

HEATING INPUT: 40,000–100,000 BTU/H

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



### Contents

Nomenclature.....	2
Product Specifications.....	3
Dimensions .....	5
Airflow Specifications.....	7
Wiring Diagram.....	10
Accessories .....	11

### Standard Features

- Heavy-duty aluminized-steel tubular heat exchanger
- Stainless-steel secondary heat exchanger
- Single-stage gas valve
- Durable Silicon Nitride igniter
- Quiet single-speed induced draft blower
- Self-diagnostic control board with constant memory fault code history output to a LED
- All models comply with California 40 ng/J Low NOx emissions standard
- AHRI Certified; ETL Listed

### Cabinet Features

- Designed for multi-position installation —  
VMSS96: upflow, horizontal left or right  
VCSS96: downflow, 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
- Airtight solid bottom or side return with  
easy-cut tabs for effortless removal in  
bottom air-inlet applications



\* Complete warranty details available from your local dealer or at [www.goodmanmfg.com/gmc](http://www.goodmanmfg.com/gmc).

	V	M	S	S	96	060	3	B	N	**	
	1	2	3	4	5,6	7,8,9	10	11	12	13,14	
<b>BRAND</b>	V - GMC® Brand										<b>ENGINEERING</b>
											Major / Minor Revisions * Not used for inventory control.
<b>CONFIGURATION</b>	M - Upflow/Horizontal C - Downflow/Horizontal										<b>NOx</b>
											N - Low NOx
<b>MOTOR</b>	V - Variable Speed ECM / ComfortNet E - Multi-Speed ECM S - Single Speed										<b>CABINET WIDTH</b>
											B - 17½" C - 21" D - 24½"
<b>GAS VALVE</b>	M - Modulating C - Two- Stage S - Single Stage										<b>MAXIMUM CFM</b>
											2 - 800 CFM 3 - 1200 CFM 4 - 1600 CFM 5 - 2000 CFM
<b>AFUE</b>	97 - 97% AFUE 96 - 96% AFUE 92 - 92% AFUE										<b>MBTU/h</b>
											040 - 40,000 BTU/h 060 - 60,000 BTU/h 100 - 100,000 BTU/h

	VMSS96 0402BNA	VMSS96 0603BNA	VMSS96 0803BNA	VMSS96 0804CNA	VMSS96 1005CNA
<b>HEATING DATA</b>					
High Fire Input <sup>1</sup>	40,000	60,000	80,000	80,000	100,000
High Fire Output <sup>1</sup>	38,400	57,600	76,800	76,800	96,000
AFUE <sup>2</sup>	96	96	96	96	96
Temperature Rise Range (°F)	25 - 55	35 - 65	35 - 65	25 - 55	30 - 60
Vent Diameter <sup>3</sup>	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"
No. of Burners	2	3	4	4	5
<b>CIRCULATOR BLOWER</b>					
Available AC @ 0.5" ESP	1.5 - 3	1.5 - 3	1.5 - 3	1.5 - 4	3 - 5
Size (D x W)	10" x 8"	10" x 8"	10" x 8"	10" x 10"	11" x 10"
Horsepower @ 1075 RPM	1/3	1/3	1/2	1/2	3/4
Speed	4	4	4	4	4
<b>ELECTRICAL DATA</b>					
Min. Circuit Ampacity <sup>4</sup>	9.6	9.6	12.8	11.7	13.7
Max. Overcurrent Device (amps) <sup>5</sup>	15	15	15	15	15
<b>SHIPPING WEIGHT (LBS)</b>					
	111	114	116	139	142

<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 1/2" 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.

	VCSS96 0402BNA	VCSS96 0603BNA	VCSS96 0804CNA	VCSS96 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	95,000
AFUE <sup>2</sup>	96	96	96	95
Temperature Rise Range (°F)	25 - 55	35 - 65	35 - 65	40 - 70
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	2.5 - 4	3 - 5
Size (D x W)	10" x 8"	10" x 8"	10" x 10"	11" x 10"
Horsepower @ 1075 RPM	1/3	1/3	1/2	3/4
Speed	4	4	4	4
<b>ELECTRICAL DATA</b>				
Min. Circuit Ampacity <sup>4</sup>	9.6	9.6	11.7	13.7
Max. Overcurrent Device (amps) <sup>5</sup>	15	15	15	15
<b>SHIPPING WEIGHT (LBS)</b>				
	111	114	139	142

