



Air Conditioning & Heating

# GCEC96

HEATING INPUT: 40,000–100,000 BTU/H

**TWO-STAGE, MULTI-SPEED  
ECM GAS FURNACE  
UP TO 96% AFUE**



## Contents

Nomenclature.....	2
Product Specifications.....	3
Dimensions .....	4
Airflow Specifications.....	5
Wiring Diagrams .....	11
Accessories .....	12

## Standard Features

- Energy-efficient, multi-speed ECM blower motor
- Heavy-duty, aluminized-steel tubular heat exchanger
- Stainless-steel secondary heat exchanger
- Two-stage gas valve provides quiet, economical heating
- Durable Silicon Nitride igniter
- Quiet two-speed induced draft blower
- Self-diagnostic control board with constant memory fault code history output to a LED
- Color-coded low-voltage terminals with provisions for electronic air cleaner and humidifier
- Low continuous fan speed options offer quiet air circulation
- All models comply with California 40 ng/J Low NOx emissions standard
- AHRI Certified; ETL Listed

## Cabinet Features

- Designed for multi-position installation — down flow, horizontal left or right
- Certified for direct vent (2-pipe) or non-direct vent (1-pipe)
- Easy-to-install top venting with optional side venting
- Convenient left or right connection for gas and electrical service
- Cabinet air leakage ( $Q_{Leak}$ )  $\leq 2\%$
- Heavy-gauge steel cabinet with durable finish
- Fully insulated heat exchanger and blower section
- Airtight solid bottom or side return with easy-cut tabs for effortless removal in bottom air-inlet applications

**LIFETIME**  
HEAT EXCHANGER  
LIMITED WARRANTY\*

**10 YEAR**  
UNIT  
REPLACEMENT  
LIMITED  
WARRANTY\*

**10 YEAR**  
PARTS  
LIMITED  
WARRANTY\*



COMPANY WITH  
QUALITY SYSTEM  
CERTIFIED BY DNV GL  
■ ISO 9001 ■

COMPANY WITH  
ENVIRONMENTAL SYSTEM  
CERTIFIED BY DNV GL  
■ ISO 14001 ■



\* Complete warranty details available from your local dealer or at [www.goodmanmfg.com](http://www.goodmanmfg.com). To receive the Lifetime Heat Exchanger Limited Warranty (good for as long as you own your home), 10-Year Unit Replacement Limited Warranty and 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Québec.

	G	C	E	C	96	060	3	B	N	**	
	1	2	3	4	5,6	7,8,9	10	11	12	13,14	
<b>BRAND</b>											<b>ENGINEERING</b>
G - Goodman® Brand											Major / Minor Revisions * Not used for inventory control.
<b>CONFIGURATION</b>											<b>NOx</b>
M - Upflow/Horizontal C - Downflow/Horizontal											N - Low NOx
<b>MOTOR</b>											<b>CABINET WIDTH</b>
V - Variable Speed ECM / ComfortNet E - Multi-Speed ECM S - Single Speed											B - 17½" C - 21" D - 24½"
<b>GAS VALVE</b>											<b>MAXIMUM CFM</b>
M - Modulating C - Two- Stage S - Single Stage											2 - 800 CFM 3 - 1200 CFM 4 - 1600 CFM 5 - 2000 CFM
<b>AFUE</b>											<b>MBTU/H</b>
97 - 97% AFUE 92 - 92% AFUE											040 - 40,000 BTU/h 060 - 60,000 BTU/h 120 - 120,000 BTU/h

