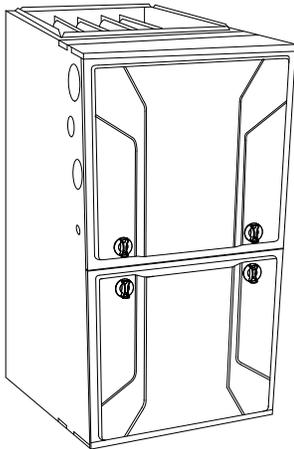


986TD Evolution® Two-Stage, Variable Speed, 4-Way Multipoise, Condensing Gas Furnace



Product Data



Representative drawing only. Some product models may vary.

A11264



A210059

! WARNING

CARBON MONOXIDE POISONING AND FIRE HAZARD

Failure to follow this warning could result in personal injury, death, and/or property damage.

This furnace is not designed for use in recreation vehicles, manufactured (mobile) homes or outdoors.

Failure to follow this warning could result in personal injury, death, and/or property damage.

features the two-stage EvolutionR System. The Perfect Heat Technology® two-stage gas system is at the heart of the comfort provided by this furnace, along with the Evolution variable-speed constant airflow ECM blower motor, and two-speed inducer motor. With an Annual Fuel Utilization Efficiency (AFUE) of up to 96.7%, the Evolution two-stage gas furnace provides exceptional savings when compared to a standard furnace. This Evolution Gas Furnace also features 4-way multipoise installation flexibility, and is available in six model sizes. The 986TD can be vented for direct vent/two-pipe, ventilated combustion air, or single-pipe applications. A Bryant Connex™ and Evolution Air Conditioner or Heat Pump can be used to form a complete Evolution System. All sizes can be installed in air quality management districts with a 40 ng/J NOx emissions requirement. All sizes are design certified in Canada.

PERFORMANCE

- Communicating variable-speed, constant airflow (VCA) ECM blower motor for electrically efficient operation all year long in heating, cooling and continuous fan operation
- Two-speed inducer motor, and two-stage gas valve.
- PerfectLight™ Silicon Nitride Hot Surface Igniter.
- Perfect Humidity® technology for unmatched dehumidification performance.
- Integral part of the Perfect Humidity® System Technology.
- Fan On Plus™ technology allows control of continuous fan speed from a compatible thermostat.
- SmartEvap™ technology helps control humidity levels in the home when used with a compatible humidity control system.
- On-board NFC antenna makes setup a tap away when using the Bryant Service Technician App.
- 3 Digit Display shows fault codes and furnace status.
- RAT and SAT thermistors can provide temperature rise.
- Aluminized-steel primary heat exchanger.
- Stainless-steel condensing secondary heat exchanger.
- Fully-insulated casing including blower section.

INSTALLATION FLEXIBILITY

- 4-way multipoise design for upflow, downflow or horizontal installation, with unique vent elbow and optional through-the-cabinet downflow venting capability.
- Ideal height 35-in. (889 mm) cabinet: short enough for taller coils, but still allows enough room for service.
- Direct-vent/sealed combustion, single-pipe venting or ventilated combustion air.

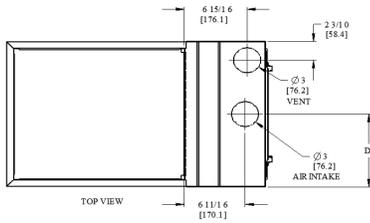
APPLICATIONS

- Self-diagnostics and extended diagnostic data through the Advanced Product Monitor (APM) accessory or Evolution Connex™ Interface.
- Propane convertible with gas conversion accessory
- Convenient Air Purifier and Humidifier connections.
- Compatible with single- and multiple-zone Evolution systems.

CERTIFICATIONS

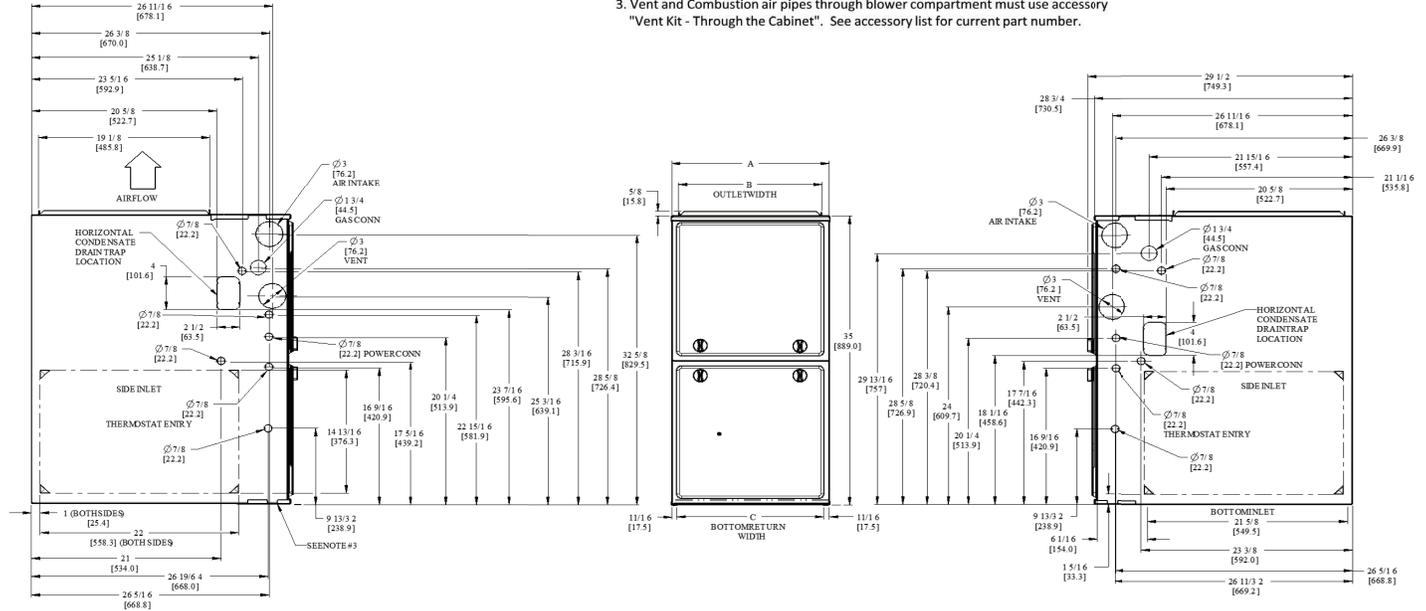
- All sizes meet ENERGY STAR® Version 4.1 criteria for gas furnaces: 95%+ AFUE.
- Cabinet air leakage less than 2.0% at 1.0 in. w.c. and cabinet air leakage less than 1.4% at 0.5 in. w.c. when tested in accordance with ASHRAE standard 193.

DIMENSIONAL DRAWING



NOTES:

1. Doors may vary by model.
2. Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer's recommendations or equivalent diameters.
 - a. For 800 CFM-16-in. (406 mm) round or 14 1/2 x 12-in. (368 x 305 mm) rectangle.
 - b. For 1200 CFM-20-in. (508 mm) round or 14 1/2 x 19 1/2-in. (368 x 495 mm) rectangle.
 - c. For 1600 CFM-22-in. (559 mm) round or 14 1/2 x 22 1/16-in. (368 x 560 mm) rectangle.
 - d. Return air above 1800 CFM at 0.5 in. w.c. ESP on 24.5" casing, requires one of the following configurations: 2 sides, 1 side and a bottom or bottom only. See Air Delivery table in this document for specific use to allow for sufficient airflow to the furnace.
3. Vent and Combustion air pipes through blower compartment must use accessory "Vent Kit - Through the Cabinet". See accessory list for current part number.