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

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

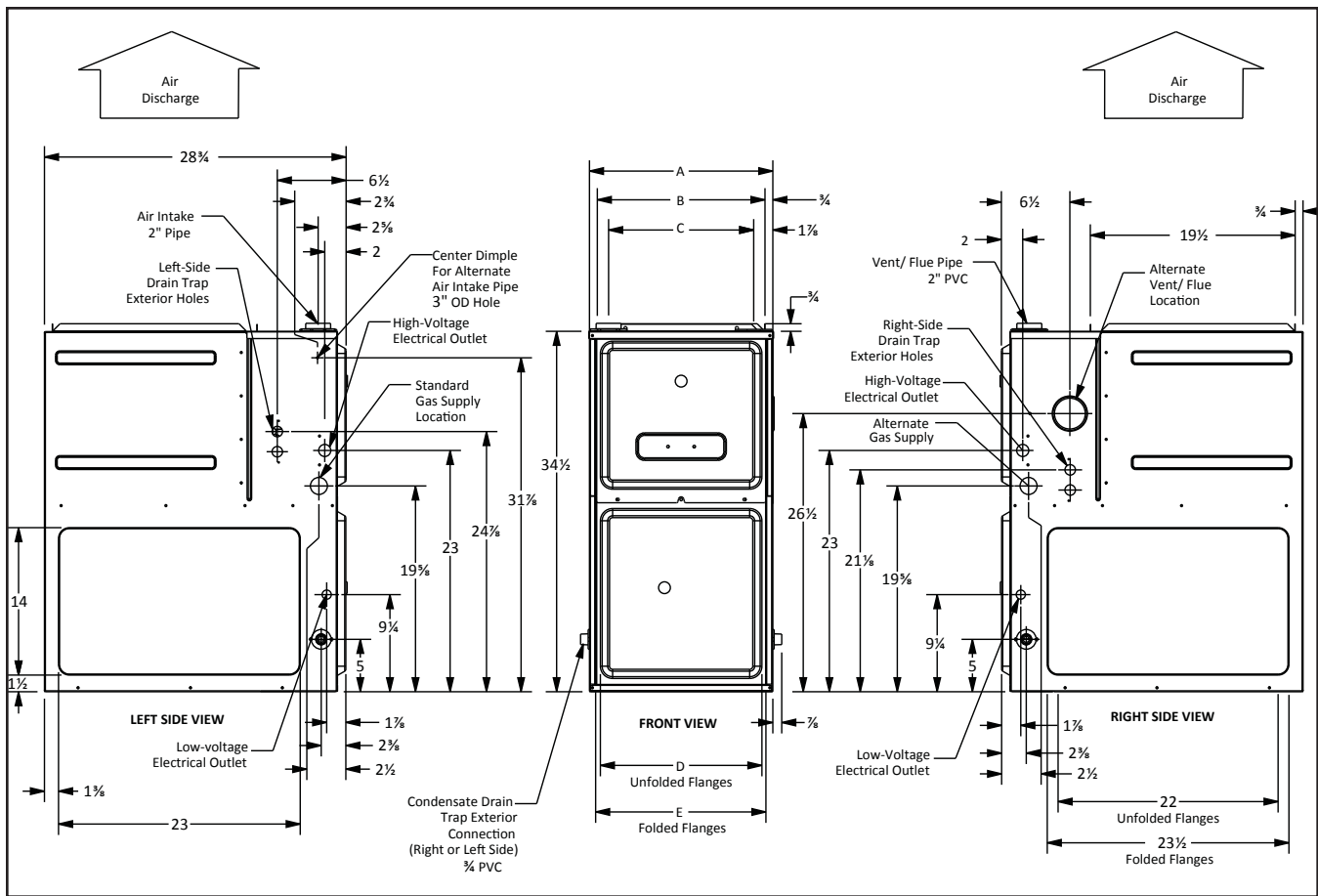
<sup>3</sup> Installer must supply one or two PVC pipes: one for combustion air (optional) and one for the flue outlet (required). Vent pipe must be either 2" or 3" in diameter, depending upon furnace input, number of elbows, length of run and installation (1 or 2 pipes). The optional Combustion Air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



