



G80CSU

Product Specifications

80% AFUE, Ultra-Low NOx, Variable-Speed, Communicating, Single Stage Gas Furnace

EASIER TO SELL

- 80% AFUE
- Ultra-low NOx emissions – meets the nitrogen oxides (NOx) emission limit of 14 nanograms/joule for the South Coast Air Quality Management District and San Joaquin Valley Air Pollution Control District in California.
- Four-position furnace: Upflow, Horizontal Right, Horizontal Left, Downflow (6 different vent options)
- Supports two-stage and multi stage cooling units
- Dehumidification feature in cooling
- 24 VAC humidifier terminal, electric air cleaner terminal
- Category I venting
- 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

TOUGHER

- Variable speed ECM blower
- Single-stage gas valve
- Stainless steel, tubular heat exchanger
- Pilot free, hot surface ignition
- High temperature limit control designed to prevent overheating
- Blocked vent switch

QUIETER

- Pre-mix burner
- Variable speed inducer motor

EASIER TO INSTALL AND SERVICE

- 33 1/4" (843.9mm) high, for ease of installation
- Quarter turn knobs for easy door removal and secure attachment
- Factory shipped for natural gas, not convertible to propane
- Flexible installation: Upflow, Downflow, Horizontal
- Two position vent elbow capability
- Common venting with other Category I appliances
- Self diagnostics

LIMITED WARRANTY *

- 5 year No Hassle Replacement™ limited warranty
- Lifetime heat exchanger limited warranty with timely registration
- 5 year parts limited warranty
- With timely registration, an additional 5 year parts limited warranty

* For residential applications only. See warranty certificate for complete details and restrictions, including warranty coverage for other applications.



SYST0101CW
Recommended
(sold separately)



Illustrations and photographs are only representative.
Some product models may vary.

WARNING
This furnace is not designed for use in mobile homes, trailers, or recreational vehicles. Such use could result in property damage and/or death.