NOTE: ALL DIMENSIONS IN INCH (MM)

SD5663-4 REV.

A210796

Dimensions

FURNACE SIZE	A	B	C	D	SHIP WT. LB (KG)
	CABINET WIDTH IN (MM)	OUTLET WIDTH IN (MM)	BOTTOM INLET WIDTH IN (MM)	AIR INTAKE IN (MM)	
30040C14	14-3/16 (361)	12-1/2 (319)	12-9/16 (322)	7-1/8 (181)	125 (56.7)
42060C17	17-1/2 (445)	15-7/8 (403)	16 (406)	8-3/4 (222)	143 (64.6)
42080C17	17-1/2 (445)	15-7/8 (403)	16 (406)	8-3/4 (222)	145 (65.5)
60080C21	21 (533)	19-3/8 (492)	19-1/2 (495)	10-1/2 (267)	157 (71.0)
66100C21	21 (533)	19-3/8 (492)	19-1/2 (495)	10-1/2 (267)	167 (75.7)
66120C24	24-1/2 (622)	22-7/8 (581)	23 (584)	12-1/4 (311)	188 (85.0)

MODEL NUMBER NOMENCLATURE

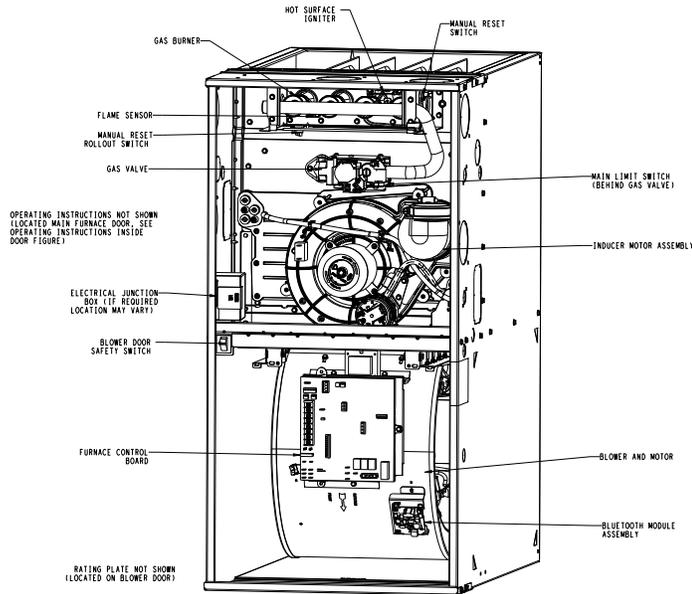
1	2	3	4	5	6, 7	8 - 10	11	12 - 13	14	15	16
Heat Exchanger	Tier/NOx	AFUE/NOx	Heating Stages	Major Series	Cooling Capacity (CFM)	Heat Input	Motor Type	Width	Voltage (1-phase)	Un-used	Minor Series
9	8	6	T	D	42	060	C	17	A	-	A
8 = 80% 9 = 90+%	0 = Base 1 = Legacy Line 2 = Preferred 3 = Ultra Low NOx 8 = Evolution	0 = 80% 1 = 80% Low NOx (Not Ultra Low NOx) 2 = 92% 5 = 95% 6 = 96% 7 = 97% 8 = 98%	M = Modulating T = Two Stage S = Single Stage C = Single Stage Communicating	A B C D ---	24 = 800 CFM 30 = 1000 CFM 36 = 1200 CFM 42 = 1400 CFM 48 = 1600 CFM 60 = 2000 CFM 66 = 2200 CFM	026 = 26,000 BTU/h 040 = 40,000 BTU/h 060 = 60,000 BTU/h ---	C = Constant Airflow Variable-Speed (VCA) ECM V = Variable-Speed (VCT) PWM M = Multi 18-Speed Constant Torque (MCT) ECM	14 = 14.2" 17 = 17.5" 21 = 21.0" 24 = 24.5"	A = 110V/60Hz B = 230V/50Hz	-	A B C ---

A230444

For California Residents:

For installation in SCAQMD only: This furnace does not meet the SCAQMD Rule 1111 14 ng/J NOx emission limit, and thus is subject to a mitigation fee of up to \$450. This furnace is not eligible for the Clean Air Furnace Rebate Program: www.CleanAirFurnaceRebate.com

FURNACE COMPONENTS



A230442

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

POSITION	CLEARANCE
Rear	0 (0 mm)
Front (Combustion air openings in furnace and in structure)	1 in. (25 mm)
Required for service*	24 in. (610 mm)†
All Sides of Supply Plenum*	1 in. (25 mm)
Sides	0 (0 mm)
Vent	0 (0 mm)
Top of Furnace	1 in. (25 mm)

*. Consult your local building codes

†. Recommended

The furnace should be sized to provide 100 percent of the design heating load requirement plus any margin that occurs because of furnace model size capacity increments. None of the furnace model sizes can be used if the heating load is 20,000 BTU or lower. Use Air Conditioning Contractors of America (Manual J and S); American Society of Heating, Refrigerating, and Air-Conditioning Engineers; or other approved engineering method to calculate heating load estimates and select the furnace. Excessive oversizing of the furnace may cause the furnace and/or vent to fail prematurely, customer discomfort and/or vent freezing.

Failure to follow these guidelines is considered faulty installation and/or misapplication of the furnace; and resulting failure, damage, or repairs may impact warranty coverage.