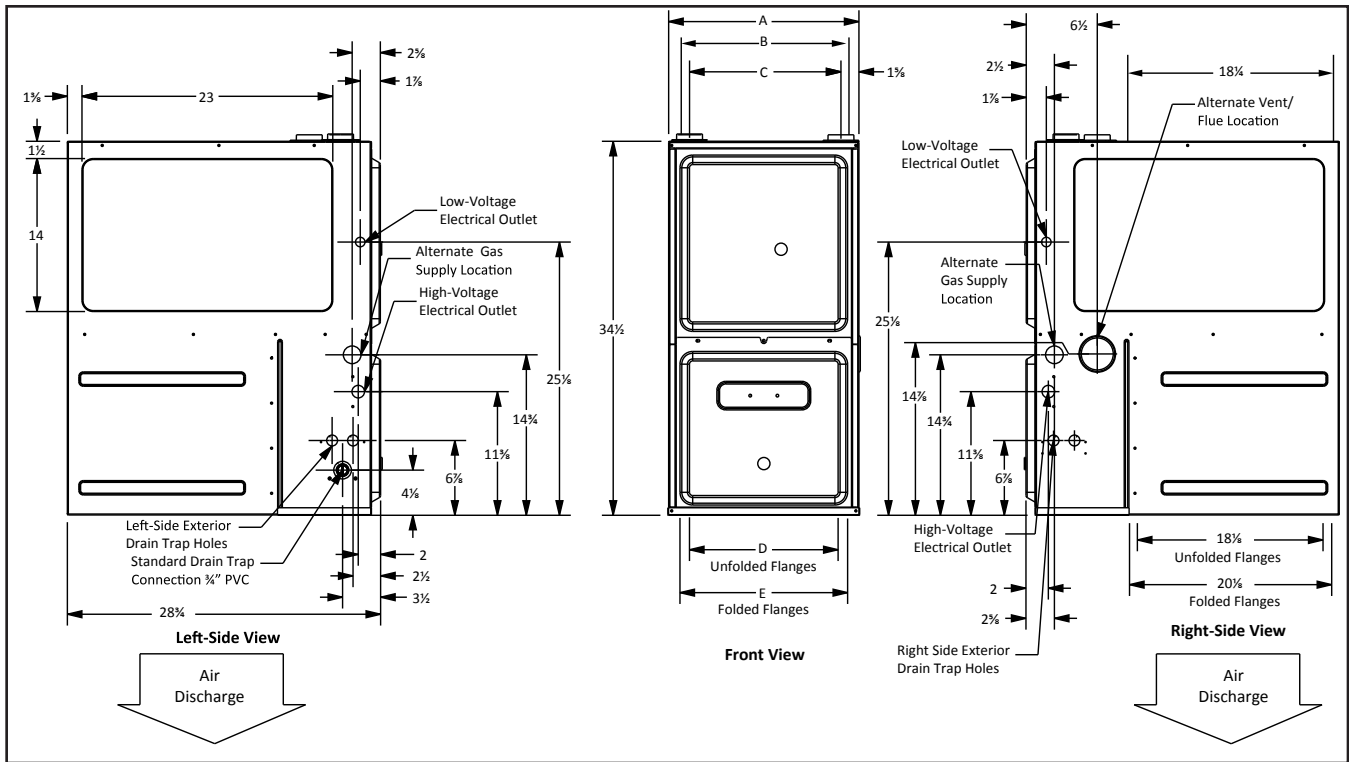
MODEL	W	D	H
VMSS960402BNA	17½"	28⅞"	34½"
VMSS960603BNA	17½"	28⅞"	34½"
VMSS960803BNA	17½"	28⅞"	34½"
VMSS960804CNA	21"	28⅞"	34½"
VMSS961005CNA	21"	28⅞"	34½"

	AIR DISCHARGE			AIR RETURN	
	A	B	C	D	E
	17½"	16"	13⅞"	12⅞"	13⅞"
	17½"	16"	13⅞"	12⅞"	13⅞"
	17½"	16"	13⅞"	12⅞"	13⅞"
	21"	19½"	17⅞"	16"	17½"
	21"	19½"	17⅞"	16"	17½"