ISO 9001
Quality



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

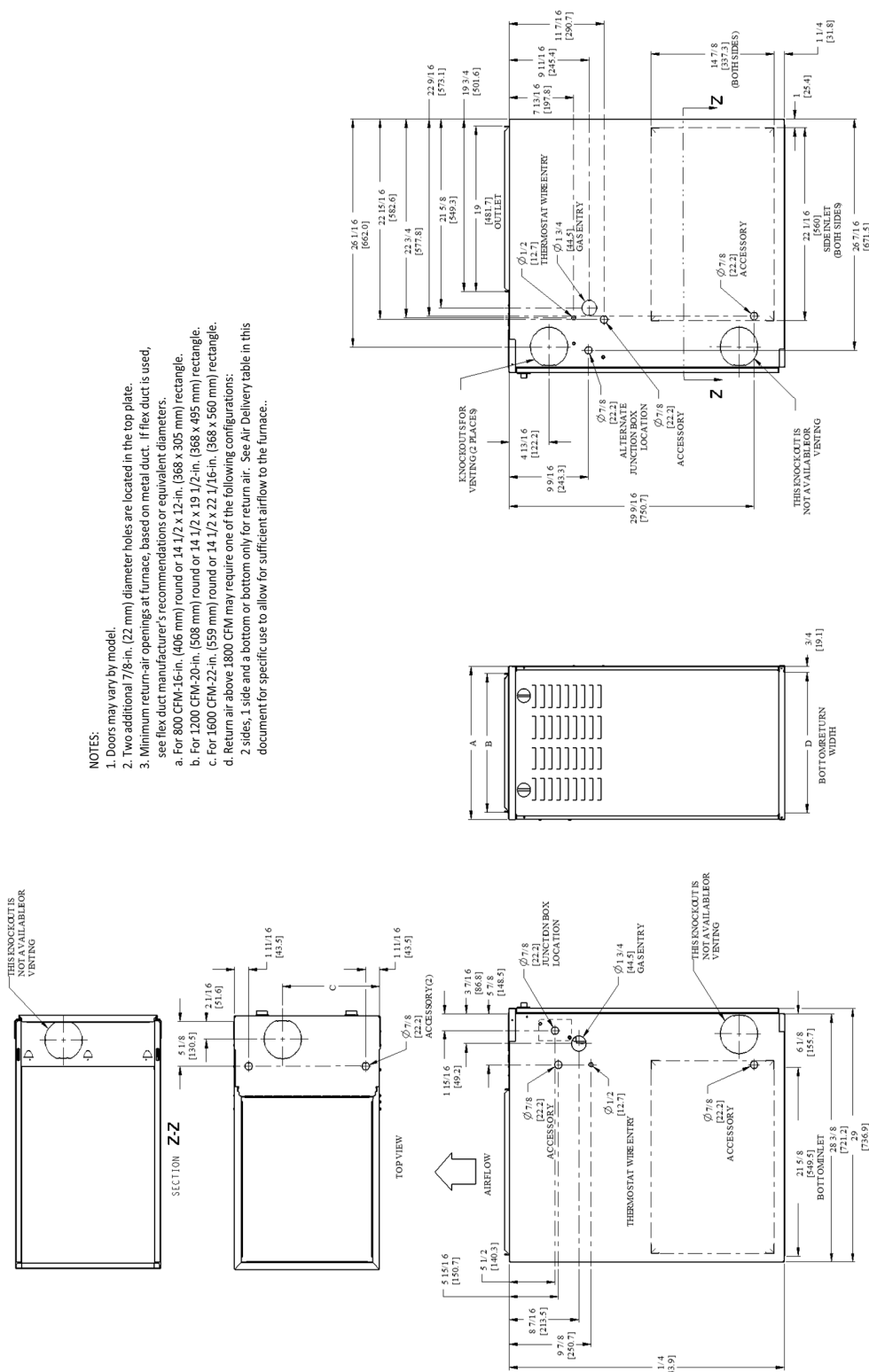
Model	Input (MBTUH)	Efficiency AFUE	Cooling Capacity CFM range @ .5 in. w.c. (125 Pa)	Dimensions H x W x D Inches (Millimeters)	Shipping Wt. Lbs (Kg)
G80CSU0401712A	40,000	80%	505 - 1490	33-1/4 x 17-1/2 x 29 (844 x 445 x 737)	119 (54)
G80CSU0601716A	60,000	80%	535 - 1480	33-1/4 x 17-1/2 x 29 (844 x 445 x 737)	124 (56)
G80CSU0802120A	80,000	80%	990 - 2390	33-1/4 x 21 x 29 (844 x 533 x 737)	144 (65)
G80CSU1002120A	100,000	80%	1130 - 2260	33-1/4 x 21 x 29 (844 x 533 x 737)	154 (70)

MODEL NUMBER IDENTIFICATION GUIDE																											
DIGIT POSITION	1	2, 3	4	5	6	7, 8, 9	10, 11	12, 13	14	15																	
	G	80	C	S	U	060	17	16	A	1																	
F, G = Brand		80 = 80% AFUE 92 = 92% AFUE 95 = 95% AFUE 96 = 96% AFUE 97 = 97% AFUE	C	S	U	060	17	16	A	1																	
C = Communicating Constant Airflow Variable-Speed (VCA) ECM E = Discrete Tapped (FCT) ECM V = Variable-Speed (VCT) PWM		MOTOR TYPE			U	060	17	16	A	1																	
M = Modulating S = Single Stage T = Two-Stage		HEATING STAGES																									
L = Low NOx M = Mobile/Manufactured Home N = Standard NOx U = Ultra Low NOx		FEATURE																									
026 = 26,000 BTU/hr 040 = 40,000 BTU/hr 060 = 60,000 BTU/hr ---		HEATING INPUT																									
14 = 14.2" 17 = 17.5" 21 = 21" 24 = 24.5"		CABINET WIDTH																									
08 = 800 CFM 10 = 1000 CFM 12 = 1200 CFM 14 = 1400 CFM 16 = 1600 CFM 20 = 2000 CFM 22 = 2200 CFM		COOLING CAPACITY																									
SALES (MAJOR) REVISION DIGIT																											
ENGINEERING (MINOR) REVISION DIGIT																											

ECM—Electronically Commutated Motor

NOTE: Standard input rate for 80% is approximately 22.5K per heat exchanger.
Standard input for 90%+ is approximately 20K per heat exchanger.
Units can be developed with slight under rate or over rate to fine tune heating capacity.

