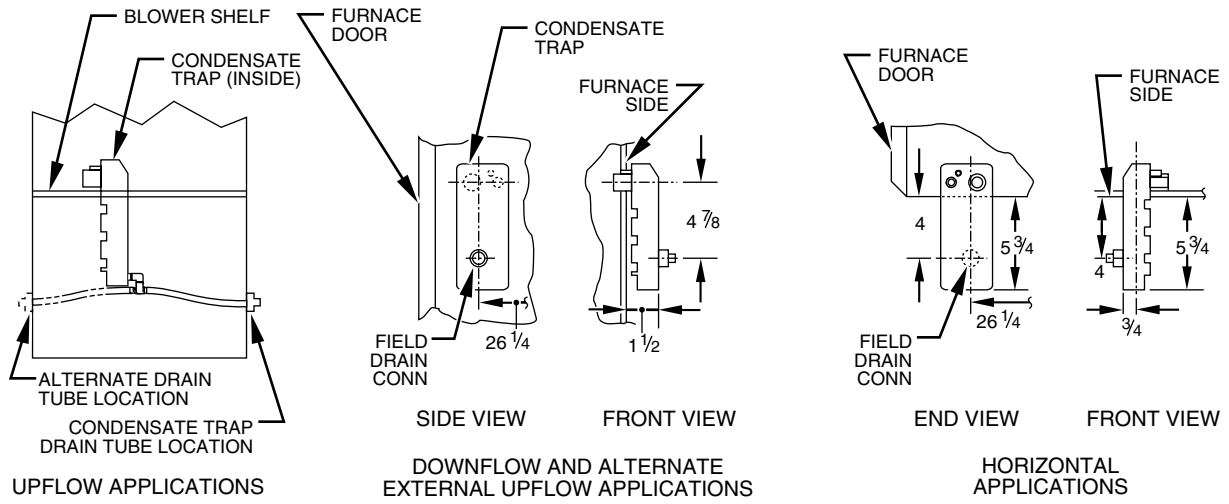
UNIT SIZE	WINTER DESIGN TEMPERATURE (°F)	MAX PIPE DIAMETER (IN.)	WITHOUT INSULATION	WITH 3/8-IN. OR THICKER INSULATION†
060	20	2	44	70
	0	2	21	70
	-20	2	20	57
080	20	2	55	55
	0	2	30	55
	-20	2	16	55
	20	2.5	58	70
	0	2.5	29	70
	-20	2.5	14	67
100	20	2.5	40	40
	0	2.5	38	40
	-20	2.5	21	40
	20	3	63	70
	0	3	30	70
	-20	3	12	70
120	20	3	70	70
	0	3	38	70
	-20	3	19	70
	20	4	65	70
	0	4	26	70
	-20	4	5	65

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\* Pipe length (ft) specified for maximum pipe lengths located in unconditioned spaces. Pipes located in unconditioned space cannot exceed total allowable pipe length as specified in Table 6.