**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS**

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

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



MODEL	AIR RETURN			AIR DISCHARGE	
	A	B	C	D	E
VCSS960402BNA	17½"	14¾"	14"	14½"	16"
VCSS960603BNA	17½"	14¾"	14"	14½"	16"
VCSS960804CNA	21"	18¾"	17½"	18"	19½"
VCSS961005CNA	21"	18¾"	17½"	18"	19½"

**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.

(CFM & TEMPERATURE RISE VS. EXTERNAL STATIC PRESSURE)

MODEL	MOTOR SPEED	TONS AC <sup>1</sup>	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)												
			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
VMSS96 0402BNA	High	3	1,478	N/A	1,418	25	1,354	26	1,290	28	1,208	29	1,129	1,040	930
	Med	2.5	1,299	27	1,265	28	1,225	29	1,167	30	1,112	32	1,033	949	841
	Med-Lo	2	1,081	33	1,064	33	1,039	34	997	36	945	38	886	819	722
	Low	1.5	966	37	951	37	925	38	892	40	861	41	808	750	666
VMSS96 0603BNA	High	3	1,432	37	1,374	39	1,319	40	1,237	43	1,157	46	1,063	958	854
	Med	2.5	1,289	41	1,250	43	1,204	44	1,142	47	1,066	50	981	897	789
	Med-Lo	2	1,080	49	1,057	50	1,022	52	980	54	926	58	861	785	700
	Low	1.5	967	55	945	56	919	58	879	61	844	63	789	712	632
VMSS96 0803BNA	High	3	1,620	44	1,561	46	1,478	48	1,401	51	1,322	54	1,239	1,150	1052
	Med	2.5	1,538	46	1,476	48	1,401	51	1,332	53	1,250	57	1,166	1,083	992
	Med-Lo	2	1,446	49	1,388	51	1,333	53	1,258	57	1,197	59	1,112	1,037	937
	Low	1.5	1,246	57	1,217	58	1,165	61	1,128	63	1,067	N/A	994	938	840
VMSS96 0804CNA	High	4	1,795	40	1,720	41	1,642	43	1,555	46	1,467	48	1,385	1,283	1,170
	Med	3.5	1,691	42	1,622	44	1,563	45	1,486	48	1,394	51	1,325	1,222	1,125
	Med-Lo	3	1,488	48	1,445	49	1,403	51	1,338	53	1,260	N/A	1,200	1,114	1,014
	Low	2.5	1,244	N/A	1,222	N/A	1,198	N/A	1,157	N/A	1,119	N/A	1,062	986	905
VMSS96 1005CNA	High	5	2,157	41	2,087	43	2,028	44	1,953	46	1,858	48	1,775	1,661	1,558
	Med	4	1,907	47	1,852	48	1,800	49	1,738	51	1,675	53	1,605	1,514	1,410
	Med-Lo	3.5	1,608	55	1,580	56	1,493	60	1,501	59	1,440	62	1,367	1,296	1,219
	Low	3	1,390	N/A	1,344	N/A	1,326	N/A	1,268	N/A	1,227	N/A	1,194	1,132	1,071

<sup>1</sup> at 0.5" ESP

**NOTES**

- CFM in chart is without filter(s). Filters do not ship with this furnace, but must be provided by the installer. If the furnace requires two return filters, this chart assumes both filters are installed.
- All furnaces ship as high-speed cooling and medium-speed heating. Installer must adjust blower cooling & heating 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.
- This chart is for information only. For satisfactory operation, external static pressure should not exceed value shown on the rating plate. The shaded area indicates ranges in excess of maximum static pressure allowed when heating.
- The above chart is for U.S. furnaces installed at 0-2000 feet. At higher altitudes, a properly derated unit will have approximately the same temperature rise at a particular CFM, while ESP at the CFM will be lower.

**MINIMUM FILTER SIZES**

	VMSS96 0603BNA	VMSS96 0803BNA	VMSS96 0804CNA	VMSS96 1005CNA
Filter Size (in <sup>2</sup> ) (Qty)	(1) 16xX 25 (side or bottom)			(1) 20 x 25 (bottom) or (2) 16 x 25 (side)

Note: Other size filters of equal or greater dimensions may be used. Filters may also be centrally located.

