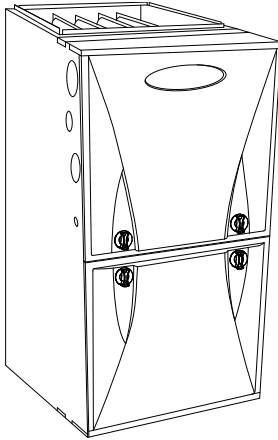


# 59TN6C Infinity® Two-Stage, Variable Speed, 4-Way Multipoise, Condensing Gas Furnace



## Product Data



Representative drawing only. Some product models may vary.

A11263

### **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.

The 59TN6C Multipoise Variable Speed Condensing Gas Furnace features the two-stage Infinity® System. The Comfot Heat® Technology two-stage gas system is at the heart of the comfort, provided by this furnace, along with the Infinity 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 Infinity two-stage gas furnace provides exceptional savings when compared to a standard furnace. This Infinity Gas Furnace also features 4-way multipoise installation flexibility, and is available in six model sizes. The 59TN6C can be vented for direct vent/two-pipe, ventilated combustion air, or single-pipe applications. A Carrier Infinity Control and Infinity Air Conditioner or Heat Pump can be used to form a complete Infinity 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.
- Power Heat™ Silicon Nitride Hot Surface Igniter.
- Ideal Humidity System™ technology can dehumidify a home without a call for cooling.
- Integral part of the Ideal Humidity® System Technology.
- ComfortFan™ 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 CarrierBryant 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 Infinity User Interface.
- Propane convertible with gas conversion accessory
- Convenient Air Purifier and Humidifier connections.
- Compatible with single- and multiple-zone Infinity 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.

INFINITY SERIES



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





## MODEL NUMBER NOMENCLATURE

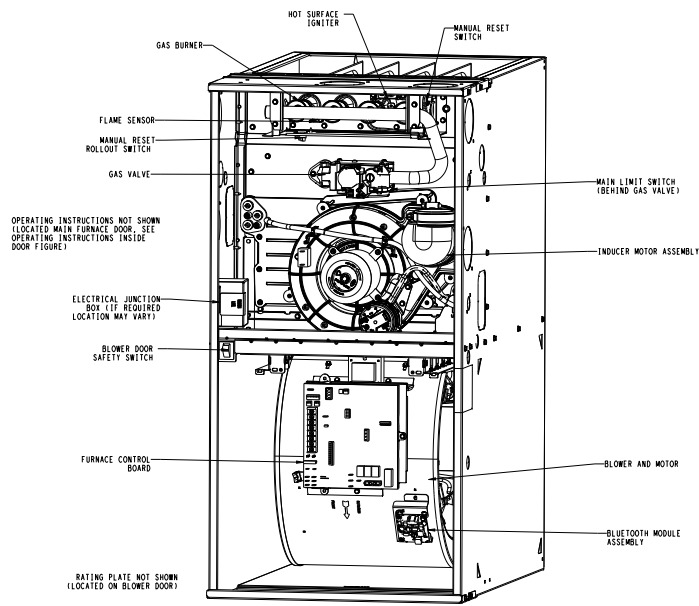
1, 2 Gas Furnace	3 Heating Stages	4 Tier	5 Min. AFUE/NOx	6 Major Series	7, 8, 9 Heating Input	10 Motor Type	11, 12 Width	13 Voltage (1-phase)	14 Minor Series	15, 16 Airflow
58 Non-Condensing 59 90%+ Condensing	M = Modulating T = Two Stage S = Single Stage C = Single Stage Communicating	B = Base C = Comfort E = Export N = Infinity P = Performance U = Ultra Low Nox	0 = 80% 1 = 80% Low NOx (Not Ultra Low NOx) 2 = 92% 5 = 95% 6 = 96% 7 = 97% 8 = 98%	A B C ---	026 = 26,000 BTU 040 = 40,000 BTU 060 = 60,000 BTU --- 155 = 155,000 BTU	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"	1 = 110V/60Hz 2 = 230V/50Hz	1 2 3 ---	08 = 800 CFM 10 = 1000 CFM 12 = 1200 CFM 14 = 1400 CFM 16 = 1600 CFM 20 = 2000 CFM 22 = 2200 CFM