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

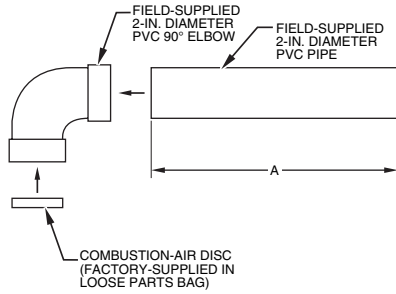
### CONDENSATE TRAP



A93026

# ACCESSORIES

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

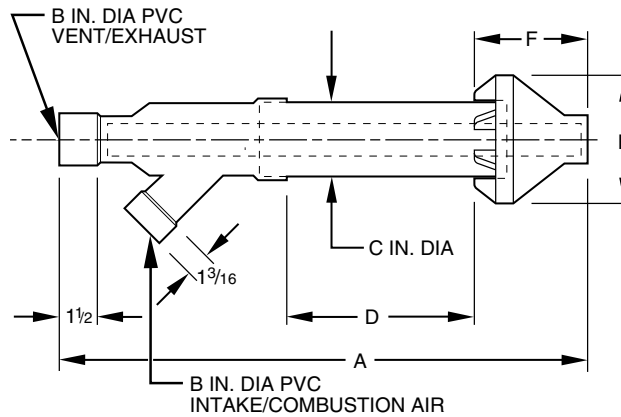


**LENGTH OF STRAIGHT PIPE PORTION OF COMBUSTION AIR INLET PIPE ASSEMBLY (IN.)**

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

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

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



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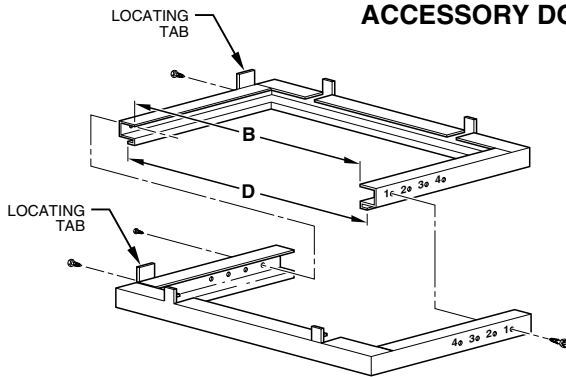
### DIMENSIONS (In.)

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

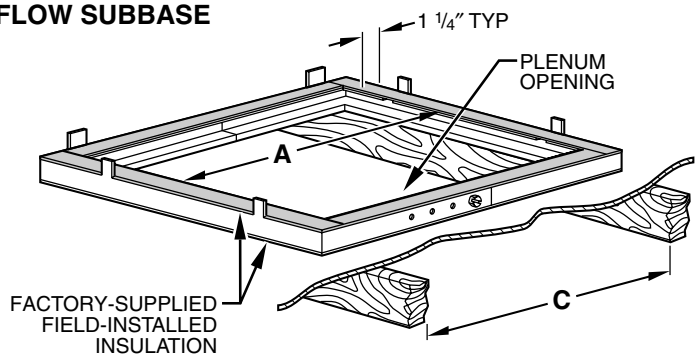
\*Dimension A will change accordingly as dimension D is lengthened or shortened.

†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.

## ACCESSORY DOWNFLOW SUBBASE



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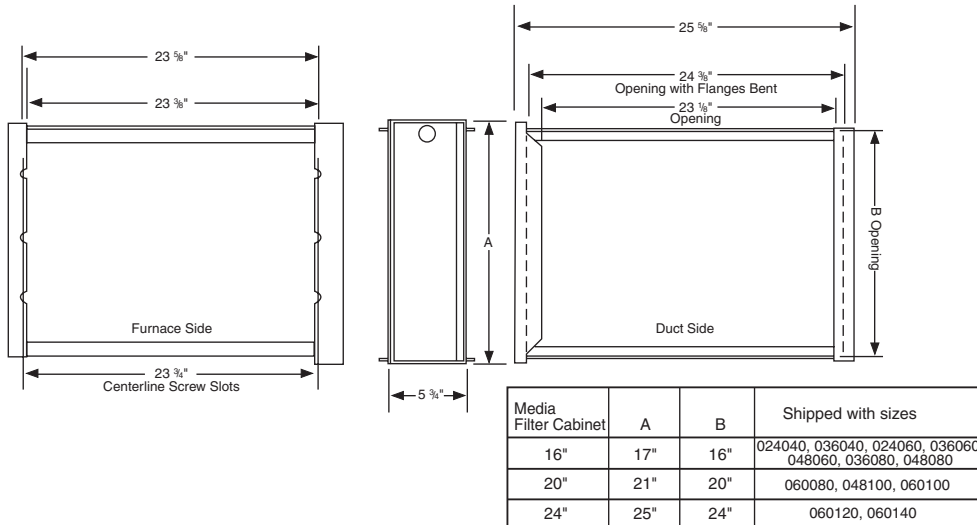