SPECIFICATIONS

		UNIT SIZE	36040C14	42060C17	42080C17	60080C21	66100C21	66120C24
HEATING AND CAPACITY AND EFFICIENCY								
INPUT BTUH*	High Heat	(BTUH)	40,000	60,000	80,000	80,000	100,000	120,000
	Low Heat	(BTUH)	26,000	39,000	52,000	52,000	65,000	78,000
OUTPUT CAPACITY (BTUH)†	High Heat	(BTUH)	39,000	59,000	78,000	78,000	98,000	117,000
	Low Heat	(BTUH)	25,000	38,000	51,000	51,000	54,000	76,000
CERTIFIED TEMPERATURE RISE RANGE - °F (°C)	High Heat		40 - 70 (22 - 39)	35 - 65 (19 - 36)	40 - 70 (22 - 39)	40 - 70 (22 - 39)	45 - 75 (25 - 42)	45 - 75 (25 - 42)
	Low Heat		30 - 60 (17 - 3)	30 - 60 (17 - 3)	30 - 60 (17 - 3)			
AFUE†	Upflow/Horizontal		96	96.3	96.2	96.7	96.1	96.7
	Downflow		95	95	95	95	95	95
AIRFLOW CAPACITY AND BLOWER DATA								
Rated Certified External Static Pressure	Heating		0.1	0.12	0.15	0.15	0.2	0.2
	Cooling		0.5	0.5	0.5	0.5	0.5	0.5
Airflow CFM @ Rated ESP (CFM)‡	High Heat		580	1045	1215	1250	1475	1880
	Low Heat		465	758	955	970	1280	1495
	Cooling		995	1270	1350	1985	2165	2190
Cooling Capacity (tons)	400 CFM/ton		2.5	3	3.5	4.5	5	5.5
	350 CFM/ton		3	3.5	4	5.5	6	6
Direct Drive Motor Type	Electronically Commutated Motor (ECM)							
Direct Drive Motor HP			1/2	1/2	1/2	1	1	1
Motor Full Load Amps			6.3	6.7	6.3	11.5	11.5	11.0
RPM Range	300 - 1300							
Heating Blower Control (Htg Off-Delay)	Adjustable: 90, 120 (factory set), 150, 180 seconds							
Cooling Blower Control (Time Delay Relay)	Adjustable: 90 (factory-set), 5, 30, 60 seconds							
Blower Wheel Diameter x Width - In. (mm)			12 x 8 (305 x 203)	11 x 8 (279 x 203)	11 x 8 (279 x 203)	11 x 10 (279 x 254)	11 x 10 (279 x 254)	11 x 11 (279 x 279)
Air Filtration System	Field Supplied Filter							
Filter used for Certified Watt Data	325531-40**							
ELECTRICAL DATA								
INPUT VOLTAGE	Unit Volts-Hertz-Phase	115-60-1						
OPERATING VOLTAGE RANGE	Min-Max	104-127						
MAXIMUM UNIT AMPS		7.1	7.3	7.1	13.1	13.2	11.9	
UNIT AMPACITY		9.8	10	9.8	17.3	17.4	15.7	
MAXIMUM WIRE LENGTH								
MEASURE 1 WAY IN FT	Feet	37	37	37	33	33	36	
(M)	Meters	11.3	11.3	11.3	10.1	10.1	11	
MINIMUM WIRE SIZE	AWG	14	14	14	12	12	12	
MAX. FUSE/CKT BKR SIZE (TIME-DELAY TYPE RECOMMENDED)	Amps	15	15	15	20	20	20	
TRANSFORMER CAPACITY (24 VAC OUTPUT)		40VA						
EXTERNAL CONTROL POWER AVAILABLE	Heating	24VA						
	Cooling	35VA						

SPECIFICATIONS (Continued)

	UNIT SIZE	36040C14	42060C17	42080C17	60080C21	66100C21	66120C24
GAS CONTROLS							
BURNERS		3	3	4	4	5	6
GAS CONNECTION SIZE		1/2in. NPT					
GAS VALVE (REDUNDANT)	Mfr	WhiteRodgers™					
MIN. INLET PRESSURE	(in.w.c.)	4.5 (Natural Gas)					
MAX. INLET PRESSURE	(in.w.c.)	13.6 (Natural Gas)					
MANUFACTURED (MOBILE HOME KIT)		See Accessory Listing					
IGNITION DEVICE		Silicon Nitride					
FACTORY INSTALLED ORIFICE		44	44	44	44	44	44
CONNECTIONS							
Communication System		Evolution®; Evolution® Zoning					
Thermostat Connections		R, W/W1, W2, Y/Y2, Y1, G Com 24V, DHUM					
Accessory Connections		EAC-1 (115 VAC); HUM (24 VAC); 1-STG AC (via Y/Y2); 2-STG AC (via Y/Y2 and Y1)					

- *. Gas input ratings are certified for elevations to 2000 ft. (610 M). In USA, For elevations above 2000 ft (610 M), reduce ratings 4 percent for each 1000 ft (305 M) above sea level. Refer to National Fuel Gas Code NFPA 54/ANSI Z223.1 Table F.4 or furnace installation instructions.
- †. Capacity in accordance with U.S. Government DOE test procedures.
- ‡. Airflow shown is for bottom only return-air supply for the as-shipped speed tap. For air delivery above 1800 CFM, see Air Delivery table for other options. A filter is required for each return-air supply. An airflow reduction of up to 7 percent may occur when using the factory-specified 4-5/16-in. (110 mm) wide, high efficiency media filter.
- ** See Accessory List for part numbers available.

AIR DELIVERY - CFM (WITH FILTER)

30060C14													
Available Cooling Airflow Settings (CFM)	320	400	450	488	525	555	600	*650	700	740	800	†875	925
	975	1000											
Available Constant Fan Airflow Settings (CFM)	‡320	400	450	488	525	555	600	650	700	740	800	875	925
	975												
Airflow reduces by 2% - 3% per 0.1 of ESP above the noted static for these airflow settings	Airflow		ESP (in. w.c.)										
	1000		0.8										
Max Cooling ESP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
**Max Cooling CFM	1045	1015	1005	990	995	1000	1000	1000	965	925			
42060C17													
Available Cooling Airflow Settings (CFM)	400	450	488	525	555	600	650	700	740	800	875	*925	975
	1000	1050	1138	1200	†1225	1300	1410						
Available Constant Fan Airflow Settings (CFM)	‡400	450	488	525	555	600	650	700	740	800	875	925	975
	1000												
Airflow reduces by 2% - 3% per 0.1 of ESP above the noted static for these airflow settings	Airflow		ESP (in. w.c.)										
	1200		0.7										
	1225		0.6										
	1300		0.2										
	1410		0.1										
Max Cooling ESP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
**Max Cooling CFM	1405	1370	1335	1305	1270	1235	1200	1170	1135	1105			

AIR DELIVERY - CFM (WITH FILTER) (CONTINUED)

42080C17													
Available Cooling Airflow Settings (CFM)	400	450	488	525	555	600	650	700	740	800	875	*925	975
	1000	1050	1138	1200	†1225	1300	1400						
Available Constant Fan Airflow Settings (CFM)	‡400	450	488	525	555	600	650	700	740	800	875	925	975
	1000												
Airflow reduces by 2% - 3% per 0.1 of ESP above the noted static for these airflow settings	Airflow Setting	ESP (in. w.c.)											
	1225	0.7											
	1300	0.5											
	1400	0.1											
Max Cooling ESP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
**Max Cooling CFM	1485	1455	1420	1390	1350	1315	1275	1230	1190	1150			

60080C21													
Available Cooling Airflow Settings (CFM)	650	700	740	800	875	925	975	1000	1050	1138	1200	1225	*1300
	1400	1480	1600	1625	†1750	1850	1911	2000					
Available Constant Fan Airflow Settings (CFM)	‡650	700	740	800	875	925	975	1000	1050	1138	1200	1225	1300
	1400												
Airflow reduces by 2% - 3% per 0.1 of ESP above the noted static for these airflow settings	Airflow	ESP (in. w.c.)											
	2000	0.9											
Max Cooling ESP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
**Max Cooling CFM	2005	1995	1995	1995	1985	2005	2015	2025	2015	1975			

66100C21													
Available Cooling Airflow Settings (CFM)	650	700	740	800	875	925	975	1000	1050	1138	1200	1225	1300
	*1400	1480	1600	1625	1750	1850	†1911	2000	2110				
Available Constant Fan Airflow Settings (CFM)	‡650	700	740	800	875	925	975	1000	1050	1138	1200	1225	1300
	1400												
Airflow reduces by 2% - 3% per 0.1 of ESP above the noted static for these airflow settings	Airflow Setting	ESP (in. w.c.)											
	1911	0.9											
	2000	0.7											
	2110	0.5											
Max Cooling ESP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
**Max Cooling CFM	2190	2195	2200	2195	2165	2125	2085	2040	1995	1950			