(CFM & TEMPERATURE RISE VS. EXTERNAL STATIC PRESSURE)

MODEL	MOTOR SPEED	TONS AC <sup>1</sup>	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)												
			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
VCSS96 0402BNA	High	3	1,425	25	1,345	26	1,271	28	1,198	30	1,138	31	1,051	945	864
	Med	2.5	1,254	28	1,218	29	1,155	31	1,107	32	1,040	34	952	869	761
	Med-Lo	2	1,082	33	1,051	34	1,007	35	965	37	910	39	841	770	660
	Low	1.5	889	40	872	41	829	43	815	44	765	46	711	659	585
VCSS96 0603BNA	High	3	1,348	40	1,283	42	1,217	44	1,151	46	1,086	49	1,014	931	844
	Med	2.5	1,188	45	1,139	47	1,098	49	1,039	51	986	54	916	834	758
	Med-Lo	2	1,015	53	985	54	945	56	909	59	858	62	804	733	655
	Low	1.5	821	65	814	N/A	788	N/A	765	N/A	720	N/A	677	640	564
VCSS96 0804CNA	High	4	1,736	41	1,613	44	1,578	45	1,498	47	1,409	50	1,314	1,226	1,119
	Med	3.5	1,657	43	1,583	45	1,501	47	1,441	49	1,366	52	1,282	1,173	1,077
	Med-Lo	3	1,581	45	1,510	47	1,443	49	1,371	52	1,280	56	1,199	1,110	990
	Low	2.5	1,369	52	1,313	54	1,278	56	1,225	58	1,147	62	1,071	990	888
VCSS96 1005CNA	High	5	2,018	44	1,953	46	1,877	47	1,788	50	1,735	51	1,659	1,556	1,448