A30443

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](http://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	040C14-10	060C17-14	080C17-14	080C21-20	100C21-22	120C24-22
<b>HEATING AND CAPACITY AND EFFICIENCY</b>								
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)	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
<b>AIRFLOW CAPACITY AND BLOWER DATA</b>								
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	11 x 8	11 x 8	11 x 10	11 x 10	11 x 11
Air Filtration System	Field Supplied Filter							
Filter used for Certified Watt Data	325531-40**							
<b>ELECTRICAL DATA</b>								
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	040C14-10	060C17-14	080C17-14	080C21-20	100C21-22	120C24-22
<b>GAS CONTROLS</b>							
<b>BURNERS</b>		3	3	4	4	5	6
<b>GAS CONNECTION SIZE</b>		1/2in. NPT					
<b>GAS VALVE (REDUNDANT)</b>	Mfr	WhiteRodgers™					
<b>MIN. INLET PRESSURE</b>	(in.w.c.)	4.5 (Natural Gas)					
<b>MAX. INLET PRESSURE</b>	(in.w.c.)	13.6 (Natural Gas)					
<b>MANUFACTURED (MOBILE HOME KIT)</b>		See Accessory Listing					
<b>IGNITION DEVICE</b>		Silicon Nitride					
<b>FACTORY INSTALLED ORIFICE</b>		44	44	44	44	44	44
<b>CONNECTIONS</b>							
Communication System		Infinity®; Infinity® 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)**

<b>040C14--10</b>													
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			
<b>060C17--14</b>													
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											
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			
<b>080C17--14</b>													
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			
<b>080C21--20</b>													
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			
<b>100C21--22</b>													
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			

# AIR DELIVERY - CFM (WITH FILTER) (CONTINUED)

120C24--22													
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

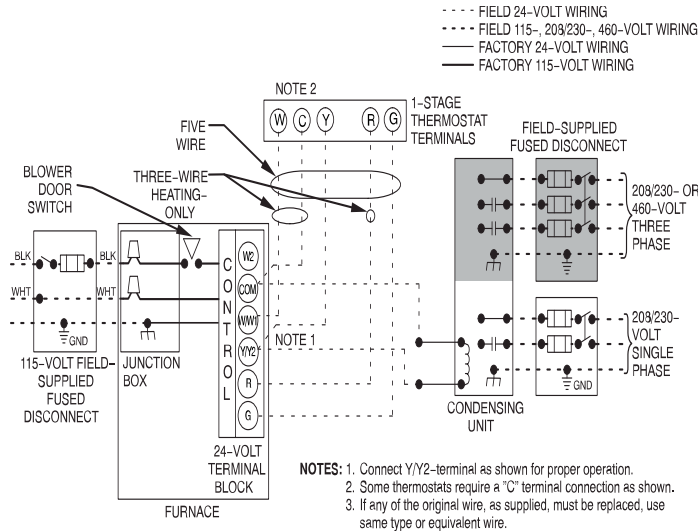
## For Heating Settings

- 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:

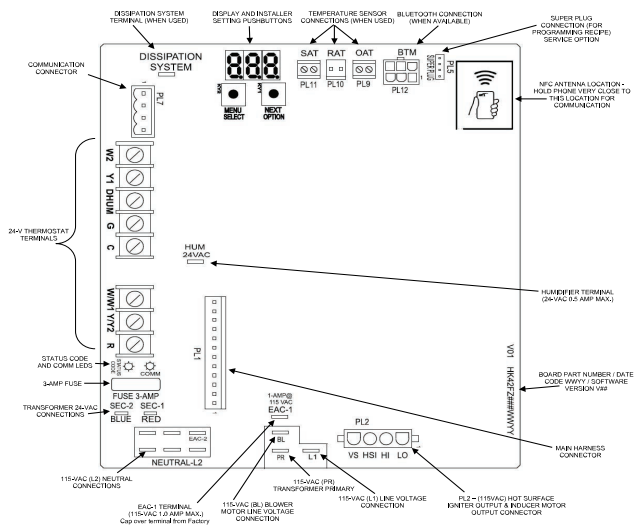
- ESP is External Static Pressure
- Airflow values up to 1 in. w.c. ESP (unless noted)