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FURNACE CASING WIDTH	FURNACE IN DOWNFLOW APPLICATION	PLENUM OPENING*		FLOOR OPENING		HOLE NO. FOR WIDTH ADJUSTMENT
		A	B	C	D	
17-1/2	Furnace with or without Cased Coil Assembly or KCAKC Coil Box	15-1/8	19	16-3/4	20-3/8	3
21	Furnace with or without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

### MEDIA FILTER CABINET

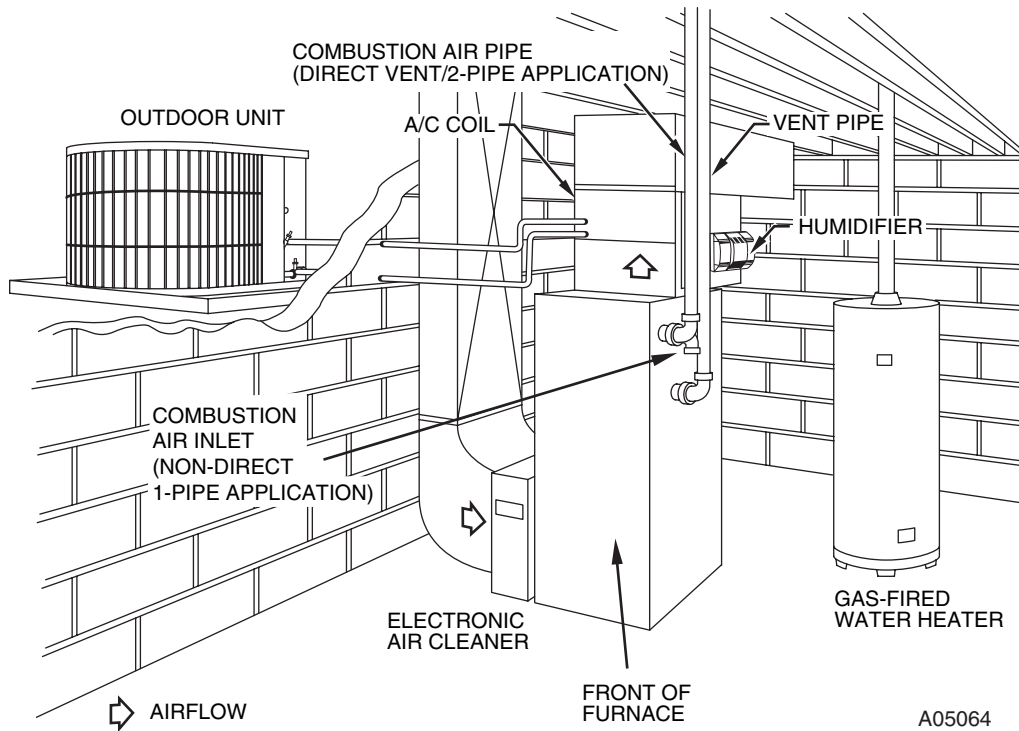


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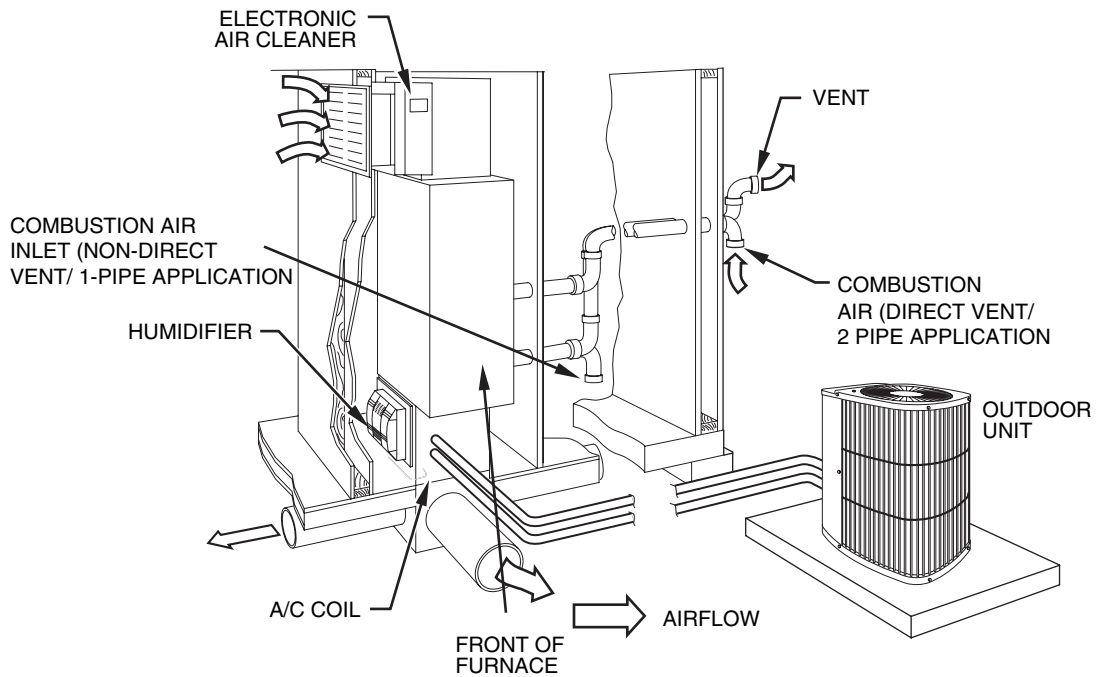
### AIR DELIVERY—CFM (With Filter)

UNIT SIZE BRYANT	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
036060	1 side or bottom	High	1490	1450	1400	1345	1275	1190	1080	960
		Med-High	1190	1180	1155	1120	1070	1005	915	810
		Med	1015	1010	995	965	920	875	800	715
		Med-Low	870	860	840	820	780	735	670	580
		Low	685	670	645	620	595	545	495	420
036080	1 side or bottom	High	1605	1560	1510	1450	1380	1300	1195	1045
		Med-High	1305	1290	1265	1225	1175	1100	995	895
		Med	1135	1125	1110	1080	1030	965	885	800
		Med-Low	990	980	965	930	880	825	760	685
		Low	805	780	745	700	660	630	575	495
048080	1 side or bottom	High	1810	1755	1690	1640	1565	1495	1410	1330