	GCEC96 0403BNA	GCEC96 0603BNA	GCEC96 0803BNA	GCEC96 1005CNA
<b>HEATING DATA</b>				
High Fire Input <sup>1</sup>	40,000	60,000	80,000	100,000
High Fire Output <sup>1</sup>	38,400	57,600	76,800	96,000
Low-Fire Input <sup>1</sup>	28,000	42,000	56,000	70,000
Low-Fire Output <sup>1</sup>	26,880	40,320	53,760	67,200
AFUE <sup>2</sup>	96	96	96	96
Temp. Rise Range (°F)	20 - 50	20 - 50	35 - 65	35 - 65
Vent Diameter <sup>3</sup>	2" - 3"	2" - 3"	2" - 3"	2" - 3"
No. of Burners	2	3	4	5
<b>CIRCULATOR BLOWER</b>				
Available AC @ 0.5" ESP	1.5 - 3	1.5 - 3	1.5 - 3	3 - 5
Size (D x W)	10" x 8"	11" x 8"	11" x 8"	11" x 10"
Horsepower @ 1075 RPM	1/2	1/2	1/2	1
Speed	5	5	5	5
<b>ELECTRICAL DATA</b>				
Min. Circuit Ampacity <sup>4</sup>	8	8	8	13.3
Max. Overcurrent (amps) <sup>5</sup>	15	15	15	15
<b>SHIPPING WEIGHT (LBS)</b>	112	115	118	140

<sup>1</sup> Natural Gas BTU/h

<sup>2</sup> DOE AFUE based upon Isolated Combustion System (ICS)

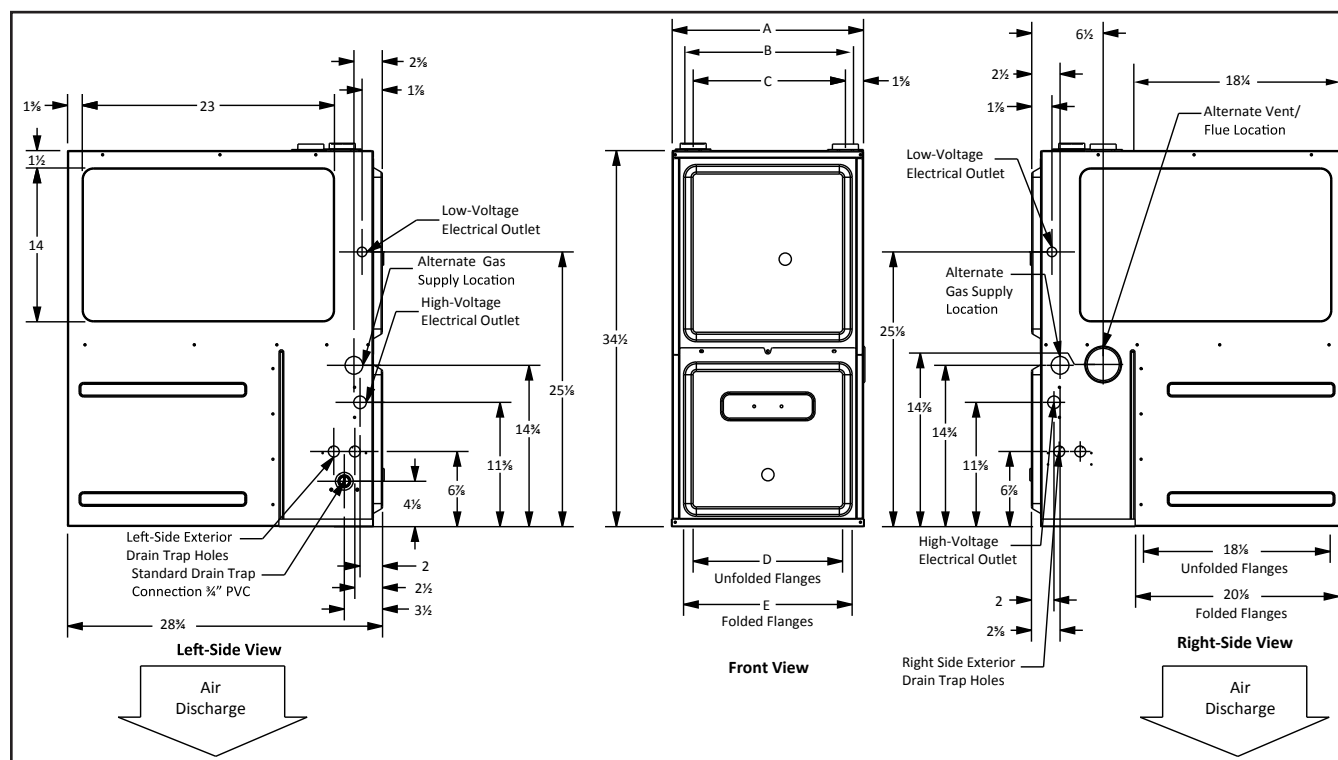
<sup>3</sup> Installer must supply one or two PVC pipes: one for combustion air (optional) and one for the flue outlet (required). Vent pipe must be either 2" or 3" in diameter, depending upon furnace input, number of elbows, length of run and installation (1 or 2 pipes). The optional Combustion Air Pipe is dependent on installation/code requirements and must be 2" or 3" diameter PVC.