	Med	4	1,826	49	1,749	51	1,660	54	1,566	57	1,496	59	1,415	1,335	1,220
	Med-Lo	3.5	1,618	55	1,539	58	1,476	60	1,406	63	1,340	66	1,275	1,194	1,093
	Low	3	1,402	63	1,354	66	1,296	69	1,242	N/A	1,173	N/A	1,108	1,042	965

<sup>1</sup> at 0.5" ESP

**NOTES**

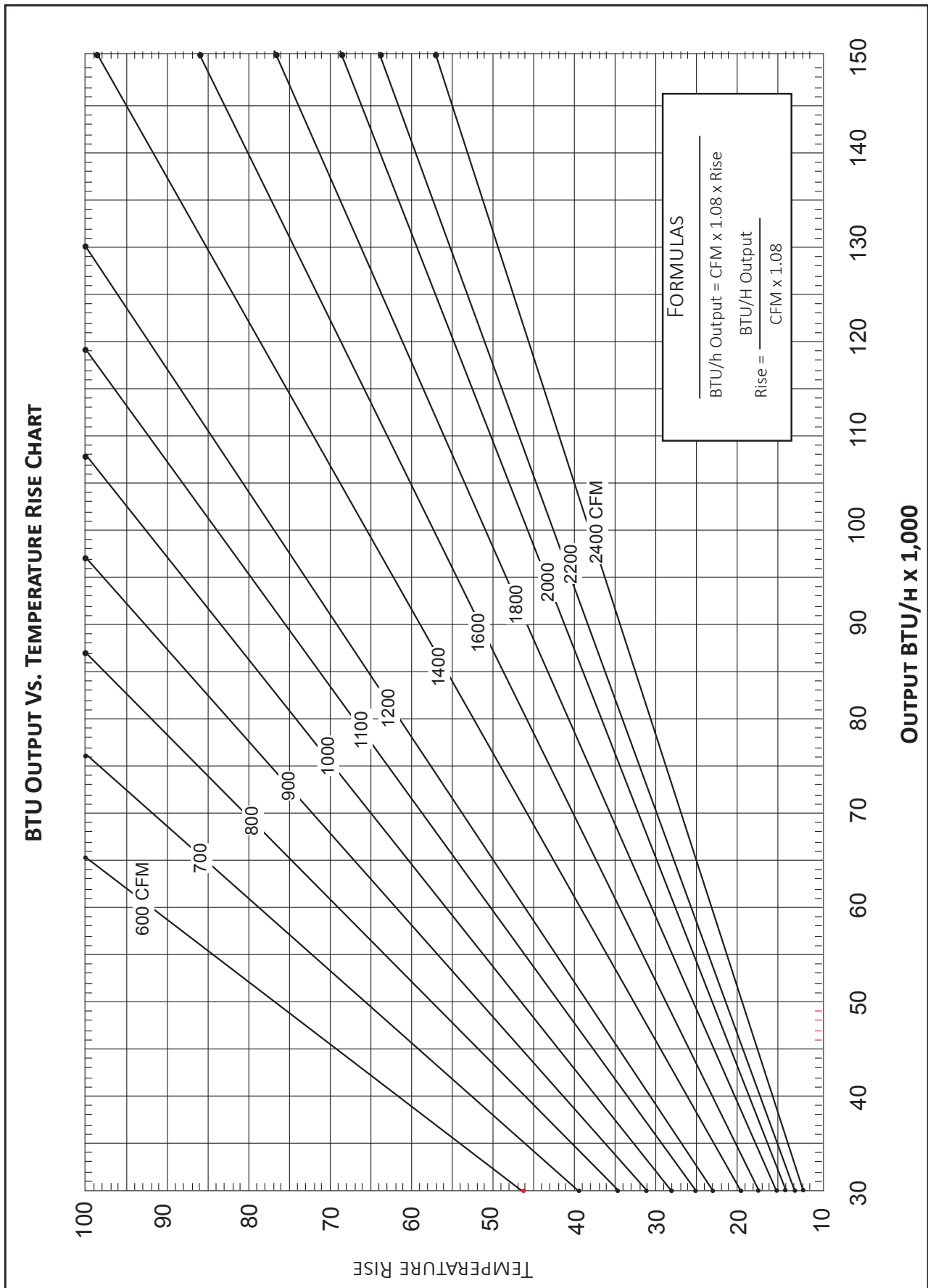
- CFM in chart is without filter(s). Filters do not ship with this furnace, but must be provided by the installer. If the furnace requires two return filters, this chart assumes both filters are installed.
- All furnaces ship as high-speed cooling and medium-speed heating. Installer must adjust blower cooling & heating 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.
- This chart is for information only. For satisfactory operation, external static pressure should not exceed value shown on the rating plate. The shaded area indicates ranges in excess of maximum static pressure allowed when heating.
- The above chart is for U.S. furnaces installed at 0-2000 feet. At higher altitudes, a properly derated unit will have approximately the same temperature rise at a particular CFM, while ESP at the CFM will be lower.