66120C24													
Available Cooling Airflow Settings (cfm)	650	700	740	800	875	925	975	1000	1050	1138	1200	1225	*1300
	1400	1480	1600	1625	†1750	1850	1911	2000	2110				
Available Constant Fan Airflow Settings (CFM)	‡650	700	740	800	875	925	975	1000	1050	1138	1200	1225	1300
	1400												
Airflow reduces by 2% - 3% per 0.1 of ESP above the noted static for these airflow settings	Airflow Setting	ESP (in. w.c.)											
	1911	0.8											
	2000	0.7											
	2110	0.5											
Max Cooling ESP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1			
**Max Cooling CFM	2220	2220	2235	2220	2190	2140	2085	2030	1975	1925			

*. Low Cooling Default
 †. High Cooling Default
 ‡. Constant Fan Default **Not Recommended**
 **. Max Cooling values are test CFM all other airflows are standard CFM

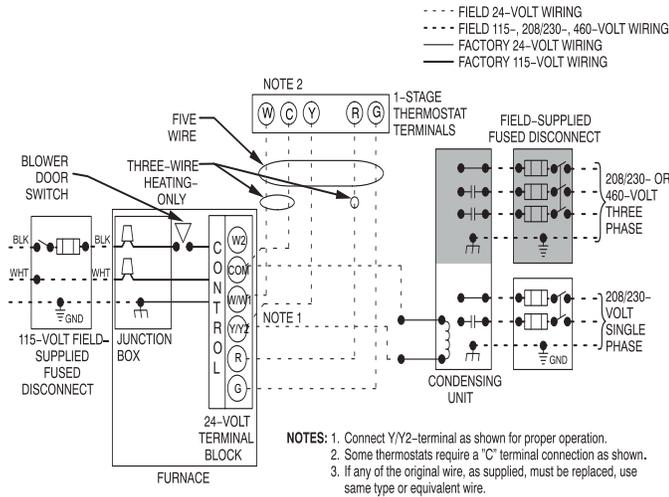
For Heating Settings

- Eff1 airflow will give midpoint rise
- Eff2 will increase heating airflow (when unit is capable)
- Com2 will decrease heating airflow (defaults)
- Com1 will give the lowest heating airflow

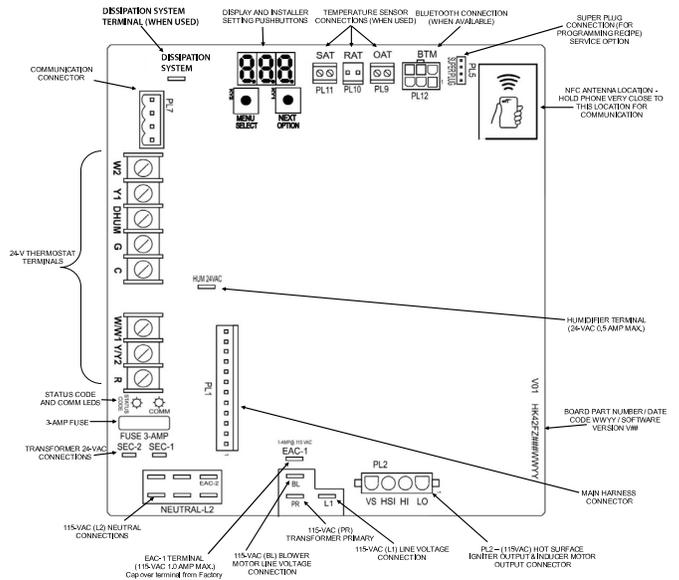
Notes:

ESP is External Static Pressure
 Airflow values up to 1 in. w.c. ESP (unless noted)

TYPICAL WIRING SCHEMATIC



FURNACE CONTROL BOARD



A11401

A230451

MAXIMUM ALLOWABLE EXPOSED VENT LENGTHS INSULATION TABLE

Maximum Allowable Exposed Vent Length in Unconditioned Space - Ft.

Winter Design Temp °F	Unit Size	40,000* BTUH									60,000 BTUH											
		Uninsulated			3/8-in. Insulation			1/2-in. Insulation			Uninsulated			3/8-in. Insulation			1/2-in. Insulation					
		Pipe Dia. in.	1 1/2	2	2 1/2	1 1/2	2	2 1/2	1 1/2	2	2 1/2	1 1/2	2	2 1/2	3	1 1/2	2	2 1/2	3	1 1/2	2	2 1/2
20	20	20	20	20	20	50	45	20	60	50	20	30	30	25	20	75	65	60	20	85	75	65
0	10	5	5	20	25	20	20	30	25	15	15	10	10	20	40	30	25	20	45	40	30	
-20	5			20	15	10	20	20	15	10	5			20	25	20	15	20	30	25	20	
-40				15	10	5	15	15	10	5				20	15	15	10	20	20	15	10	

Winter Design Temp °F	Unit Size	80,000 BTUH													
		Uninsulated				3/8-in. Insulation				1/2-in. Insulation					
		Pipe Dia. in.	1 1/2	2	2 1/2	3	4	1 1/2	2	2 1/2	3	4	1 1/2	2	2 1/2
20	15	40	40	35	30	15	50	90	75	65	15	50	70	70	70
0	15	20	15	10	5	15	50	45	35	30	15	50	50	40	35
-20	15	10	5			15	35	30	20	15	15	40	30	25	15
-40	10	5				15	25	20	15	5	15	30	25	10	

Winter Design Temp °F	Unit Size	100,000 BTUH										
		Uninsulated				3/8-in. Insulation				1/2-in. Insulation		
		Pipe Dia. in.	2	2 1/2	3	4	2	2 1/2	3	4	2	2 1/2
20	20	50	40	35	20	80	95	80	20	80	105	90
0	20	20	15	10	20	55	45	35	20	65	55	45
-20	15	10	5		20	35	30	20	20	45	35	25
-40	10	5			20	25	20	10	20	30	25	15

Winter Design Temp °F	Unit Size	120,000 BTUH									140,000* BTUH								
		Uninsulated			3/8-in. Insulation			1/2-in. Insulation			Uninsulated			3/8-in. Insulation			1/2-in. Insulation		
		Pipe Dia. in.	2 1/2	3	4	2 1/2	3	4	2 1/2	3	4	2 1/2	3	4	2 1/2	3	4	2 1/2	3
20	10	50	40	10	75	95	10	75	105	5	55	50	5	65	105	5	65	125	
0	10	20	15	10	55	45	10	65	50	5	25	15	5	65	50	5	65	60	
-20	10	10		10	35	25	10	45	30	5	10	5	5	45	30	5	50	40	
-40	10	5		10	25	15	10	30	20	5	5		5	30	20	5	35	25	

Maximum Allowable Exposed Vent Length in Unconditioned Space - Meters

Winter Design Temp °C	Unit Size	40,000* BTUH									60,000 BTUH											
		Uninsulated			3/8-in. Insulation			1/2-in. Insulation			Uninsulated				3/8-in. Insulation				1/2-in. Insulation			
	Pipe Dia. mm	38	51	64	38	51	64	38	51	64	38	51	64	76	38	51	64	76	38	51	64	76
-7	6.1	6.1	6.1	6.1	15.2	13.7	6.1	18.3	15.2	6.1	9.1	9.1	7.6	6.1	22.9	19.8	18.3	6.1	25.9	22.9	19.8	
-18	3.0	1.5	1.5	6.1	7.6	6.1	6.1	9.1	7.6	4.6	4.6	3.0	3.0	6.1	12.2	9.1	7.6	6.1	13.7	12.2	9.1	
-29	1.5			6.1	4.6	3.0	6.1	6.1	4.6	3.0	1.5			6.1	7.6	6.1	4.6	6.1	9.1	7.6	6.1	
-40				4.6	3.0	1.5	4.6	4.6	3.0	1.5				6.1	4.6	4.6	3.0	6.1	6.1	4.6	3.0	

