

TECHNICAL GUIDE

MODELS: GM8S-DH/LM8S-DH

GAS-FIRED HIGH EFFICIENCY SINGLE STAGE DOWNFLOW/HORIZONTAL FURNACES STANDARD & Low NOx

NATURAL GAS
40 - 130 MBH INPUT



Due to continuous product improvement, specifications are subject to change without notice.

Visit us on the web at www.york.com for the most up-to-date technical information.

Additional information can be found at www.gamanet.org.

DESCRIPTION

These high efficiency, downflow/horizontal compact units employ induced combustion, reliable hot surface ignition and high heat transfer tubular heat exchangers.

These furnaces are designed for residential installation in a closet, attic or garage and are ideal for commercial applications. All units are factory assembled, wired and tested to assure safe dependable and economical installation and operation.

These units are Category I listed and may be common vented with another gas appliance as allowed by the National Fuel Gas Code ANSI Z223.1 (latest edition).

WARRANTY

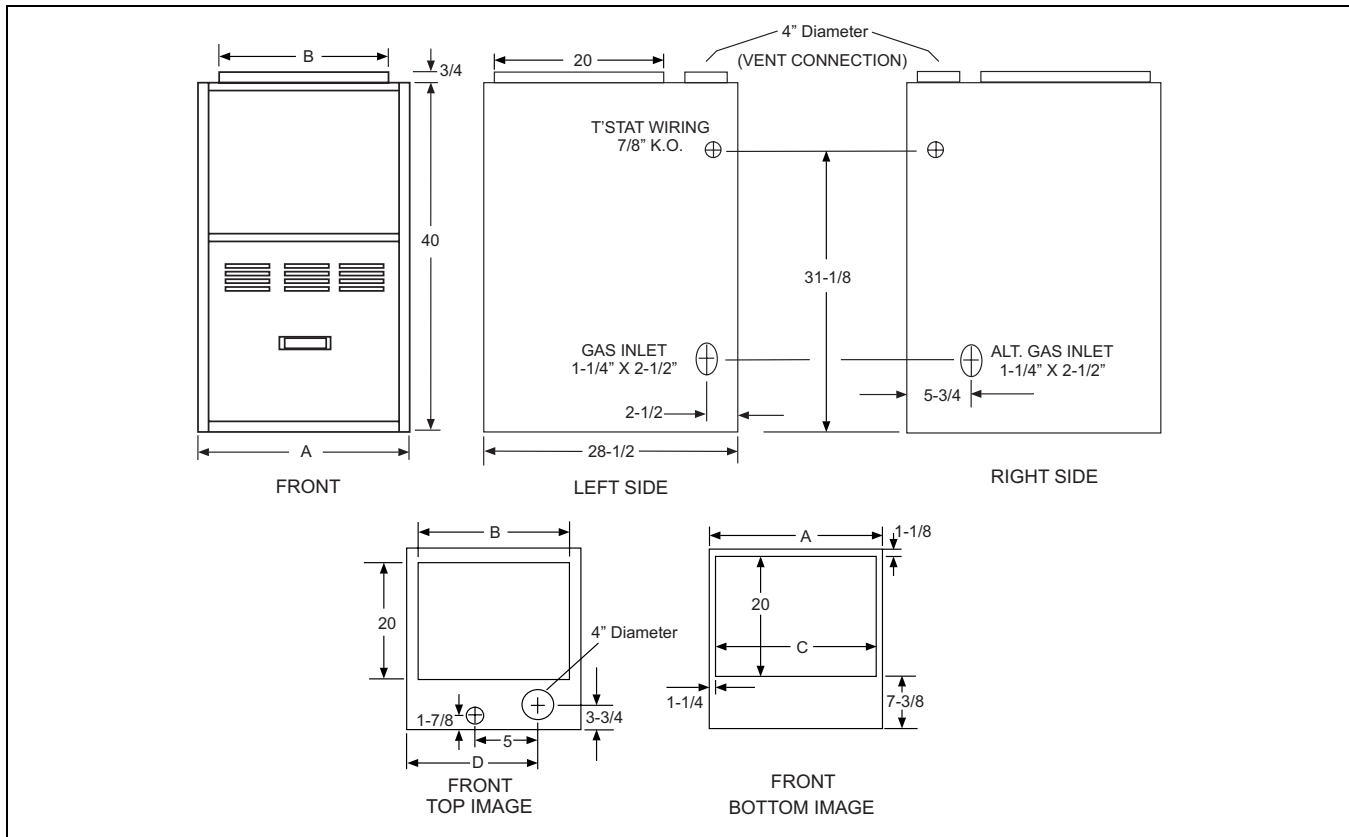
20-year limited warranty on the heat exchanger.