## TYPICAL WIRING SCHEMATIC



A11401

## FURNACE CONTROL BOARD



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 ½	2	2 ½	1 ½	2	2 ½	1 ½	2	2 ½	1 ½	2	2 ½	3	1 ½	2	2 ½	3	1 ½	2	2 ½	3
20	20	20	20	20	50	45	20	60	50	20	30	30	25	20	75	65	60	20	85	75	65	65
0	10	5	5	20	25	20	20	30	25	15	15	10	10	20	40	30	25	20	45	40	30	30
-20	5			20	15	10	20	20	15	10	5			20	25	20	15	20	30	25	20	20
-40				15	10	5	15	15	10	5				20	15	15	10	20	20	15	10	10

Winter Design Temp °F	Unit Size	80,000 BTUH														
		Uninsulated					3/8-in. Insulation					1/2-in. Insulation				
	Pipe Dia. in.	1 ½	2	2 ½	3	4	1 ½	2	2 ½	3	4	1 ½	2	2 ½	3	4
20	20	15	40	40	35	30	15	50	90	75	65	15	50	70	70	70
0	15	20	15	10	5	15	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	20	10	

Winter Design Temp °F	Unit Size	100,000 BTUH											
		Uninsulated				3/8-in. Insulation				1/2-in. Insulation			
	Pipe Dia. in.	2	2 ½	3	4	2	2 ½	3	4	2	2 ½	3	4
20	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 ½	3	4	2 ½	3	4	2 ½	3	4	2 ½	3	4	2 ½	3	4	2 ½	3	4
20	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			
-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 Deductions from Maximum Equivalent Vent Length to determine allowable vent length for each application.

### Maximum Equivalent Vent Length - Ft.

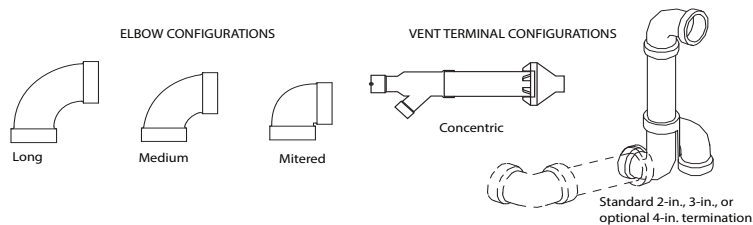
Maximum Equivalent Vent Length - Ft.																	
Unit Size		60,000 <sup>1</sup>				80,000					100,000 <sup>2</sup>				120,000		
Altitude (feet)	Pipe Dia. (in)	1 ½	2	2 ½	3	1 ½	2	2 ½	3	4	2	2 ½	3	4	2 ½	3	4
	0-2000	50	100	175	200	30	95	130	175	200	45	80	175	200	10	75	185
	2001-3000	45	95	165	185	30	70	125	165	185	40	75	165	185	10	70	175
	3001-4000	40	90	155	175	25		115	155	175	38		155	175	5	65	165
	4001-4500	35	85	150	170	23		110	150	165	36		70	150	170	N/A	60
	4501-5000		80		165	22	145		160	150		165					
	5001-6000	37	75	140	155	20	66	100	135	150	33	66	140	155	N/A	50	140
	6001-7000	35	70	130	145			90	125	140	31		135	145			
	7001-8000	32	66	120	135	18	62	80	110	115	27	62	115	125	N/A	46	130
	8001-9000	30	62	115	125	17											
9001-10000	27	57	105	115	15	57	75	100	105	24	57	100	115	39	115		