Winter Design Temp °C	Unit Size	80,000 BTUH														
		Uninsulated					3/8-in. Insulation					1/2-in. Insulation				
	Pipe Dia. mm	38	51	64	76	102	38	51	64	76	102	38	51	64	76	102
-7	4.6	12.2	12.2	10.7	9.1	4.6	15.2	27.4	22.9	19.8	4.6	15.2	21.3	21.3	21.3	
-18	4.6	6.1	4.6	3.0	1.5	4.6	15.2	13.7	10.7	9.1	4.6	15.2	15.2	12.2	10.7	
-29	4.6	3.0	1.5			4.6	10.7	9.1	6.1	4.6	4.6	12.2	9.1	7.6	4.6	
-40	3.0	1.5				4.6	7.6	6.1	4.6	1.5	4.6	9.1	7.6	6.1	3.0	

Winter Design Temp °C	Unit Size	100,000 BTUH											
		Uninsulated				3/8-in. Insulation				1/2-in. Insulation			
	Pipe Dia. mm	51	64	76	102	51	64	76	102	51	64	76	102
-7	6.1	15.2	12.2	10.7	6.1	24.4	28.9	24.4	6.1	24.4	32.0	27.4	
-18	6.1	6.1	4.6	3.0	6.1	16.8	13.7	10.7	6.1	19.8	16.7	13.7	
-29	4.6	3.0	1.5		6.1	10.7	9.1	6.1	6.1	13.7	10.7	7.6	
-40	3.0	1.5			6.1	7.6	6.1	3.0	6.1	9.1	7.6	4.6	

Winter Design Temp °C	Unit Size	120,000 BTUH									140,000* BTUH								
		Uninsulated			3/8-in. Insulation			1/2-in. Insulation			Uninsulated			3/8-in. Insulation			1/2-in. Insulation		
	Pipe Dia. mm	64	76	102	64	76	102	64	76	102	64	76	102	64	76	102	64	76	102
-7	3.0	15.2	12.2	3.0	22.9	28.9	3.0	22.9	32.0	1.5	16.7	15.2	1.5	19.8	32.0	1.5	19.8	38.1	
-18	3.0	6.1	4.6	3.0	16.8	13.7	3.0	19.8	15.2	1.5	7.6	4.6	1.5	19.8	15.2	1.5	19.8	18.3	
-29	3.0	3.0		3.0	10.7	7.6	3.0	13.7	9.1	1.5	3.0	1.5	1.5	13.7	9.1	1.5	15.2	12.2	
-40	3.0	1.5		3.0	7.6	4.6	3.0	9.1	6.1	1.5	1.5		1.5	9.1	6.1	1.5	35	7.6	

* Not all model families have these sizes

MAXIMUM EQUIVALENT VENT LENGTH

NOTE: Maximum Equivalent Vent Length (MEVL) includes standard and concentric vent termination and does NOT include elbows. Use Table 15 - Deductions from Maximum Equivalent Vent Length to determine allowable vent length for each application.

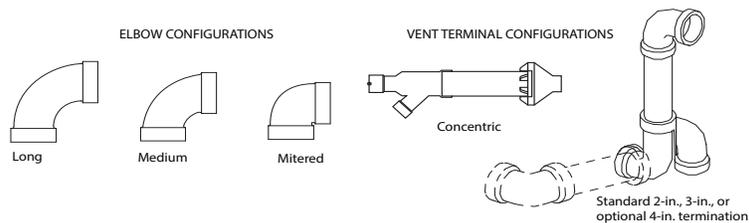
Table 1 – Maximum Equivalent Vent Length - Ft.

Unit Size		40,000 ¹			60,000 ²				80,000					100,000 ³				120,000			
Altitude (feet)	Pipe Dia. (in)	1 ½	2	2 ½	1 ½	2	2 ½	3	1 ½	2	2 ½	3	4	2	2 ½	3	4	2 ½	3	4	
	0-2000	40	155	185	20	100	175	200	10	15	55	130	175	200	15	80	175	200	10	75	185
	2001-3000	35	150	175		95	165	185		49	125	165	185	75		165	185	10		70	175
	3001-4000	30	135	160	16	90	155	175	10	44	110	150	165	15	70	155	175	5	65	165	
	4001-4500	25	130	155	85	150	170	145				160	150			165					
	4501-5000		125	145	80	145	165	145	160	145	160										
	5001-6000	20	120	130	15	75	140	155	10	41	100	135	150	10	65	140	155	N/A	60	155	
	6001-7000	15	110	120	13	70	130	145				38	90			125	140				60
	7001-8000	10	100	110	10	65	120	135	N/A	36	80	120	125	N/A	55	125	135	N/A	46	130	
	8001-9000		90	95	5	60	115	125				33	110			115	50				115
9001-10000	5	80	85	N/A	55	105	115	N/A	30	75	100	105	N/A	45	100	115	N/A	39	115		

Maximum Equivalent Vent Length - Meters																					
Unit Size		40,000 ¹			60,000 ²				80,000					100,000 ³				120,000			
Altitude (meters)	Pipe Dia. (mm)	38	51	64	38	51	64	76	38	51	64	76	102	51	64	76	102	64	76	102	
	0-610	12.1	47.2	56.3	6.0	30.4	53.3	60.9	3.0	4.5	16.7	39.6	53.3	60.9	6.0	24.3	53.3	60.9	3.0	22.8	56.3
	611-914	10.6	45.7	53.3		28.9	50.2	56.3		14.9	38.1	50.2	56.3	4.5	22.8	50.2	56.3	1.5		19.8	50.2
	915-1219	9.1	41.1	48.7	4.8	27.4	47.2	53.3	3.0	13.4	33.5	45.7	50.2	3.0	21.3	47.2	51.8	N/A	18.2	48.7	
	1220-1370	7.6	39.6	47.2	25.9	45.7	51.8	12.4				30.4	41.1			45.7	19.8				45.7
	1371-1524		38.1	44.1	4.5	24.3	44.1	50.2	N/A	10.9	27.4	36.5	38.1	N/A	16.7	38.1	41.1	N/A	14.0	39.6	
	1525-1829	6.0	36.5	39.6	22.8	42.6	47.2	11.5				38.1	42.6			42.6	47.2				15.2
	1830-2134	4.5	33.5	36.5	3.9	21.3	39.6	44.1	N/A	10.0	24.3	33.5	35.0	N/A	13.7	30.4	35.0	N/A	11.8	35.0	
	2135-2438	3.0	30.4	33.5	3.0	19.8	36.5	41.1				10.0	24.3			33.5	35.0				15.2
	2439-2743		27.4	28.9	1.5	18.2	35.0	38.1	N/A	9.1	22.8	30.4	32.0	32.0	N/A	13.7	30.4	35.0	N/A	11.8	35.0
2744-3048	1.5	24.3	25.9	NA	16.7	32.0	35.0	9.1					22.8	30.4			32.0	13.7			

NOTES:

- 40K Inducer Outlet Restrictor disk (P/N 337683-401; 1.25-in. (32 mm) Dia.) shipped in the loose parts bag or available through Replacement Components required under 10-ft. (3 M) TEVL in all orientations. Required for installations from 0 - 2000 ft. (0 to 610 M) above sea level. Failure to use an outlet restrictor may result in flame disturbances or flame sense lock-out.
- Inducer Outlet Restrictor disk (P/N 337683-401; 1.25-in. (32 mm) Dia.) available through Replacement Components required for no greater than 5-ft. (1.5 M) TEVL in downflow and horizontal orientations only. Required for installations from 0-2000 ft. (0 to 610 M) above sea level.
- Inducer Outlet Restrictor disk (P/N 337683-402; 1.50-in. (38 mm) Dia.) available through Replacement Components required for no greater than 5-ft. (1.5 M) TEVL in downflow and horizontal orientations only. Required for installations from 0-2000 ft. (0 to 610 M) above sea level.