UNIT DIMENSIONS



- NOTES:
- Doors may vary by model.
 - Two additional 7/8-in. (22 mm) diameter holes are located in the top plate.
 - Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer's recommendations or equivalent diameters.
 - For 800 CFM-16-in. (406 mm) round or 14 1/2 x 12-in. (368 x 305 mm) rectangle.
 - For 1200 CFM-20-in. (508 mm) round or 14 1/2 x 19 1/2-in. (368 x 495 mm) rectangle.
 - For 1600 CFM-22-in. (559 mm) round or 14 1/2 x 22 1/16-in. (368 x 560 mm) rectangle.
 - Return air above 1800 CFM may require one of the following configurations:
 - 2 sides, 1 side and a bottom or bottom only for return air. See Air Delivery table in this document for specific use to allow for sufficient airflow to the furnace.

NOTE: ALL DIMENSIONS IN INCH (MM) U.S. ECCN: Not Subject to Regulation (N.S.R.)

SD5507-4 ULN 80 REV. B

FURNACE SIZE	A	B	C	D	VENT CONNECTION SIZE IN. (MM)	SHIP WT LB (KG)
	CABINET WIDTH IN (MM)	OUTLET WIDTH IN (MM)	TOP OUTLET IN (MM)	BOTTOM INLET WIDTH IN (MM)		
G80CSU0401712	17-1/2 (445)	15-7/8 (403)	11-9/16 (294)	16 (406)	4 (102)	119 (54)
G80CSU0601716	17-1/2 (445)	15-7/8 (403)	11-9/16 (294)	16 (406)	4 (102)	124 (56)
G80CSU0802120	21 (533)	19-3/8 (492)	13-5/16 (338)	19-1/2 (495)	4 (102)	144 (65)
G80CSU1002120	21 (533)	19-3/8 (492)	13-5/16 (338)	19-1/2 (495)	4 (102)	154 (70)

See installation instructions for complete installation requirements.

PRODUCT SPECIFICATIONS					
UNIT SIZE		0401712	0601716	0802120	1002120
RATINGS AND PERFORMANCE					
Input Btuh*		40,000	60,000	80,000	100,000
Output Capacity (Btuh)†		31,000	48,000	64,000	81,000
AFUE†		80.0	80.0	80.0	80.0
Certified Temperature Rise Range – °F (°C)		25 – 55 (14 – 31)	30 – 60 (17 – 33)	25 – 55 (14 – 31)	25 – 55 (14 – 31)
External Static Pressure (in. w.c.)††	Heating	.10	.12	.15	.20
	Cooling	.50	.50	.50	.50
Airflow Delivery @ ESP Listed Above (CFM)	Heating	760	930	1500	1750
	Cooling	505–1490	535–1480	990–2390	1130–2260
ELECTRICAL					
Unit Volts–Hertz–Phase		115-60-1			
Operating Voltage Range		Min-Max 104-127			
Maximum Unit Amps		11.4	11.4	17.8	17.8
Unit Ampacity		12.6	12.6	18.9	18.9
Maximum Wire Length – Measure one way in Ft		29	29	30	30
Minimum Wire Size		14	14	12	12
Maximum Fuse or Ckt Bkr Size (Amps)**		15	15	20	20
Transformer (24v)		40 VA			
External Control Power Available	Heating	12 VA			
	Cooling	35 VA			
Air Conditioning Blower Relay		Standard			
CONTROLS					
Limit Control		SPST			
Heating Blower Control		Solid–State Time Operation			
Gas Connection Size		1/2-in. NPT			
GAS CONTROLS					
Gas Valve (Redundant)	Mfr.	White Rodgers			
	Min. inlet pressure (In. W.C.)	3.5 Natural Gas			
	Max. inlet pressure (In. W.C.)	13.6 Natural Gas			
Ignition Device		Hot Surface Ignitor			
Factory-installed orifice		3.35mm	#18	#10	#6
BLOWER DATA					
Direct-Drive Motor HP		1/2	1/2	1	1
Motor Full Load Amps		7.7	7.7	12.8	12.8
Nominal RPM		1050	1050	1050	1050
Blower Wheel Diameter x Width – In. (mm)		10 x 8 (243 x 203)	11 x 8 (279 x 203)	11 x 11 (279 x 279)	11 x 11 (279 x 279)