### Maximum Equivalent Vent Length - Meters

Maximum Equivalent Vent Length - Meters																	
Unit Size		60,000 <sup>1</sup>				80,000					100,000 <sup>2</sup>				120,000		
Altitude (meters)	Pipe Dia. (mm)	38	51	64	76	38	51	64	76	102	51	64	76	102	64	76	102
	0-610	15.2	30.4	53.3	60.9	9.1	28.9	39.6	53.3	60.9	13.7	24.3	53.3	60.9	3.0	22.8	56.3
	611-914	13.7	28.9	50.2	56.3	7.6	21.3	38.1	50.2	56.3	12.1	22.8	50.2	56.3	1.5	19.8	50.2
	915-1219	12.1	27.4	47.2	53.3			35.0	47.2	53.3	11.5		47.2	53.3			
	1220-1370	10.6	25.9	45.7	51.8			7.0	10.9	45.7	50.2		21.3	51.8			
	1371-1524		24.3		50.2	6.7	44.1	48.7		45.7	50.2						
	1525-1829	11.2	22.8	42.6	47.2	6.0	20.1	30.4	41.1	45.7	10.0	20.1	42.6	47.2	N/A	18.2	48.7
	1830-2134	10.6	21.3	39.6	44.1			27.4	38.1	42.6	9.4		41.1	44.1			
	2135-2438	9.7	20.1	36.5	41.1	5.4	18.8	24.3	33.5	35.0	8.2	18.8	35.0	38.1	N/A	14.0	39.6
	2439-2743	9.1	18.8	35.0	38.1	5.1	18.8	24.3	33.5	35.0	8.2	18.8	35.0	38.1		13.1	36.5
2744-3048	8.2	17.3	32.0	35.0	4.5	17.3	22.8	30.4	32.0	7.3	17.3	30.4	35.0	11.8	35.0		

#### NOTE:

- 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.

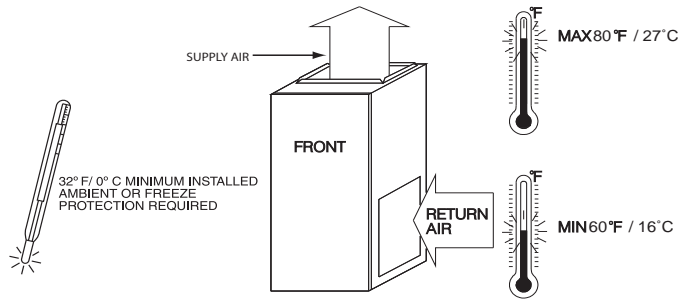
VERIFY FROM POLYPROPYLENE VENT MANUFACTURER'S INSTRUCTIONS for the multiplier correction for flexible vent pipe.

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 <b>RIGID</b> 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

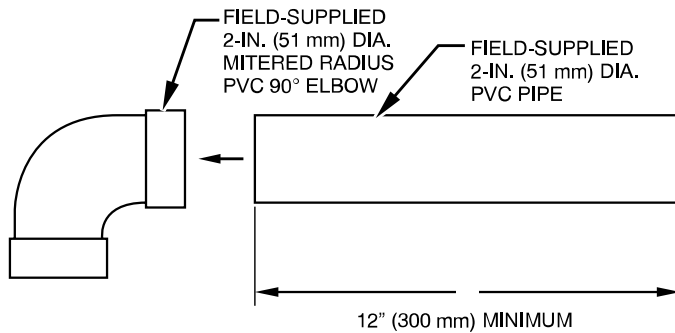
### RETURN AIR TEMPERATURE

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

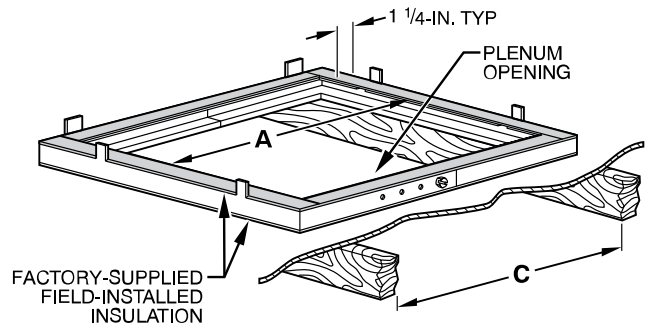
### COMBUSTION-AIR PIPE FOR NON-DIRECT (1-PIPE) VENT APPLICATION