		Med-High	1420	1385	1350	1305	1260	1210	1145	1090
		Med	1205	1175	1135	1100	1060	1010	960	905
		Med-Low	1035	990	945	910	875	840	790	735
		Low	805	750	705	660	620	585	540	490
04810	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	bottom only	High	2345	2265	2195	2110	2035	1940	1850	1745
		Med-High	2110	2065	2010	1945	1875	1800	1710	1615
		Med	1810	1795	1770	1725	1680	1615	1545	1460
		Med-Low	1480	1465	1440	1415	1375	1330	1260	1190
	both sides or 1 side and bottom	High	2425	2365	2300	2240	2160	2080	1980	1880
		Med-High	2045	2025	2000	1965	1910	1850	1785	1695
	1 side only	High	2305	2235	2170	2100	2005	1925	1825	1730
		Med-High	2030	1995	1950	1905	1835	1775	1685	1600
	060120	bottom only	High	2385	2320	2245	2160	2075	1975	1870
Med-High			2105	2060	2005	1945	1880	1795	1710	1620
Med			1785	1770	1740	1700	1650	1600	1525	1450
Med-Low			1495	1470	1450	1420	1385	1335	1280	1220
both sides or 1 side and bottom		High	2475	2435	2385	2320	2260	2180	2095	1995
		Med-High	2085	2075	2055	2030	1980	1930	1865	1785
1 side only		High	2255	2190	2115	2045	1965	1890	1800	1710
		Med-High	1985	1930	1890	1840	1780	1720	1645	1560