A13110

Deductions from Maximum Equivalent Vent Length - Ft. (M)

Pipe Diameter (in):	1-1/2		2		2-1/2		3		4	
Mitered 90° Elbow	8	(2.4)	8	(2.4)	8	(2.4)	8	(2.4)	8	(2.4)
Medium Radius 90° Elbow	5	(1.5)	5	(1.5)	5	(1.5)	5	(1.5)	5	(1.5)
Long Radius 90° Elbow	3	(0.9)	3	(0.9)	3	(0.9)	3	(0.9)	3	(0.9)
Mitered 45° Elbow	4	(1.2)	4	(1.2)	4	(1.2)	4	(1.2)	4	(1.2)
Medium Radius 45° Elbow	2.5	(0.8)	2.5	(0.8)	2.5	(0.8)	2.5	(0.8)	2.5	(0.8)
Long Radius 45° Elbow	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)
Tee	16	(4.9)	16	(4.9)	16	(4.9)	16	(4.9)	16	(4.9)
Concentric Vent Termination	NA		0	(0.0)	NA		0	(0.0)	NA	
Standard Vent Termination	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)

NOTES:

- Use only the smallest diameter pipe possible for venting. Over-sizing may cause flame disturbance or excessive vent terminal icing or freeze-up.
- NA - Not allowed. Pressure switch will not close, or flame disturbance may result.
- Vent sizing for Canadian installations over 4500 ft. (1370 M) above sea level are subject to acceptance by the local authorities having jurisdiction.
- Size both the combustion air and vent pipe independently, then use the larger size for both pipes.
- Assume the two 45° elbows equal one 90° elbow. Wide radius elbows are desirable and may be required in some cases.
- Elbow and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
- The minimum pipe length is 5 ft. (2 M) linear feet (meters) for all applications.
- Use 3-in. (76 mm) diameter vent termination kit for installations requiring 4-in. (102 mm) diameter pipe.
- A running Tee in the Combustion Air Pipe adds 0 ft. to the TEVL of the vent length.

Venting System Length Calculations

The Total Equivalent Vent Length (TEVL) for **EACH** combustion air or vent pipe equals the length of the venting system, plus the equivalent length of elbows used in the venting system from Maximum Equivalent Vent Length.

Standard vent terminations or factory accessory concentric vent terminations count for zero deduction.

See vent system manufacturer's data for equivalent lengths of flexible vent pipe or other termination systems. **DO NOT ASSUME** that one foot of flexible vent pipe equals one foot of straight PVC/ABS DWV vent pipe.

Compare the Total Equivalent Vent Length to the Maximum Equivalent Vent Lengths Table.

Example 1

A direct-vent 60,000 BTUH furnace installed at 2100 ft. (640M). Venting system includes **FOR EACH PIPE:**

70 feet (22 M) of vent pipe, 65 feet (20 M) of combustion air inlet pipe, (3) 90° long-radius elbows, (2) 45° long-radius elbows, and a factory accessory concentric vent kit.

Can this application use 2" (50 mm ND) PVC/ABS DWV vent piping?

Measure the required linear length of air inlet and vent pipe; insert the longest of the two here					70 ft. (22 M)	Use length of the longer of the vent or air inlet piping system
Add equiv length of (3) 90° long-radius elbows (use the highest number of elbows for either the vent or inlet pipe)	3	x	3 ft. (0.9 M)	=	9 ft. (2.7 M)	From Deductions from Maximum Equivalent Vent Length
Add equiv length of (2) 45° long-radius elbows (use the highest number of elbows for either the vent or inlet pipe)	2	x	1.5 ft. (0.5 M)	=	3 ft. (0.9 M)	From Deductions from Maximum Equivalent Vent Length
Add equiv length of factory concentric vent term					0 ft.	From Deductions from Maximum Equivalent Vent Length
Add correction for flexible vent pipe, if any					0 ft.	From Vent Manufacturer's instructions; zero for PVC/ABS DWV
Total Equivalent Vent Length (TEVL)					82 ft. (25 M)	Add all of the above lines
Maximum Equivalent Vent Length (MEVL)					95 ft. (29 M)	For 2" pipe from Maximum Equivalent Vent Length
Is TEVL less than MEVL?					YES	Therefore, 2" pipe MAY be used

Example 2

A direct-vent 60,000 BTUH furnace installed at 2100 ft. (640M). Venting system includes **FOR EACH PIPE:**

100 feet (30 M) of vent pipe, 95 feet (29 M) of combustion air inlet pipe, (3) 90° long-radius elbows, and a polypropylene concentric vent kit. Also includes 20 feet (6.1 M) of flexible polypropylene vent pipe, included within the 100 feet (30 M) of vent pipe.

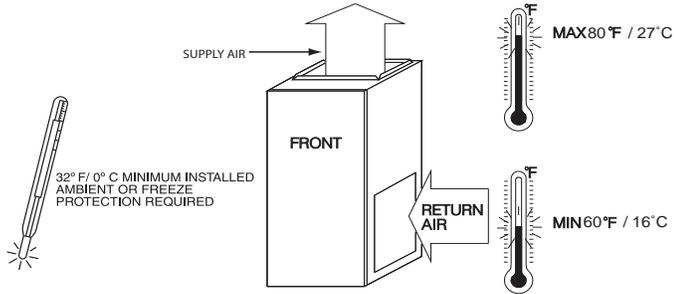
VERIFY FROM POLYPROPYLENE VENT MANUFACTURER'S INSTRUCTIONS for the multiplier correction for flexible vent pipe.

Can this application use 60mm o.d. (2") polypropylene vent piping? If not, what size piping can be used?

Measure the required linear length of RIGID air inlet and vent pipe; insert the longest of the two here: 100 ft. Of rigid pipe - 20 ft. Of flexible pipe				=	80 ft. (24 M)	Use length of the longer of the vent or air inlet piping system
Add equiv length of (3) 90° long-radius elbows (use the highest number of elbows for either the vent or inlet pipe)	3	x	5 ft. (1.5 M)	=	15 ft. (4.6 M)	Example from polypropylene vent manufacturer's instructions, Verify from vent manufacturer's instructions.
Add equiv length of 45° long-radius elbows (use the highest number of elbows for either the vent or inlet pipe)	0	x		=	0 ft. (0 M)	
Add equiv length of factory concentric vent term	9	x	3.3 ft. (0.9 M)	=	30 ft. (9 M)	
Add correction for flexible vent pipe, if any	2*	x	20 ft. (6.1 M)	=	40 ft. (12.2 M)	
* VERIFY FROM VENT MANUFACTURER'S INSTRUCTIONS; For example only, assume 1 meter of flexible 60mm (2") or 80mm (3") polypropylene pipe equals 2.0 meters (6.5 ft.) of PVC/ABS pipe.						
Total Equivalent Vent Length (TEVL)					165 ft. (50 M)	Add all of the above lines
Maximum Equivalent Vent Length (MEVL)					95 ft. (29 M)	For 2" pipe from Maximum Equivalent Vent Length
Is TEVL less than MEVL?					NO	Therefore, 60mm (2") pipe may NOT be used; try 80mm (3")
Maximum Equivalent Vent Length (MEVL)					185 ft. (57 M)	For 3" pipe from Maximum Equivalent Vent Length
Is TEVL less than MEVL?					YES	Therefore, 80mm (3") pipe MAY be used

