

# PRODUCT SPECIFICATIONS



Air Conditioning & Heating

## GMS9/GCS9 SERIES 93% AFUE

### Multi-Position, Single-Stage/Multi-Speed Gas Furnace

Heating Capacity:  
46,000–115,000 BTUH



*The GMS9/GCS9 single-stage, multi-speed gas furnaces offer installation versatility.*

#### Standard Features

- Corrosion-resistant, aluminized-steel tubular heat exchanger and stainless-steel recuperative coil for maximum efficiency
- Designed for multi-position installation—GMS9: upflow, horizontal right or left; GCS9: downflow, horizontal right or left
- Energy-saving, reliable Hot Surface Ignition system, featuring a Norton® Mini-Igniter with patented adaptive learning algorithm to maximize igniter life
- Aluminized-steel inshot burners
- Energy-saving PSC, multi-speed, direct drive blower motor
- Quiet, corrosion-resistant induced draft blower assembly
- Integrated furnace control with improved diagnostics
- Low voltage terminal blocks
- Multiple flame roll-out switches, blower door safety switch, outlet air-limit switch and pressure switch for proof of combustion air
- 40VA transformer for heating and air conditioning control service
- Combination redundant gas valve and regulator
- Top venting is standard; alternate flue/vent located on right side
- Completely assembled, factory run-tested furnace for heating or combination heating/cooling application
- All models comply with California NOx Standards
- Suitable for direct vent (2-pipe) or non-direct vent (1-pipe) applications

#### Cabinet Construction

- Heavy-gauge, reinforced, fully insulated steel cabinet with durable baked-enamel finish
- Attractive architectural gray paint finish
- Foil-face insulation-lined heat exchanger compartment
- Coil and furnace fit flush for easy installation
- Convenient left or right connection for gas and electric service
- Bottom or side air inlet (GMS9)
- Removable, solid-bottom block-off (GMS9)