<sup>4</sup> Minimum Circuit Ampacity = (1.25 x Circulator Blower Amps) + ID Blower amps. Wire size should be determined in accordance with National Electrical Codes. Extensive wire runs will require larger wire sizes.

<sup>5</sup> Maximum Overcurrent Protection Device refers to maximum recommended fuse or circuit breaker size. May use fuses or HACR-type circuit breakers of the same size as noted.

#### NOTES

- All furnaces are manufactured for use on 115 VAC, 60 Hz, single-phase electrical supply.
- Gas Service Connection ½" FPT
- Important: Size fuses and wires properly and make electrical connections in accordance with the National Electrical Code and/or all existing local codes.
- For bottom return: Failure to unfold flanges may reduce airflow by up to 18%. This could result in performance and noise issues.
- For servicing or cleaning, a 24" front clearance is required. Unit connections (electrical, flue and drain) may necessitate greater clearances than the minimum clearances listed above. In all cases, accessibility clearance must take precedence over clearances from the enclosure where accessibility clearances are greater.



MODEL	AIR DISCHARGE			AIR RETURN	
	A	B	C	D	E
GCEC960403BNA	17 1/2"	16"	13 7/8"	12 1/8"	13 5/8"
GCEC960603BNA	17 1/2"	16"	13 7/8"	12 1/8"	13 5/8"
GCEC960803BNA	17 1/2"	16"	13 7/8"	12 1/8"	13 5/8"
GCEC961005CNA	21"	19 1/2"	17 3/8"	16"	17 1/2"

### MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

POSITION	SIDES	REAR	FRONT	BOTTOM	FLUE	TOP
Downflow	0"	0"	3"	NC	0"	1"
Horizontal	6"	0"	3"	C	0"	6"

C = If placed on combustible floor, the floor MUST be wood ONLY.

NC = For installation on non-combustible floors only. A combustible floor sub-base must be used for installations on combustible flooring.

## COOLING

DIPSWITCH SETTING: S1-1 S1-2 S1-3	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	Ylo	647	576	511	449	387	335	280	252
	Y	1229	1181	1150	1117	1078	1035	1002	964
ON OFF OFF	Ylo	1137	1096	1056	1018	981	940	897	859
	Y	647	576	511	449	387	335	280	252
ON ON OFF	Ylo	1137	1096	1056	1018	981	940	897	859
	Y	1229	1181	1150	1117	1078	1035	1002	964
OFF ON OFF^	Ylo	647	576	511	449	387	335	280	252
	Y	743	688	628	572	515	459	408	364
OFF OFF ON^	Ylo	647	576	511	449	387	335	280	252
	Y	939	894	846	806	759	706	661	614
OFF ON ON	Ylo	1137	1096	1056	1018	981	940	897	859
	Y	743	688	628	572	515	459	408	364
ON OFF ON	Ylo	939	894	846	806	759	706	661	614
	Y	1229	1181	1150	1117	1078	1035	1002	964
ON ON ON^	Ylo	939	894	846	806	759	706	661	614
	Y	1137	1096	1056	1018	981	940	897	859