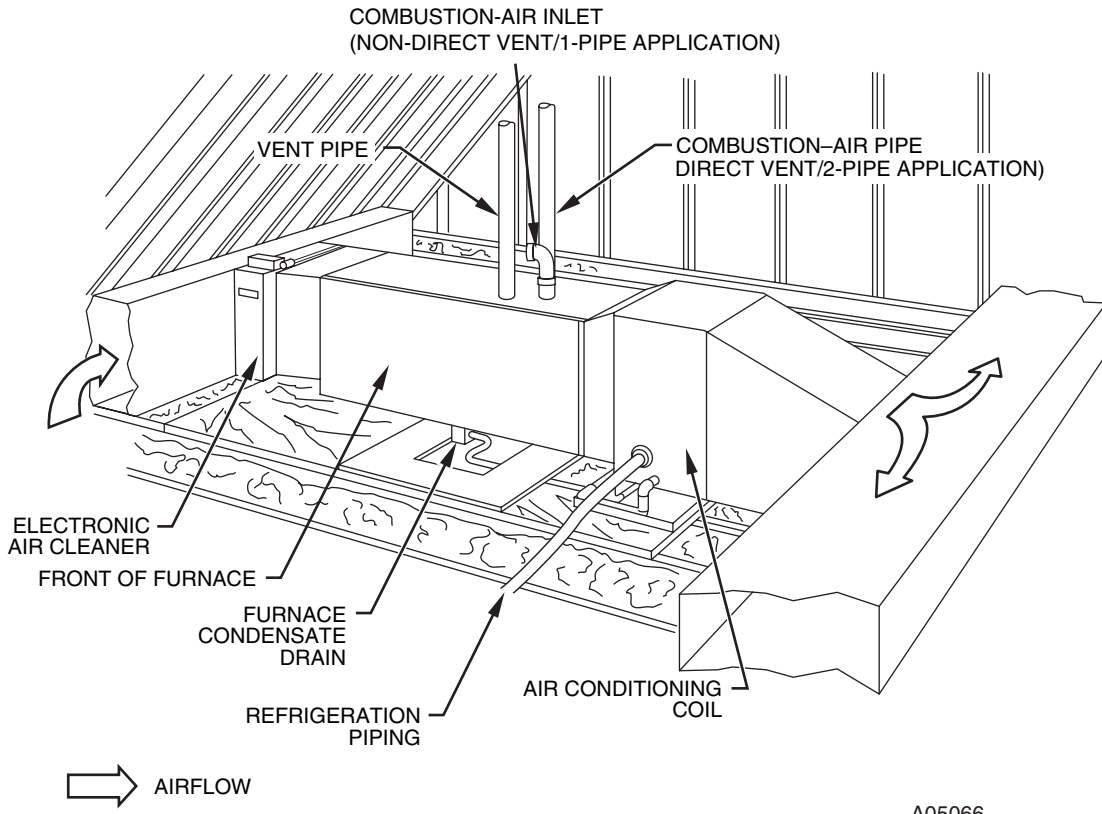
- Airflow shown is with factory supplied 1-in. washable filter.
- A filter is required for each return air opening.
- An airflow reduction of up to 7% may occur when using the factory-specified 4-5/16-inch wide, high efficiency media filter.
- For best furnace efficiency when using the 4 5/16-inch wide media filter, adjust 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.