* Gas input ratings are certified for elevations to 5,000 ft. (1425 M). In USA, for elevations above 2,000 ft. (610 M), reduce ratings 2 percent for each 1,000 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.

†† DOE minimum External Static Pressure

** Time–delay type is recommended.

ICS Isolated Combustion System

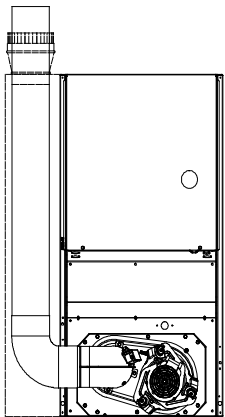
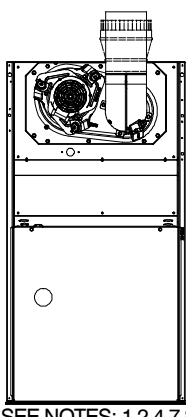
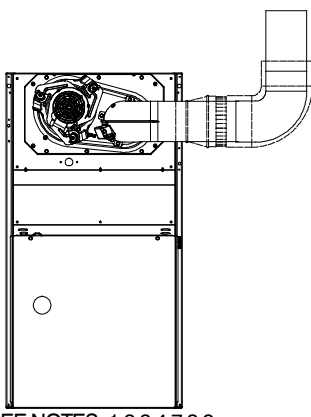
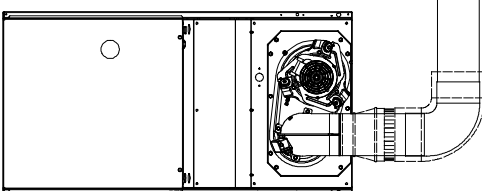
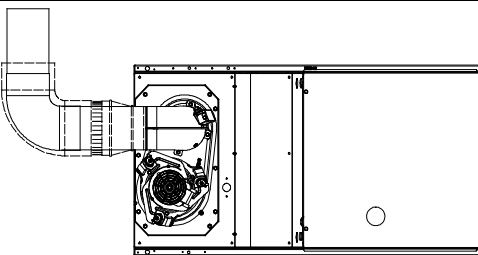
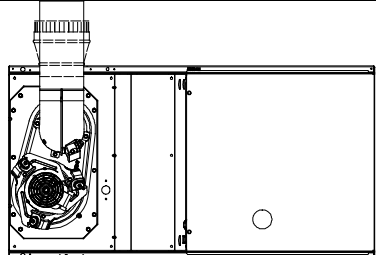
AIR DELIVERY - CFM (with filter)*													
(SW1–5 and SW4–3 set to OFF, except as indicated. See notes 1 and 2)													
Size: 0401712	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches	SW2–3	SW2–2	SW2–1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1275	1310	1305	1315	1310	1305	1305	1295	1290	1270
CF Switches	SW3–3	SW3–2	SW3–1										
Low–Clg Default:	OFF	OFF	OFF	1275	1310	1305	1315	1310	1305	1305	1295	1290	1270
Cooling Airflow (SW2) Low–Cooling Airflow (SW3)	OFF	OFF	ON	530	545	545	535	505	495	485	See Note 4		
	OFF	ON	OFF	715	705	730	730	735	735	740	725	720	695
	OFF	ON	ON	870	910	925	925	935	935	925	915	910	900
	ON	OFF	OFF	1100	1090	1080	1110	1120	1120	1110	1110	1100	1095
	ON	OFF	ON	1275	1310	1305	1315	1310	1305	1305	1295	1290	1270
	ON	ON	OFF	1445	1480	1480	1480	1475	1455	1415	1375	1335	1295
	ON	ON	ON	1445	1480	1480	1480	1475	1455	1415	1375	1335	1295
Maximum Clg Airflow ²				1635	1605	1565	1525	1490	1455	1415	1375	1335	1295
CF Switches	SW3–3	SW3–2	SW3–1										
Cont. Fan Default:	OFF	OFF	OFF	530	545	545	535	505	495	485	See Note 4		
Continuous Fan Airflow (SW3)	OFF	OFF	ON	530	545	545	535	505	495	485	See Note 4		
	OFF	ON	OFF	715	705	730	730	735	735	740	725	720	695