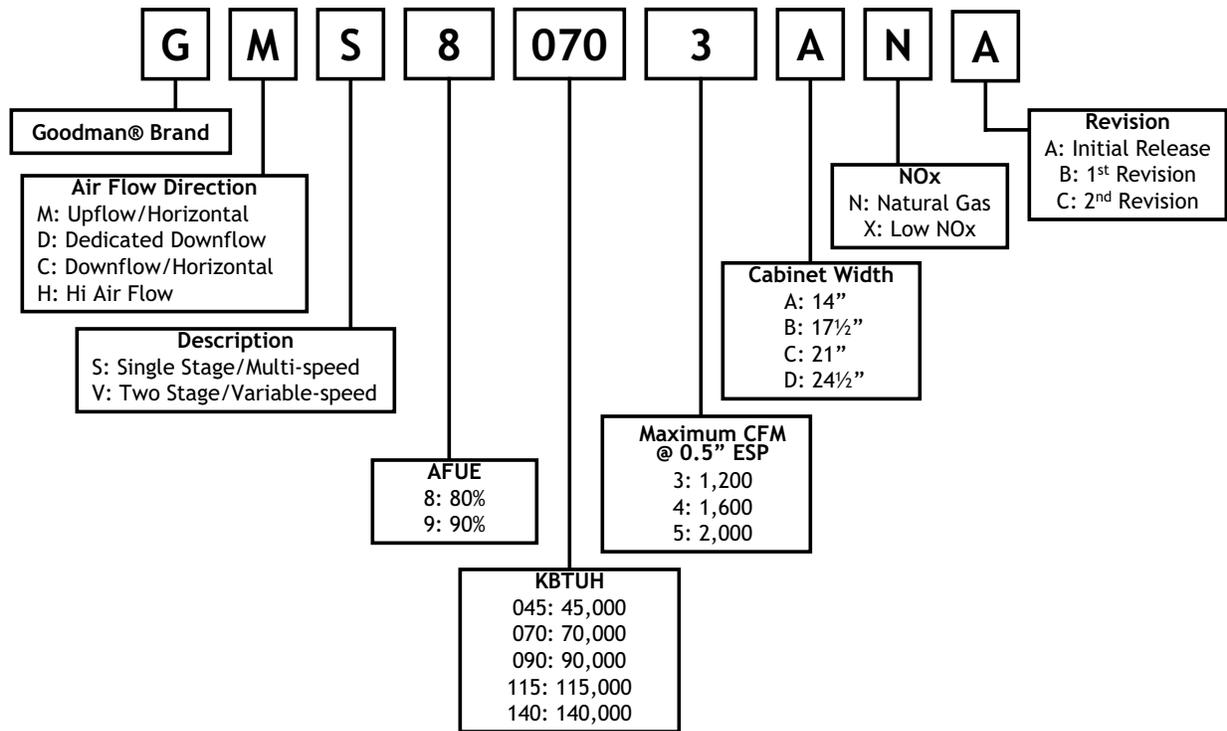
#### Accessories

- L.P. Conversion Kit (LPT-00A)
- L.P. Gas Low Pressure Kit (LPLP01)
- High Altitude Natural Gas/L.P. Kits (HANG11, HANG12, HALP10)
- High Altitude Pressure Switch Kit (HAPS27)
- External Filter Rack (EFR01)
- Horizontal Concentric Vent Kit (HCVK)
- Vertical Concentric Vent Kit (VCVK)
- Internal Filter Retention Kit—upflow, horizontal (RF000180)
- Internal Filter Retention Kit—downflow (RF000181)
- Thermostats (CHT18-60, CH70TG, CHSATG, H20TWR)



# PRODUCT SPECIFICATIONS

## Nomenclature



## PRODUCT SPECIFICATIONS

### Performance Ratings

Model	Natural Gas Input <sup>1</sup> BTUH	Output Heating Capacity BTUH		AFUE <sup>2</sup>	Tons AC @ 0.5" ESP	Temperature Rise Range (° F)
		Natural	LP			
GMS90453BXA	46,000	42,800	37,200	93.0	3.0	35 - 65
GMS90703BXA	69,000	64,400	55,800	93.0	3.0	35 - 65
GMS90904CXA	92,000	86,000	74,400	93.0	4.0	35 - 65
GMS91155DXA	115,000	106,500	93,000	93.0	5.0	35 - 65
GCS90453BXA	46,000	42,800	37,200	93.0	3.0	35 - 65
GCS90703BXA	69,000	64,400	55,800	93.0	3.0	35 - 65
GCS90904CXA	92,000	86,000	74,400	93.0	4.0	40 - 70
GCS91155DXA	115,000	106,500	93,000	93.0	5.0	40 - 70

<sup>1</sup> For altitudes above 2,000', reduce input rating 4% for each 1,000' above sea level.

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

### Specifications

Model	Circulator Blower			Vent Diameter <sup>1</sup>	No. of Burners	Filter Size (in <sup>2</sup> )		Minimum Circuit Ampacity <sup>2</sup> (amps)	Maximum Overcurrent Protection <sup>3</sup> (amps)	Shipping Weight (pounds)
	Size (D x W)	HP	Speed			Permanent	Disposable			
GMS90453BXA	10" x 7"	1/3	4	2"	2	288	576	9.0	15	132
GMS90703BXA	10" x 8"	1/3	4	2"	3	282	564	9.0	15	135
GMS90904CXA	10" x 10"	1/2	4	2"	4	376	752	8.9	15	158
GMS91155DXA	11" x 10"	3/4	4	2"	5	470	940	12.2	15	175
GCS90453BXA	10" x 7"	1/3	4	2"	2	288	576	9.0	15	132
GCS90703BXA	10" x 8"	1/3	4	2"	3	282	564	9.0	15	135
GCS90904CXA	10" x 10"	1/2	4	2"	4	376	752	8.9	15	156
GCS91155DXA	11" x 10"	3/4	4	2"	5	470	940	12.2	15	175

<sup>1</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>2</sup> Minimum Circuit Ampacity = (1.25 x Circulator Blower Amps) + ID Blower amps.