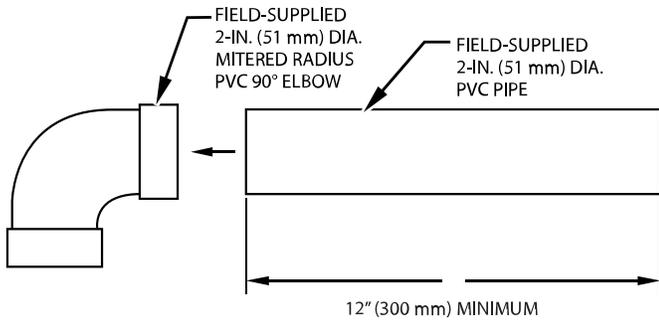
RETURN AIR TEMPERATURE

This furnace is designed for continuous return-air minimum temperature of 60°F (15°C) db or intermittent operation down to 55°F (13°C) db such as when used with a night setback thermometer. Return-air temperature must not exceed 80°F (27°C) db. Failure to follow these return air limits may affect reliability of heat exchangers, motors and controls.



A10490

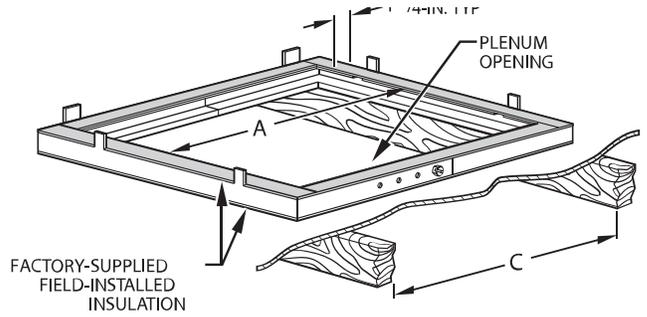
COMBUSTION-AIR PIPE FOR NON-DIRECT (1-PIPE) VENT APPLICATION



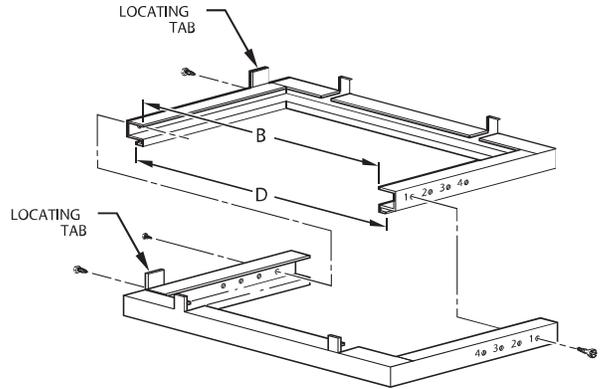
A12376

NOTE: See Installation Instructions for specific venting configurations.

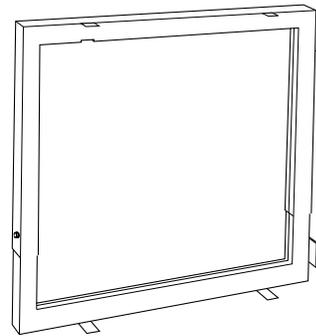
DOWNFLOW SUBBASE



A97427



A88207



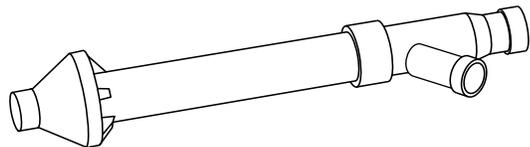
Downflow Subbase

A88202

One base fits all furnace sizes. The base is designed to be installed between the furnace and a combustible floor when no coil box is used or when a coil box other than the manufacturer's cased coil is used. It is CSA design certified for use with the manufacturer's branded furnaces when installed in downflow applications.

DIMENSIONS (IN. / MM)						
FURNACE CASING WIDTH	FURNACE IN DOWNFLOW APPLICATION	PLENUM OPENING*		FLOOR OPENING		HOLE NO. FOR WIDTH ADJUSTMENT
		A	B	C	D	
14-3/16 (360)	Furnace with or without Cased Coil Assembly or Coil Box	11-3/16 (322)	19 (483)	13-7/16 (341)	20-5/8 (600)	4
17-1/2 (445)	Furnace with or without Cased Coil Assembly or Coil Box	15-1/8 (384)	19 (483)	16-3/4 (426)	20-5/8 (600)	3
21 (533)	Furnace with or without Cased Coil Assembly or Coil Box	18-5/8 (396)	19 (483)	20-1/4 (514)	20-5/8 (600)	2
24-1/2 (622)	Furnace with or without Cased Coil Assembly or Coil Box	22-1/8 (562)	19 (483)	23-3/4 (603)	20-5/8 (600)	1

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

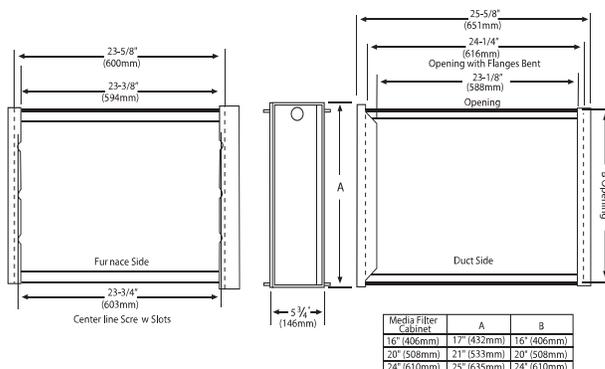


Concentric Vent Kit

A93086

A concentric vent kit allows vent and combustion-air pipes to terminate through a single exit in a roof or side wall. One pipe runs inside the other allowing venting through the inner pipe and combustion air to be drawn in through the outer pipe.

MEDIA FILTER CABINET (OPTIONAL ACCESSORY)



NOTE: Media cabinet is matched to the bottom opening on furnace. May also be used for side return.