	OFF	ON	ON	870	910	925	925	935	935	925	915	910	900
	ON	OFF	OFF	1100	1090	1080	1110	1120	1120	1110	1110	1100	1095
	ON	OFF	ON	1100	1090	1080	1110	1120	1120	1110	1110	1100	1095
	ON	ON	OFF	1100	1090	1080	1110	1120	1120	1110	1110	1100	1095
	ON	ON	ON	1100	1090	1080	1110	1120	1120	1110	1110	1100	1095
Heating (SW1)	Heating Airflow ³			760	765	790	790	800	800	800	790	775	755
Size: 0601716	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches	SW2–3	SW2–2	SW2–1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1460	1475	1500	1500	1480	1440	1395	1355	1310	1255
CF Switches	SW3–3	SW3–2	SW3–1										
Low–Clg Default:	OFF	OFF	OFF	540	565	555	555	535	See Note 4				
Cooling Airflow (SW2) Low–Cooling Airflow (SW3)	OFF	OFF	ON	540	565	555	555	535	See Note 4				
	OFF	ON	OFF	715	735	745	760	765	See Note 4				
	OFF	ON	ON	865	910	935	950	965	955	950	955	955	945
	ON	OFF	OFF	1120	1125	1130	1145	1160	1165	1165	1160	1150	1150
	ON	OFF	ON	1275	1295	1315	1335	1340	1345	1340	1335	1310	1255
	ON	ON	OFF	1460	1475	1500	1500	1480	1440	1395	1355	1310	1255
	ON	ON	ON	1460	1475	1500	1500	1480	1440	1395	1355	1310	1255
Maximum Clg Airflow ²				1620	1595	1565	1525	1480	1440	1395	1355	1310	1255
CF Switches	SW3–3	SW3–2	SW3–1										
Cont. Fan Default:	OFF	OFF	OFF	540	565	555	555	535	See Note 4				
Continuous Fan Airflow (SW3)	OFF	OFF	ON	540	565	555	555	535	See Note 4				
	OFF	ON	OFF	715	735	745	760	765	See Note 4				
	OFF	ON	ON	865	910	935	950	965	955	950	955	955	945
	ON	OFF	OFF	1120	1125	1130	1145	1160	1165	1165	1160	1150	1150
	ON	OFF	ON	1275	1295	1315	1335	1340	1345	1340	1335	1310	1255
	ON	ON	OFF	1460	1475	1500	1500	1480	1440	1395	1355	1310	1255
	ON	ON	ON	1460	1475	1500	1500	1480	1440	1395	1355	1310	1255
Heating (SW1)	Heating Airflow ³			960	995	1015	1020	1030	1050	1055	1060	1055	1045