## CONTINUOUS FAN

DIPSWITCH SETTING: S2-2 S2-3 S2-4	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	G	743	688	628	572	515	459	408	364
ON OFF OFF	G	939	894	846	806	759	706	661	614
ON ON OFF	G	1137	1096	1056	1018	981	940	897	859
OFF ON OFF	G	647	576	511	449	387	335	280	252
OFF OFF ON	G	1229	1181	1150	1117	1078	1035	1002	964
OFF ON ON	G	743	688	628	572	515	459	408	364
ON OFF ON	G	743	688	628	572	515	459	408	364
ON ON ON	G	743	688	628	572	515	459	408	364

## HEATING

DIPSWITCH SETTING: S1-4 S2-1	STATIC	0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
		CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
**OFF OFF	W1	743	33	688	36	628	40	572	44	515	48	459	408	364
	W2	939	38	894	40	846	42	806	44	759	47	706	661	614
ON OFF	W1	1137	NA	1096	NA	1056	NA	1018	NA	981	N/A	940	897	859
	W2	939	38	894	40	846	42	806	44	759	47	706	661	614
ON ON	W1	1137	NA	1096	NA	1056	NA	1018	NA	981	N/A	940	897	859
	W2	647	55	576	NA	511	NA	449	NA	387	NA	NA	NA	NA
OFF ON	W1	647	38	576	43	511	49	449	55	387	64	335	280	252
	W2	1229	29	1181	30	1150	31	1117	32	1078	33	1035	1002	964

\*\* Factory Default

SINGLE STAGE COOLING^

\*NOT RECOMMENDED

## NOTES

- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.

## COOLING

DIPSWITCH SETTING: S1-1 S1-2 S1-3	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	Ylo	1149	1104	1057	1017	963	918	865	822
	Y	1236	1189	1149	1101	1066	1017	969	928
ON OFF OFF	Ylo	782	629	547	469	396	333	N/A	N/A
	Y	1149	1104	1057	1017	963	918	865	822
ON ON OFF	Ylo	782	629	547	469	396	333	N/A	N/A
	Y	1236	1189	1149	1101	1066	1017	969	928
OFF ON OFF^	Ylo	1149	1104	1057	1017	963	918	865	822
	Y	894	846	780	720	660	603	554	505
OFF OFF ON^	Ylo	1149	1104	1057	1017	963	918	865	822
	Y	1328	1287	1249	1215	1170	1131	1085	1046
OFF ON ON	Ylo	782	629	547	469	396	333	N/A	N/A
	Y	894	846	780	720	660	603	554	505
ON OFF ON	Ylo	1328	1287	1249	1215	1170	1131	1085	1046
	Y	1236	1189	1149	1101	1066	1017	969	928
ON ON ON^	Ylo	1328	1287	1249	1215	1170	1131	1085	1046
	Y	782	629	547	469	396	333	N/A	N/A

## CONTINUOUS FAN

DIPSWITCH SETTING: S2-2 S2-3 S2-4	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	G	894	846	780	720	660	603	554	505
ON OFF OFF	G	1328	1287	1249	1215	1170	1131	1085	1046
ON ON OFF	G	782	629	547	469	396	333	290	251
OFF ON OFF	G	1149	1104	1057	1017	963	918	865	822
OFF OFF ON	G	1236	1189	1149	1101	1066	1017	969	928
OFF ON ON	G	894	846	780	720	660	603	554	505
ON OFF ON	G	894	846	780	720	660	603	554	505
ON ON ON	G	894	846	780	720	660	603	554	505