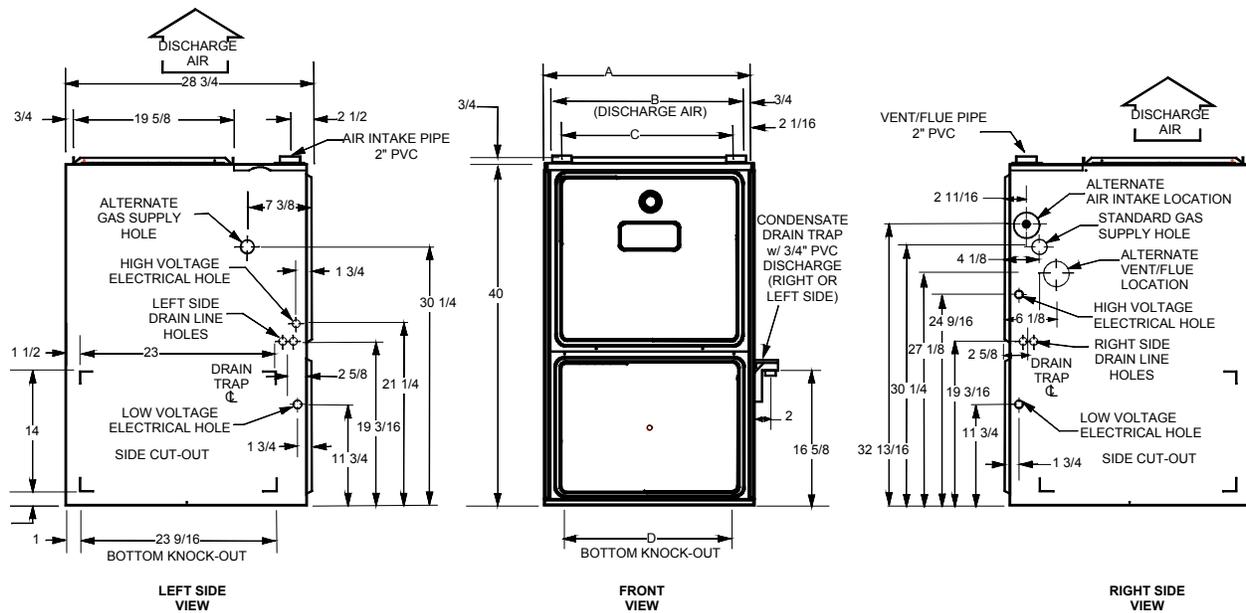
<sup>3</sup> Maximum Overcurrent Protection refers to maximum recommended fuse or circuit breaker size.

#### NOTES:

- All furnaces are manufactured for use on 115 VAC, 60 Hz, single phase electrical supply.
- Gas Service Connection ½" FPT
- Important: It is required to size overcurrent protection device and wires properly and make electrical connections in accordance with the National Electrical Code and/or all existing local codes.

# PRODUCT SPECIFICATIONS

## GMS9 Dimensions



Model	A	B	C	D
GMS90453BXA GMS90703BXA	17 1/2"	16"	12 5/8"	12 5/8"
GMS90904CXA	21"	19 1/2"	16 3/8"	14 5/8"
GMS91155DXA	24 1/2"	23"	20 3/8"	18 5/8"

### NOTES:

1. 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.
2. Line voltage wiring can enter through the right or left side of the furnace. Low voltage wiring can enter through the right or left side of furnace.
3. Conversion kits for high altitude natural gas operation are available. Contact your Goodman distributor or dealer for details.
4. Installer must supply following gas line fittings, according to which entrance is used:  
 Left—Two 90° elbows, one close nipple, straight pipe  
 Right—Straight pipe to reach gas valve