AIR DELIVERY - CFM CONTINUED (with filter)*													
(SW1–5 and SW4–3 set to OFF, except as indicated. See notes 1 and 2)													
Size: 0802120	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches	SW2–3	SW2–2	SW2–1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1905	1920	1935	1945	1950	1945	1935	1930	1920	1905
CF Switches	SW3–3	SW3–2	SW3–1										
Low–Clg Default:	OFF	OFF	OFF	1905	1920	1935	1945	1950	1945	1935	1930	1920	1905
Cooling Airflow (SW2) Low–Cooling Airflow (SW3)	OFF	OFF	ON	785	765	775	See Note 4						
	OFF	ON	OFF	930	975	990	985	990	1000	985	See Note 4		
	OFF	ON	ON	1130	1155	1150	1175	1190	1195	1215	1215	1215	1215
	ON	OFF	OFF	1345	1345	1350	1370	1370	1365	1365	1355	1345	1335
	ON	OFF	ON	1550	1560	1580	1575	1580	1565	1555	1540	1535	1525
	ON	ON	OFF	1905	1920	1935	1945	1950	1945	1935	1930	1920	1905
	ON	ON	ON	2300	2315	2320	2325	2315	2305	2280	2240	2245	2215
Maximum Clg Airflow ²				2405	2410	2415	2400	2390	2360	2305	2275	2255	2215
CF Switches	SW3–3	SW3–2	SW3–1										
Cont. Fan Default:	OFF	OFF	OFF	785	765	775	See Note 4						
Continuous Fan Airflow (SW3)	OFF	OFF	ON	785	765	775	See Note 4						
	OFF	ON	OFF	930	975	990	985	990	1000	985	See Note 4		
	OFF	ON	ON	1130	1155	1150	1175	1190	1195	1215	1215	1215	1215
	ON	OFF	OFF	1130	1155	1150	1175	1190	1195	1215	1215	1215	1215
	ON	OFF	ON	1130	1155	1150	1175	1190	1195	1215	1215	1215	1215
	ON	ON	OFF	1130	1155	1150	1175	1190	1195	1215	1215	1215	1215
	ON	ON	ON	1130	1155	1150	1175	1190	1195	1215	1215	1215	1215
Heating (SW1)	Heating Airflow ³			1550	1570	1585	1580	1565	1555	1550	1545	1545	1535
Size: 1002120	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches	SW2–3	SW2–2	SW2–1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1785	1800	1805	1830	1830	1845	1855	1860	1850	1840
CF Switches	SW3–3	SW3–2	SW3–1										
Low–Clg Default:	OFF	OFF	OFF	1785	1800	1805	1830	1830	1845	1855	1860	1850	1840
Cooling Airflow (SW2) Low–Cooling Airflow (SW3)	OFF	OFF	ON	635	630	See Note 4							
	OFF	ON	OFF	785	820	865	See Note 4						
	OFF	ON	ON	1040	1045	1070	1085	1130	See Note 4				
	ON	OFF	OFF	1205	1220	1245	1280	1290	1295	1290	1280	See Note 4	
	ON	OFF	ON	1380	1425	1445	1465	1480	1475	1490	1485	1455	1460
	ON	ON	OFF	1785	1800	1805	1830	1830	1845	1855	1860	1850	1840
	ON	ON	ON	2170	2155	2175	2195	2185	2195	2190	2180	2160	2100
Maximum Clg Airflow ²				2200	2220	2245	2260	2260	2260	2255	2225	2170	2100
CF Switches	SW3–3	SW3–2	SW3–1										
Cont. Fan Default:	OFF	OFF	OFF	635	630	See Note 4							
Continuous Fan Airflow (SW3)	OFF	OFF	ON	635	630	See Note 4							
	OFF	ON	OFF	785	820	865	See Note 4						
	OFF	ON	ON	1040	1045	1070	1085	1130	See Note 4				
	ON	OFF	OFF	1205	1220	1245	1280	1290	1295	1290	1280	See Note 4	
	ON	OFF	ON	1380	1425	1445	1465	1480	1475	1490	1485	1455	1460
	ON	ON	OFF	1380	1425	1445	1465	1480	1475	1490	1485	1455	1460
	ON	ON	ON	1380	1425	1445	1465	1480	1475	1490	1485	1455	1460
Heating (SW1)	Heating Airflow ³			1785	1800	1765	1785	1800	1820	1830	1835	1825	1810