## HEATING

DIPSWITCH SETTING: S1-4 S2-1	STATIC	0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
		CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
**OFF OFF	W1	894	41	846	44	780	47	720	51	660	56	603	554	505
	W2	1328	40	1287	41	1249	42	1215	43	1170	45	1131	1085	1046
ON OFF	W1	782	47	629	NA	547	N/A	469	N/A	396	N/A	N/A	N/A	N/A
	W2	1328	40	1287	41	1249	42	1215	43	1170	45	1131	1085	1046
ON ON	W1	782	47	629	NA	547	N/A	469	N/A	396	N/A	N/A	N/A	N/A
	W2	1149	46	1104	48	1057	50	1017	52	963	55	918	865	822
OFF ON	W1	1149	32	1104	33	1057	35	1017	36	963	38	918	865	822
	W2	1236	43	1189	44	1149	46	1101	48	1066	50	1017	969	928

\*\* Factory Default

SINGLE STAGE COOLING^

\*NOT RECOMMENDED

## NOTES

- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.

## COOLING

DIPSWITCH SETTING: S1-1 S1-2 S1-3	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	Ylo	894	842	784	726	682	618	562	519
	Y	1111	1068	1025	984	941	885	860	801
ON OFF OFF	Ylo	750	644	569	507	442	388	328	N/A
	Y	894	842	784	726	682	618	562	519
ON ON OFF	Ylo	750	644	569	507	442	388	328	N/A
	Y	1111	1068	1025	984	941	885	860	801
OFF ON OFF^	Ylo	894	842	784	726	682	618	562	519
	Y	1221	1172	1128	1087	1049	1005	959	922
OFF OFF ON^	Ylo	894	842	784	726	682	618	562	519
	Y	1311	1293	1249	1203	1172	1122	1088	1041
OFF ON ON	Ylo	750	644	569	507	442	388	328	N/A
	Y	1221	1172	1128	1087	1049	1005	959	922
ON OFF ON	Ylo	1311	1293	1249	1203	1172	1122	1088	1041
	Y	1111	1068	1025	984	941	885	860	801
ON ON ON^	Ylo	1311	1293	1249	1203	1172	1122	1088	1041
	Y	750	644	569	507	442	388	328	N/A

## CONTINUOUS FAN

DIPSWITCH SETTING: S2-2 S2-3 S2-4	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	G	1221	1172	1128	1087	1049	1005	959	922
ON OFF OFF	G	1311	1293	1249	1203	1172	1122	1088	1041
ON ON OFF	G	750	644	569	507	442	388	328	288
OFF ON OFF	G	894	842	784	726	682	618	562	519
OFF OFF ON	G	1111	1068	1025	984	941	885	860	801
OFF ON ON	G	1221	1172	1128	1087	1049	1005	959	922
ON OFF ON	G	1221	1172	1128	1087	1049	1005	959	922
ON ON ON	G	1221	1172	1128	1087	1049	1005	959	922

## HEATING

DIPSWITCH SETTING: S1-4 S2-1	STATIC	0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
		CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
**OFF OFF	W1	1221	40	1172	42	1128	44	1087	45	1049	47	1005	959	922
	W2	1311	54	1293	54	1249	56	1203	58	1172	60	1122	1088	1041
ON OFF	W1	750	66	644	N/A	569	N/A	507	N/A	442	N/A	388	328	N/A
	W2	1311	54	1293	54	1249	56	1203	58	1172	60	1122	1088	1041
ON ON	W1	750	NA	644	N/A	569	N/A	507	N/A	442	N/A	388	328	N/A
	W2	894	N/A	842	N/A	784	N/A	726	N/A	682	N/A	618	562	519
OFF ON	W1	894	55	842	59	784	NA	726	NA	682	N/A	618	562	519
	W2	1111	63	1068	66	1025	69	984	NA	941	NA	885	N/A	801

\*\* Factory Default

SINGLE STAGE COOLING^

\*NOT RECOMMENDED

## NOTES

- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.