**MINIMUM FILTER SIZES**

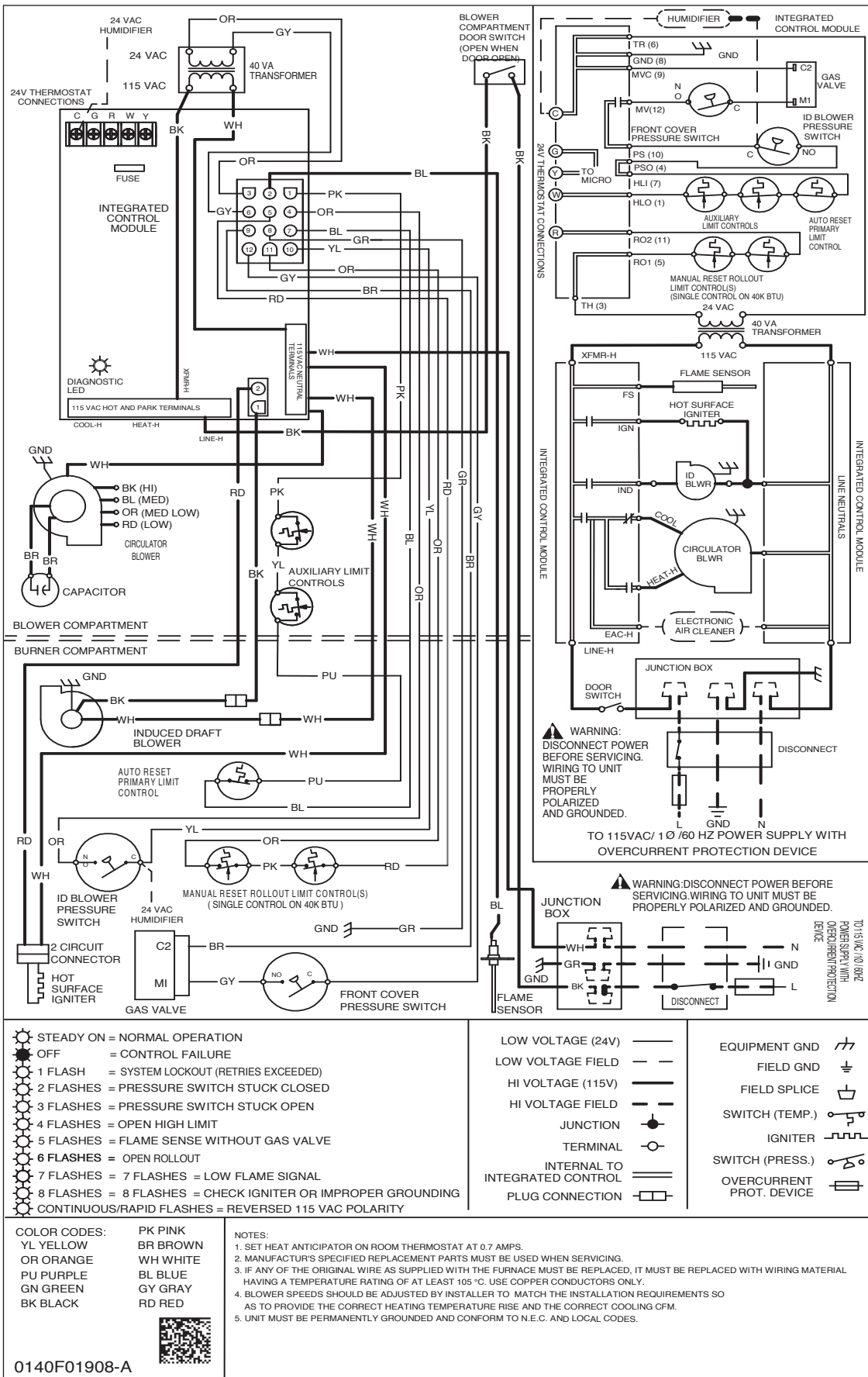
	VCSS96 0402BNA	VCSS96 0603BNA	VCSS96 0804CNA	VCSS96 1005CNA
Filter Size (in <sup>2</sup> ) (Qty)	(2) 10 x 20 or (1) 16 x 25 (top return)			(1) 14 x 20 (bottom) or (1) 20 x 25 (top return)

Note: Other size filters of equal or greater dimensions may be used. Filters may also be centrally located.





# WIRING DIAGRAM



**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	VMSS96 0402BNA	VMSS96 0603BNA	VMSS96 0803BNA	VMSS96 0804CNA	VMSS96 1005CNA
CVENT-2	Concentric Vent Kit (2")	√	√	√	√	√
CVENT-3	Concentric Vent Kit (3")	√	√	√	√	√
CFSB17	Downflow Sub-Base 17.5"	---	---	---	---	---
CFSB21	Downflow Sub-Base 21"	---	---	---	---	---
CFSB24	Downflow Sub-Base 24"	---	---	---	---	---
RF000142	Drain Kit -Horizontal Left Vertical Flue	√	√	√	√	√
EFRO2	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-4	HASFK-4	HASFK-4	HASFK-4	HASFK-4
HASFK	High-Altitude LP Gas Kit	HASFK-4,5,6	HASFK-5,6	HASFK-5,6	N/A	N/A
LPLP03	Low LP Gas Pressure Switch	√	√	√	√	√
LPM-07	LP Conversion Kits	√	√	√	√	√
FTK04	Twinning Kit	√	√	√	√	√

MODEL	DESCRIPTION	VCSS96 0402BNA	VCSS96 0603BNA	VCSS96 0804CNA	VCSS96 1005CNA
CVENT-2	Concentric Vent Kit (2")	√	√	√	√
CVENT-3	Concentric Vent Kit (3")	√	√	√	√
CFSB17	Downflow Sub-Base 17.5"	√	√	---	---
CFSB21	Downflow Sub-Base 21"	---	---	√	√
CFSB24	Downflow Sub-Base 24"	---	---	---	---
RF000142	Drain Kit -Horizontal Left Vertical Flue	---	---	---	---
EFRO2	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-4	HASFK-4	HASFK-4	HASFK-4
HASFK	High-Altitude LP Gas Kit	HASFK-5	HASFK-5	HASFK-5	HASFK-4
LPLP03	Low LP Gas Pressure Switch	√	√	√	√
LPM-07	LP Conversion Kits	√	√	√	√
FTK04	Twinning Kit	√	√	√	√