## 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"	4"

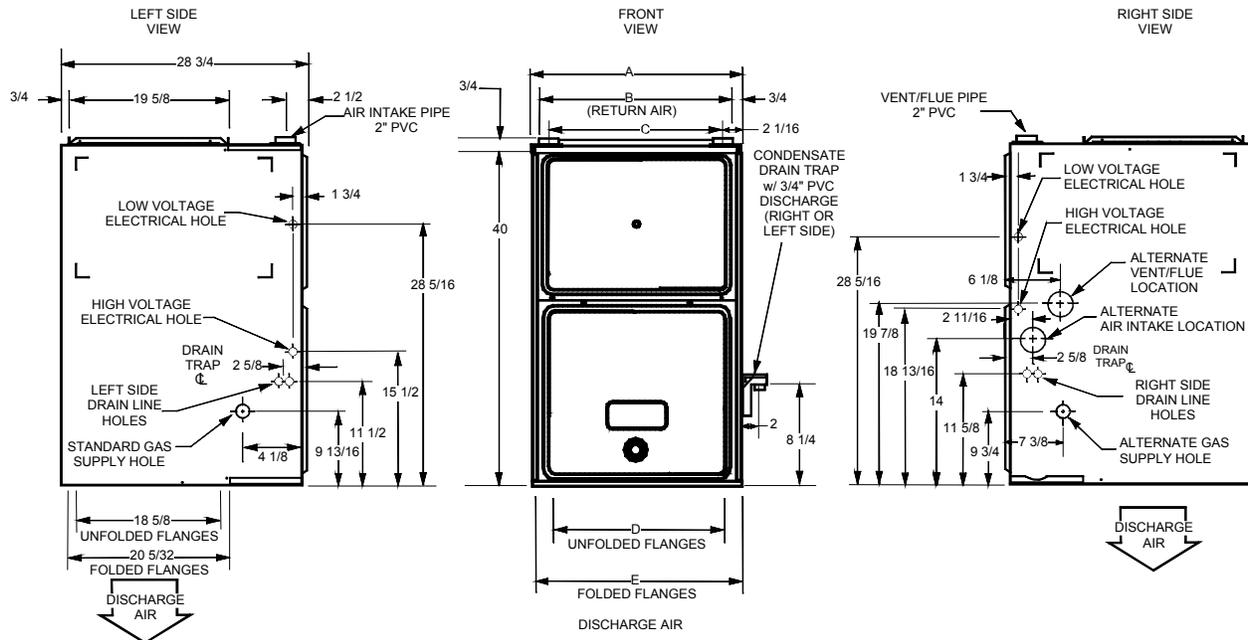
C = If placed on combustible floor, the floor MUST be wood ONLY.

### NOTES:

- For servicing or cleaning, a 36" front clearance is recommended.
- Unit connections (electrical, flue and drain) may necessitate greater clearances than the minimum clearances listed below.
- In all cases, accessibility clearance must take precedence over clearances from the enclosure where accessibility clearances are greater.

# PRODUCT SPECIFICATIONS

## GCS9 Dimensions



Model	A	B	C	D	E
GCS90453BXA	17 1/2"	16"	12 3/8"	14 1/2"	16"
GCS90703BXA	17 1/2"	16"	12 3/8"	14 1/2"	16"
GCS90904CXA	21"	19 1/2"	16 3/8"	18"	19 1/2"
GCS91155DXA	24 1/2"	23"	20 3/8"	21 1/2"	23"

### NOTES:

1. 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.
2. Line voltage wiring can enter through the right or left side of the furnace. Low voltage wiring can enter through the right or left side of furnace.
3. Conversion kits for high altitude natural gas operation are available. Contact your Goodman distributor or dealer for details.
4. Installer must supply following gas line fittings, according to which entrance is used:  
**Left**—Two 90° elbows, one close nipple, straight pipe  
**Right**—Straight pipe to reach gas valve

## Minimum Clearances to Combustible Materials

Position	Sides	Rear	Front	Bottom	Flue	Top
Downflow	0"	0"	1"	NC	0"	1"
Horizontal	6"	0"	1"	C	0"	4"

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

NC = Non-Combustible: A combustible floor subbase must be used for installation on combustible flooring

### NOTES:

- For servicing or cleaning, a 36" front clearance is recommended.
- Unit connections (electrical, flue and drain) may necessitate greater clearances than the minimum clearances listed below.
- In all cases, accessibility clearance must take precedence over clearances from the enclosure where accessibility clearances are greater.