## COOLING

DIPSWITCH SETTING: S1-1 S1-2 S1-3	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	Ylo	1637	1577	1528	1467	1410	1369	1307	1256
	Y	2069	2009	1978	1932	1923	1876	1834	1773
ON OFF OFF	Ylo	1477	1422	1364	1301	1244	1190	1135	1078
	Y	1637	1577	1528	1467	1410	1369	1307	1256
ON ON OFF	Ylo	1477	1422	1364	1301	1244	1190	1135	1078
	Y	2069	2009	1978	1932	1923	1876	1834	1773
OFF ON OFF^	Ylo	1637	1577	1528	1467	1410	1369	1307	1256
	Y	1300	1234	1175	1109	1052	992	928	866
OFF OFF ON^	Ylo	1637	1577	1528	1467	1410	1369	1307	1256
	Y	1866	1817	1774	1729	1684	1637	1593	1552
OFF ON ON	Ylo	1477	1422	1364	1301	1244	1190	1135	1078
	Y	1300	1234	1175	1109	1052	992	928	866
ON OFF ON	Ylo	1866	1817	1774	1729	1684	1637	1593	1552
	Y	2069	2009	1978	1932	1923	1876	1834	1773
ON ON ON^	Ylo	1866	1817	1774	1729	1684	1637	1593	1552
	Y	1477	1422	1364	1301	1244	1190	1135	1078

## CONTINUOUS FAN

DIPSWITCH SETTING: S2-2 S2-3 S2-4	STATIC	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
	TSTAT CALL	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
**OFF OFF OFF	G	1300	1234	1175	1109	1052	992	928	866
ON OFF OFF	G	1866	1817	1774	1729	1684	1637	1593	1552
ON ON OFF	G	1477	1422	1364	1301	1244	1190	1135	1078
OFF ON OFF	G	1637	1577	1528	1467	1410	1369	1307	1256
OFF OFF ON	G	2069	2009	1978	1932	1923	1876	1834	1773
OFF ON ON	G	1300	1234	1175	1109	1052	992	928	866
ON OFF ON	G	1300	1234	1175	1109	1052	992	928	866
ON ON ON	G	1300	1234	1175	1109	1052	992	928	866

## HEATING

DIPSWITCH SETTING: S1-4 S2-1	STATIC	0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
		CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
**OFF OFF	W1	1300	47	1234	50	1175	52	1109	56	1052	59	992	928	866
	W2	1866	47	1817	48	1774	50	1729	51	1684	52	1637	1593	1552
ON OFF	W1	1477	42	1422	43	1364	45	1301	47	1244	49	1190	1135	1078
	W2	1866	47	1817	48	1774	50	1729	51	1684	52	1637	1593	1552
ON ON	W1	1477	42	1422	43	1364	45	1301	47	1244	49	1190	1135	1078
	W2	1637	54	1577	56	1528	58	1467	60	1410	62	1369	1307	1256
OFF ON	W1	1637	38	1577	39	1528	40	1467	42	1410	44	1369	1307	1256
	W2	2069	43	2009	44	1978	44	1932	46	1923	46	1876	1834	1773