A12428

ACCESSORIES

DESCRIPTION	ACCESSORY PART NUMBER	36040C14	42060C17	42080C17	60080C21	66100C21	66120C24
Condensate Neutralizer Kit	P908-0001*	X	X	X	X	X	X
Gas Valve Tower Port Adapter Kit	92-1003*	X	X	X	-	-	-
External Filter Rack, 14-1/2" x 25"	ACG1425NCB*	X	-	-	-	-	-
External Filter Rack, 16" x 25"	ACG1625NCF*	-	X	X	-	-	-
External Filter Rack, 20" x 25"	ACG2025NCJ*	-	-	-	X	X	-
External Filter Rack, 24-1/2" x 24"	ACG2424NCL*	-	-	-	-	-	X
Washable filter, 3/4" x 16" x 25"	325531-402*	X	X	X	-	-	-
Washable filter, 3/4" x 20" x 25"	325531-403*	-	-	-	X	X	-
Washable filter, 3/4" x 24" x 25"	325531-404*	-	-	-	-	-	X
Coil Adapter Kits - No Offset	KGADA0101ALL	X	X	X	X	X	X
Coil Adapter Kits - Single Offset	KGADA0201ALL	X	X	X	X	X	X
Coil Adapter Kits - Double Offset	KGADA0301ALL	X	X	X	X	X	X
Return Air Base (Upflow Applications) 14-3/16" wide	KGARP0301B14	X	-	-	-	-	-
Return Air Base (Upflow Applications) 17-1/2" wide	KGARP0301B17	-	X	X	-	-	-
Return Air Base (Upflow Applications) 21" wide	KGARP0301B21	-	-	-	X	X	-
Return Air Base (Upflow Applications) 24-1/2" wide	KGARP0301B24	-	-	-	-	-	X
Vent Terminal - Concentric - 2" (51 mm)	KGAVT0701CVT	See Venting Tables					
Vent Terminal - Concentric - 3" (76 mm)	KGAVT0801CVT						
Vent Terminal Bracket - 2" (51 mm)	KGAVT0101BRA						
Vent Terminal Bracket - 3" (76 mm)	KGAVT0201BRA						
Vent Kit - Through the Cabinet for HZ left/right ONLY	KGADC0101BVC	X	X	X	X	X	X
Polypropylene Inlet Air Pipe Coupling	KGAAC0101RVC	X	X	X	X	X	X
Freeze Protect Kit - Condensate Drain Line Tape	KGAHT0101CFP	X	X	X	X	X	X
Freeze Protect Kit - Condensate Trap with Heat Pad	KGAHT0201CFP	X	X	X	X	X	X
CPVC to PVC Drain Adapters - 1/2" CPVC to 3/4" PVC	KGAAD0110PVC	X	X	X	X	X	X
External Trap Kit	KGAET0201ETK	X	X	X	X	X	X
Horizontal Trap Grommet - Direct Vent	KGACK0101HCK	All 2-Pipe Horizontal					
Downflow Furnace Base Kit for Combustible Floors	KGASB0201ALL	X	X	X	X	X	X
IAQ Device Duct Adapters 20.0-in. IAQ to 16 in. Side Return	KGAAD0101MEC	20" x 25" IAQ Devices					
IAQ Device Duct Adapters 24.0-in. IAQ to 16 in. Side Return	KGAAD0201MEC	24" x 25" IAQ Devices					
Gas Conversion Kit - Nat to LP†	AGAGC9NPS01C*	X	X	X	X	X	X
Gas Conversion Kit - LP to Nat†	AGAGC9PNS01C*	X	X	X	X	X	X
Evolution®; Evolution® Zoning	SYSTXBB	X	X	X	X	X	X

*. Purchased through Replacement Components

†. Factory-authorized and field installed. Fuel conversion kits are CSA (formerly AGA/CGA) recognized.

X = Accessory

ACCESSORIES (continued)

DESCRIPTION	ACCESSORY PART NUMBER	
Gas Orifice Kit - #42 (Nat Gas)	LH32DB207	See Installation Instructions for model, altitude, and heat value usages.
Gas Orifice Kit - #43 (Nat Gas)	LH32DB202	
Gas Orifice Kit - #44 (Nat Gas)	LH32DB200	
Gas Orifice Kit - #45 (Nat Gas)	LH32DB205	
Gas Orifice Kit - #46 (Nat Gas)	LH32DB208	
Gas Orifice Kit - #47 (Nat Gas)	LH32DB078	
Gas Orifice Kit - #48 (Nat Gas)	LH32DB076	
Gas Orifice Kit - #54 (LP)	LH32DB203	
Gas Orifice Kit - #55 (LP)	LH32DB201	
Gas Orifice Kit - #56 (LP)	LH32DB206	
Gas Orifice Kit - 1.25mm (LP)	LH32DB209	
Gas Orifice Kit - 1.30mm (LP)	LH32DB210	

DESCRIPTION	ACCESSORY PART NUMBER
HUMIDIFIER	Model HUM
HEAT RECOVERY VENTILATOR	Model HRV
ENERGY RECOVERY VENTILATOR	Model ERV
UV LIGHTS	Model UVL

Bryant has a wide variety of thermostats for your system, please visit www.Bryant.com to see all thermostat and IAQ products.

DESCRIPTION	ACCESSORY PART NUMBER	14"	17"	21"	24"
Bryant Carbon Monoxide Alarm (10 pack)	COALMBBNRB02-A10	X	X	X	X
Bryant Evolution Air Purifier - 16" x 25" (407 x 635 mm)	DGAPAXX1625	X	X	-	-
Bryant Evolution Air Purifier - 20" x 25" (508 x 635 mm)	DGAPAXX2025	-	-	X	X
Bryant Evolution Air Purifier Repl. Filter- 16" x 25" (407 x 635 mm)	PGAPXCAR1625A02	X	X	-	-
Bryant Evolution Air Purifier Repl. Filter- 20" x 25" (508 x 635 mm)	PGAPXCAR2025A02	-	-	X	X
Cartridge Media Filter - 16" (407 mm) (MERV 11)	FILXXCAR0116	X	X	-	-
Cartridge Media Filter - 16" (407 mm) (MERV 8)	FILXXCAR0016	X	X	-	-
Cartridge Media Filter - 20" (508 mm) (MERV 8)	FILXXCAR0020	-	-	X	-
Cartridge Media Filter - 20" (508 mm) (MERV11)	FILXXCAR0120	-	-	X	-
Cartridge Media Filter - 24" (610 mm) (MERV 8)	FILXXCAR0024	-	-	-	X
Cartridge Media Filter - 24" (610 mm) (MERV11)	FILXXCAR0124	-	-	-	X
EZ Flex Cabinet Side or Bottom - 16"	EZXCAB--0016	X	X	-	-
EZ Flex Cabinet Side or Bottom - 20"	EZXCAB--0020	-	-	X	X
EZ Flex Replacement Filters 16" MERV 10	EXPXXFIL0016	X	X	-	-
EZ Flex Replacement Filters 16" MERV 13	EXPXXFIL0316	X	X	-	-
EZ Flex Replacement Filters 20" MERV 10	EXPXXFIL0020	-	-	X	-
EZ Flex Replacement Filters 20" MERV 13	EXPXXFIL0320	-	-	X	-
EZ Flex Replacement Filters 24" MERV 10	EXPXXFIL0024	-	-	-	X
EZ Flex Replacement Filters 24" MERV 13	EXPXXFIL0324	-	-	-	X
EZ-Flex Filter with End Caps - 16" (407 mm) (MERV 10)	EXPXXUNV0016	X	X	-	-
EZ-Flex Filter with End Caps - 16" (407 mm) (MERV 13)	EXPXXUNV0316	X	X	-	-
EZ-Flex Filter with End Caps - 20" (508 mm) (MERV 10)	EXPXXUNV0020	-	-	X	-
EZ-Flex Filter with End Caps - 20" (508 mm) (MERV 13)	EXPXXUNV0320	-	-	X	-
EZ-Flex Filter with End Caps - 24" (610 mm) (MERV 10)	EXPXXUNV0024	-	-	-	X
EZ-Flex Filter with End Caps - 24" (610 mm) (MERV 13)	EXPXXUNV0324	-	-	-	X
Media Filter Cabinet - 20"	FILCABXL0020	-	-	X	-
Media Filter Cabinet - 24"	FILCABXL0024	-	-	-	X
Media Filter Cabinet - 16"	FILCABXL0016	X	X	-	-