# PRODUCT SPECIFICATIONS

## Blower Performance Specifications

Model Heating Speed As Shipped	Motor Speed	Tons AC @ 0.5" ESP	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	
G_S90453BXA (LOW)	HIGH	3.0	1,352	-----	1,318	-----	1,260	-----	1,202	-----	1,128	-----	1,044	955	853	
	MED	2.5	1,214	-----	1,172	-----	1,123	-----	1,064	-----	1,012	-----	938	859	741	
	MED-LO	2.0	997	-----	994	-----	960	35	923	36	884	38	817	741	611	
	LOW	1.5	757	44	753	44	734	45	704	47	674	49	620	524	438	
G_S90703BXA (MED-HI)	HIGH	3.0	1,449	36	1,409	37	1,326	39	1,273	41	1,201	43	1,194	1,136	1,018	
	MED	2.5	1,192	43	1,172	44	1,141	45	1,094	47	1,046	49	973	904	793	
	MED-LO	2.0	981	53	962	54	943	55	917	56	888	58	830	764	665	
	LOW	1.5	750	-----	730	-----	714	-----	692	-----	657	-----	620	570	502	
G_S90904CXA (MED-LO)	HIGH	4.0	1,970	-----	1,874	35	1,757	38	1,667	40	1,566	42	1,431	1,334	1,182	
	MED	3.5	1,713	39	1,650	40	1,572	42	1,510	44	1,418	47	1,313	1,211	1,079	
	MED-LO	3.0	1,439	46	1,412	47	1,370	48	1,327	50	1,260	53	1,166	1,078	956	
	LOW	2.5	1,183	56	1,155	57	1,122	59	1,108	60	1,062	62	1,011	931	816	
G_S91155DXA (MED-HI)	HIGH	5.0	2,134	40	2,103	40	2,029	42	1,941	44	1,906	44	1,818	1,733	1,625	
	MED	4.0	1,678	51	1,643	52	1,643	52	1,577	54	1,527	56	1,489	1,423	1,339	
	MED-LO	3.5	1,453	58	1,440	59	1,426	59	1,363	62	1,349	63	1,314	1,253	1,205	
	LOW	3.0	1,259	67	1,239	68	1,220	70	1,181	-----	1,159	-----	1,118	1,082	1,015	

### NOTES:

1. 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 returns, this chart assumes both filters are installed.
2. All furnaces ship as high speed cooling. Installer must adjust blower cooling speed as needed.
3. For most jobs, about 400 CFM per ton when cooling is desirable.
4. INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.
5. The chart is for information only. For satisfactory operation, external static pressure must not exceed value shown on the rating plate. The shaded area indicates ranges in excess of maximum static pressure allowed when heating.
6. The dashed (----) areas indicate a temperature rise not recommended for this model.
7. The above chart is for U.S. furnaces installed at 0' - 2,000'. At higher altitudes, a properly de-rated unit will have approximately the same temperature rise at a particular CFM, while ESP at the CFM will be lower.

## PRODUCT SPECIFICATIONS

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### Accessories

Model	Description	G_S90453BXA	G_S90703BXA	G_S90904CXA	G_S91155DXA
LPT-00A	L.P. Conversion Kit	✓	✓	✓	✓
LPLP01	L.P. Gas Low Pressure Kit	✓	✓	✓	✓
HANG11	High Altitude Natural Gas Kit	1	1	1	1
HANG12	High Altitude Natural Gas Kit	2	2	2	2
HALP10	High Altitude L.P. Gas Kit	3	3	3	3
HAPS27	High Altitude Pressure Switch Kit	3	3	3	3
EFR01	External Filter Rack	✓	✓	✓	✓
DCVK-20	Horizontal/Vertical Concentric Vent Kit (2")	✓	✓		
DCVK-30	Horizontal/Vertical Concentric Vent Kit (3")			✓	✓

✓ Available for this model

(1) 7,001' to 9,000'

(2) 9,001' to 11,000'

(3) 7,001' to 11,000'

**Note:** All installations above 7,000' require a pressure switch change. For installation in Canada, furnaces are certified only to 4,500'.

**Downflow Floor Base:** When the GCS9 model is installed directly on a wood floor, a downflow floor base must be used. Those model numbers are: CFB17, CFB21 and CFB24.

### Thermostats

Model	Description
CHT18-60	Cooling/Heating, Mechanical
CH70TG	Cooling/Heating, Digital, Non-programmable
CHSATG	Cooling/Heating, Mechanical
H20TWR	Heating Only, Mechanical



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