\*\* Factory Default

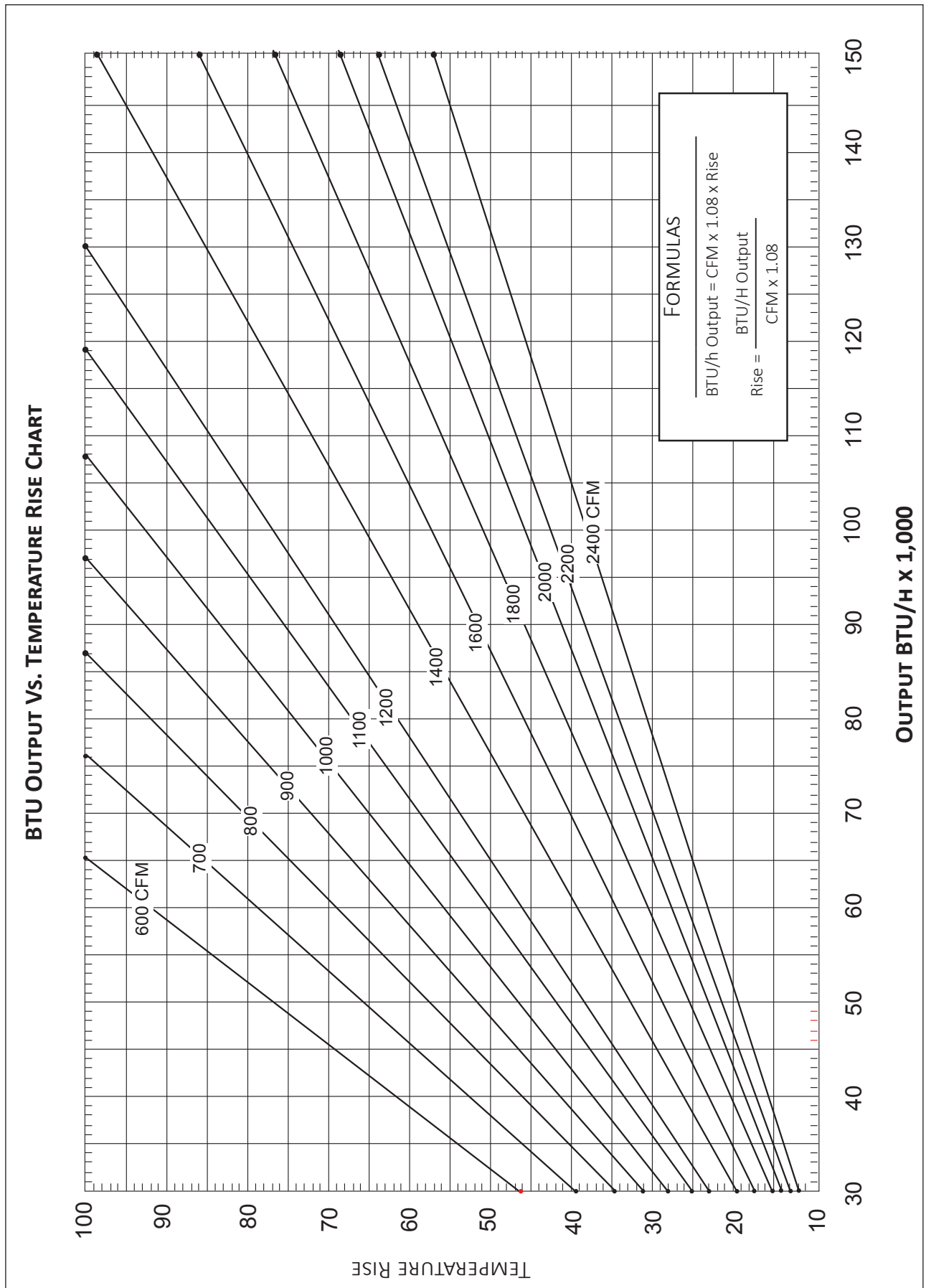
SINGLE STAGE COOLING^

\*NOT RECOMMENDED

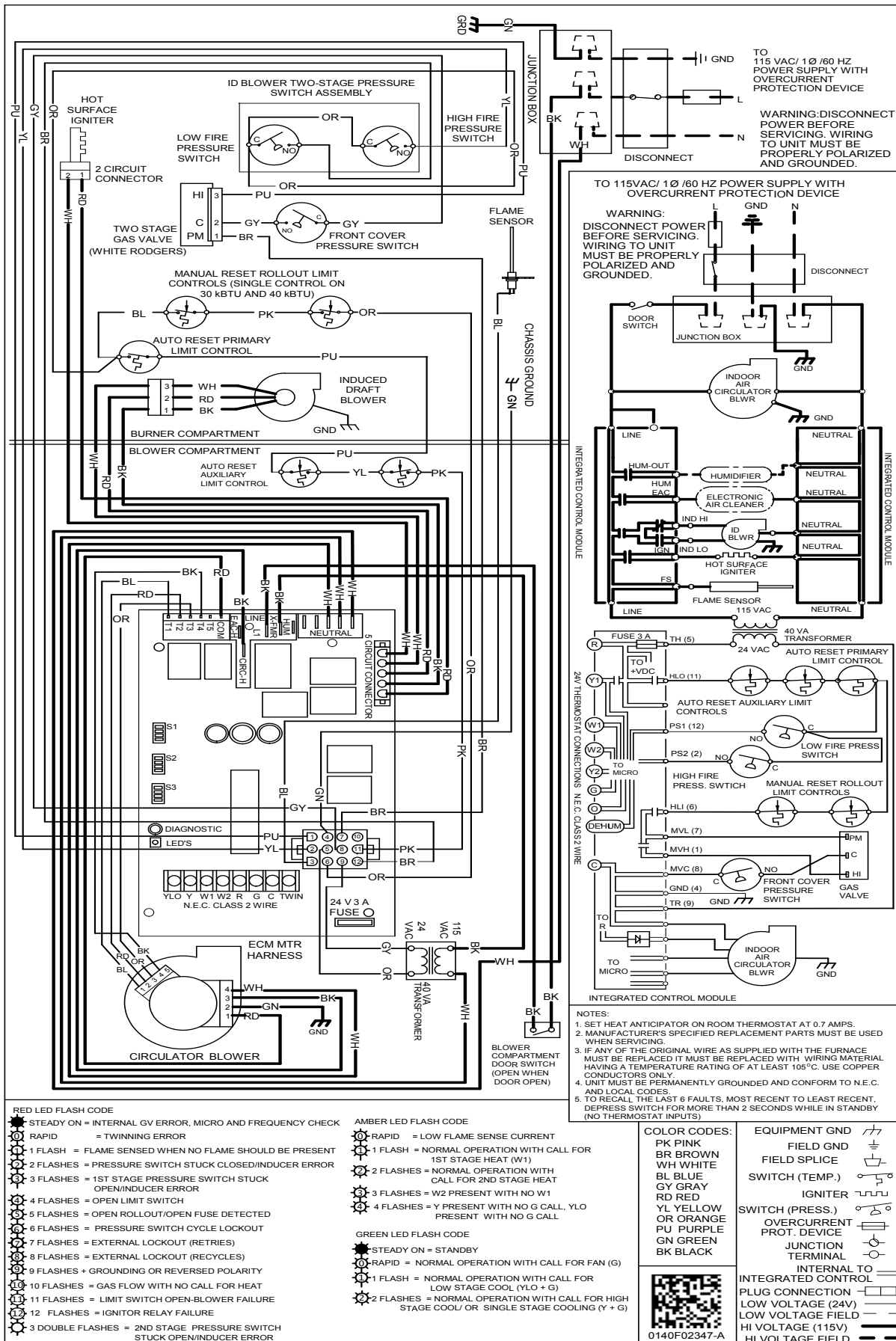
## NOTES

- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.





[illegible]



**High Voltage:** Disconnect all power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury, or death.

**WARNING**



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

MODEL	DESCRIPTION	GCEC96 0403BNA	GCEC96 0603BNA	GCEC96 0803BNA	GCEC96 1005CNA
CVENT-2	Concentric Vent Kit (2")	√	√	√	√
CVENT-3	Concentric Vent Kit (3")	√	√	√	√
RF000142	Drain Kit -Horizontal Left Vertical Flue	√	√	√	√
EFR02	External Filter Rack with 16"x25" Permanent Filter	---	---	---	---
0170K00000S	Flush Mount Vent Kit - 3" or 2"	√	√	√	√
0170K00001S	Flush Mount Vent Kit - 2"	√	√	√	√
AFE18-60A	Fossil Fuel (Dual Fuel) Kit	√	√	√	√
HASFK	High-Altitude Natural Gas Kit	HASFK-1	HASFK-1	HASFK-2	HASFK-2
HASFK	High-Altitude LP Gas Kit	TBD	TBD	TBD	TBD
LPLP03	Low LP Gas Pressure Switch	√	√	√	√
LPM-08	LP Conversion Kits	√	√	√	√
LPM-30	LP Conversion Kit	---	---	---	---