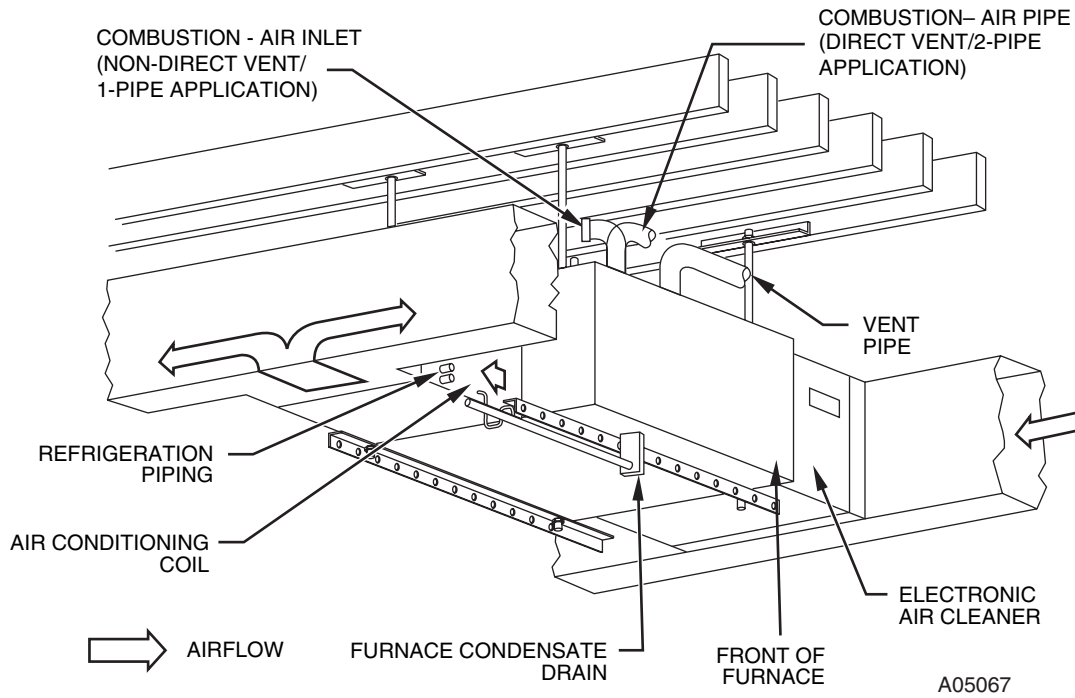
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# GUIDE SPECIFICATIONS

## GENERAL

### System Description

Furnish a \_\_\_\_\_ (4-way multipoise) dual 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 external medial cabinet for use with accessory media filter or standard filter.

### Quality Assurance

Unit will be designed, tested and constructed to the current ANSI Z 21.47/CSA 2.3 design standard for gas-fired central furnaces.

Unit will be 3rd party certified by CSA to the current ANSI Z 21.47/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 GAMA 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 dual rate 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 (x) \_\_\_\_\_ in. An accessory high efficiency Media Filter is available as an option \_\_\_\_\_ Media Filter.

### Casing

Casing shall be of .030 in. thickness minimum, pre-painted galvanized steel.

### Two Speed Inducer Motor

Two Speed 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 for low heat, high heat, low cooling, high cooling and continuous fan. Continuous fan speed may be adjusted from the thermostat. Cooling airflow will be selectable between 350 or 400 CFM per ton of air conditioning. Features will also include temporary reduced airflow in the cooling mode for improved dehumidification when a Thermidstat® is selected as the thermostat.

### Operating Characteristics

Heating Capacity shall be \_\_\_\_\_ Btuh input; \_\_\_\_\_ Btuh output capacity.

Fuel Gas Efficiency shall be 93% AFUE.

Air delivery shall be \_\_\_\_\_ cfm minimum at 0.50 in. wg. external static pressure.

Dimensions shall be: depth \_\_\_\_\_ in.; width \_\_\_\_\_ in.; height \_\_\_\_\_ in. (casing only). Height shall be \_\_\_\_\_ in. with A/C coil and \_\_\_\_\_ in. 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.