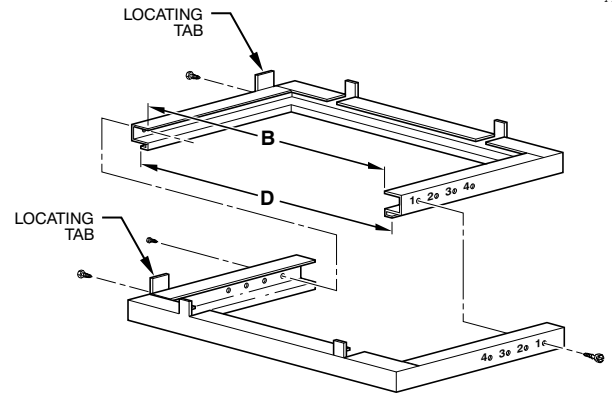
A12376

**NOTE:** See Installation Instructions for specific venting configurations.

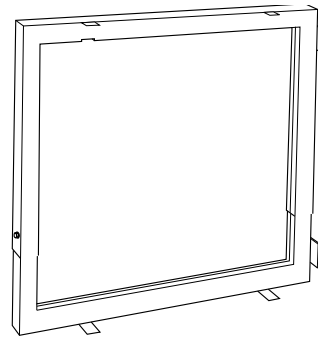
### DOWNFLOW SUBBASE



A97427



A88207



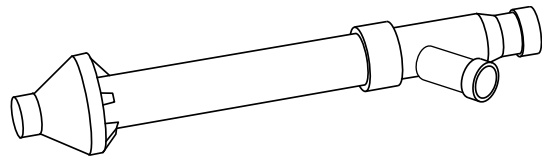
**Downflow Subbase**

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.

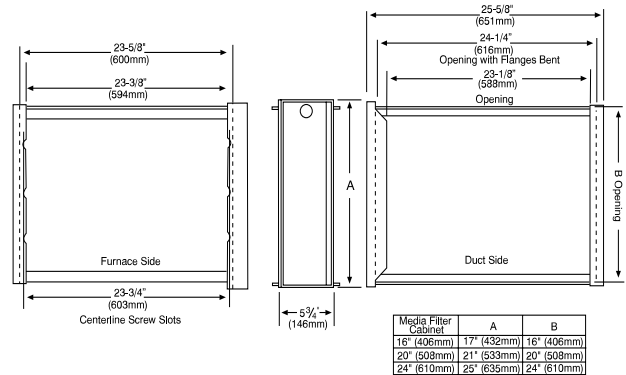


**Concentric Vent Kit**

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	040C14--10	060C17--14	080C17--14	080C21--20	100C21--22	120C24--22
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"x25" IAQ Devices					
IAQ Device Duct Adapters 24.0-in. IAQ to 16 in. Side Return	KGAAD0201MEC	24"x25" 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
Twinning Kit	AGATWNPME01B	X	X	X	X	X	X
Infinity®, Infinity® Zoning	SYSTXCC	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

Carrier has a wide variety of thermostats for your system, please visit [www.Carrier.com](http://www.Carrier.com) to see all thermostat and IAQ products.

DESCRIPTION	ACCESSORY PART NUMBER	14"	17"	21"	24"
Carrier Carbon Monoxide Alarm (10 pack)	COALMCCNRB02-A10	X	X	X	X
Carrier Infinity Air Purifier - 16x25 (407x635 mm)	DGAPAXX1625	X	X	-	-
Carrier Infinity Air Purifier - 20x25 (508x635 mm)	DGAPAXX2025	-	-	X	X
Carrier Infinity Air Purifier Repl. Filter- 16x25 (407x635 mm)	PGAPXCAR1625A02	X	X	-	-
Carrier Infinity Air Purifier Repl. Filter- 20x25 (508x635 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	-	-