- Nominal 350 CFM/ton cooling airflow is delivered with SW1-5 and SW4-3 set to OFF.
Set SW1-5 to ON for nominal 400 CFM/ton (+15% airflow).
Set SW4-3 to ON for nominal 325 CFM/ton (-7% airflow).
Set both SW1-5 and SW4-3 to ON for nominal 370 CFM/ton (+7% airflow).
This applies to Cooling and Low-Cooling airflow, but does not affect continuous fan airflow.

The above adjustments in airflow are subject to motor horsepower range/capacity.

- Maximum cooling airflow is achieved when switches SW2-1, SW2-2, SW2-3 and SW1-5 are set to ON, and SW4-3 is set to OFF.
- All heating CFM's are when comfort/efficiency adjustment switch (SW1-4) is set to OFF
- Ductwork must be sized for heating CFM within the operational range of ESP. Operation within the blank areas of the chart is not recommended because heat operation will be above 1.0 ESP.
- All airflows on 21" casing size furnaces are 5% less on side return only installations.

DOWNFLOW VENT CONFIGURATIONS	UPFLOW VENT CONFIGURATIONS	
 SEE NOTES: 1,2,4,5,6,7,8,9 A02062	 SEE NOTES: 1,2,4,7,8,9 A02058	 SEE NOTES: 1,2,3,4,7,8,9 A02059
HORIZONTAL RIGHT VENT CONFIGURATIONS	HORIZONTAL LEFT VENT CONFIGURATIONS	
 SEE NOTES: 1,2,4,7,8,9 A02069	 SEE NOTES: 1,2,4,7,8,9 A02060	 SEE NOTES: 1,2,4,5,7,8,9 A02066

Venting Notes

1. For common vent, vent connector sizing and vent material: United States—use the NFGC.
2. Immediately increase to 5 inch (127 mm) or 6-inch (152 mm) vent connector outside furnace casing when 5 inch (127 mm) vent connector is required, refer to Note 1 above.
3. Side outlet vent for upflow and downflow installations must use Type B vent immediately after exiting the furnace, except when Downflow Vent Guard Kit, is used in the downflow position.
4. Type-B vent where required, refer to Note 1 above.
5. 4 inch single-wall (26 ga. min.) vent must be used inside furnace casing and when the Downflow Vent Guard Kit is used external to the furnace.
6. Accessory Downflow Vent Guard Kit, required in downflow installations with lower vent configuration.
7. Secure vent connector to furnace elbow with (2) corrosion-resistant sheet metal screws, spaced approximately 180° apart.
8. Secure all other single wall vent connector joints with (3) corrosion resistant screws spaced approximately 120° apart.
9. Secure Type-B vent connectors per vent connector manufacturer's recommendations.

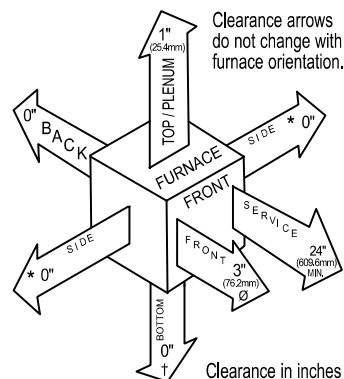
MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS FOR ALL UNITS

This forced air furnace is equipped for use with natural gas at altitudes 0 – 5,000 ft (0 – 1524 M).

This furnace is for indoor installation in a building constructed on site.

The furnace may be installed on combustible flooring in alcove or closet at minimum clearance as indicated by the diagram from combustible material.

This furnace may be used with a Type B-1 Vent and may be vented in common with other gas fired appliances.



Vent Clearance to combustibles:

- For Single Wall vents 6 inches (6 po).
- For Type B-1 vent type 1 inch (1 po).

ACCESSORIES					
PART NUMBER	DESCRIPTION	0401712	0601716	0802120	1002120
SYST0101SW	ION™ System Control	X	X	X	X
NAHA01101SB	Combustible Floor Base (Not required when evaporator coil case is used for downflow)	X	X	X	X
NAHB00301VC	Downflow Vent Guard (Not required when vent is routed through cabinet)	X	X	X	X
NAHA00101MS	ECM Motor Simulator Kit	X	X	X	X
NAHB00601FF	External Bottom Filter Rack, 17 inch (16 x 25 inch washable filter included)	X	X		
NAHB00701FF	External Bottom Filter Rack, 21 inch (20 x 25 inch washable filter included)			X	X
NAHA00506FB	Washable filter, 1 inch 16 x 25 (6 pack)	X	X		
NAHA00706FB	Washable filter, 1 inch 24 x 25 (6 pack)			X	X

X Accessory available