10-year heat exchanger warranty on commercial applications.

5-year limited parts warranty.

FEATURES

- Downflow/Horizontal models may be easily applied without any field conversion
- Top vent connection allows installation in narrow locations
- Electronic hot surface ignition with high reliability and dependability
- 100% shut off main gas valve for added safety
- High quality inducer motor for quiet operation
- Standard terminals for controlling humidifiers & EAC's
- 40 VA control transformer, fuse protected
- Easy to connect power and control wiring
- Efficiency ratings of 80 AFUE attained by using tubular heat exchangers
- Cooling relay standard for easy installation of add-on cooling
- Blower off-delay for cooling SEER improvement
- Multi-speed PSC, direct-drive blower motors to match cooling requirements
- Adjustable fan-off settings to eliminate "cold-blow"
- Compact 40-in height allows installation in small space confines
- Low NOx models have been designed to meet specific code requirements.
- All models are propane convertible.



CABINET AND DUCT DIMENSIONS

Models	CFM	Cabinet Size	Cabinet Dimension			
			A	B	C	D
(G,L)M8S040A12DH11	1200	A	14 1/2	13 1/4	12	10 3/8
(G,L)M8S060A12DN11	1200	A	14 1/2	13 1/4	12	10 3/8
(G,L)M8S080A12DH11	1200	A	14 1/2	13 1/4	12	10 3/8
(G,L)M8S080B16DH11	1600	B	17 1/2	16 1/4	15	11 3/4
(G,L)M8S080C16DH11	1600	C	21	19 3/4	18-1/2	13 1/2
(G,L)M8S100B12DH11	1200	B	17 1/2	16 1/4	15	11 3/4
(G,L)M8S100C16DH11	1600	C	21	19 3/4	18-1/2	13 1/2
(G,L)M8S100C20DH11	2000	C	21	19 3/4	18-1/2	13 1/2
(G,L)M8S115C16DH11	1600	C	21	19 3/4	18-1/2	13 1/2
(G,L)M8S115C20DH11	2000	C	21	19 3/4	18-1/2	13 1/2
(G,L)M8S130D20DH11	2000	D	24 1/2	23 1/4	22	15 1/4

RATINGS & PHYSICAL / ELECTRICAL DATA

Models	Input	Output	Nominal Airflow	Cabinet Width	Total Unit Amps	AFUE	Air Temp. Rise	
	MBH	MBH	CFM	In.			°F	
(G,L)M8S040A12DH11	40	32	1200	14-1/2	9.0	80.0	20-50	
(G,L)M8S060A12DH11	60	48	1200	14-1/2	9.0	80.0	25-55	
(G,L)M8S080A12DH11	80	64	1200	14-1/2	9.0	80.0	35-65	
(G,L)M8S080B16DH11	80	64	1600	17-1/2	12.0	80.0	25-55	
(G,L)M8S080C16DH11	80	64	1600	21	12.0	80.0	25-55	
(G,L)M8S100B12DH11	100	80	1200	17-1/2	12.0	80.0	40-70	
(G,L)M8S100C16DH11	100	80	1600	21	12.0	80.0	25-55	
(G,L)M8S100C20DH11	100	80	2000	21	14.0	80.0	25-55	
(G,L)M8S115C16DH11	115	92	1600	21	12.0	80.0	35-65	
(G,L)M8S115C20DH11	115	92	2000	21	14.0	80.0	30-60	
(G,L)M8S130D20DH11	130	104	2000	24-1/2	14.0	80.0	40-70	
Models	Input	Max. Outlet Air Temp	Blower		Blower Size	Max Over-Current Protect	Min. wire Size (awg) @ 75 ft one way	Operation Weight
	MBH	°F	Hp	Amps	In.			Lbs.
(G,L)M8S040A12DH11	40	150	1/3	6.2	10 x 8	20	14	100
(G,L)M8S060A12DH11	60	155	1/3	6.2	10 x 8	20	14	110
(G,L)M8S080A12DH11	80	165	1/3	6.2	10 x 8	20	14	120
(G,L)M8S080B16DH11	80	160	3/4	11.0	11 x 10	20	14	130
(G,L)M8S080C16DH11	80	160	3/4	11.0	10 x 10	20	14	130
(G,L)M8S100B12DH11	100	170	1/2	7.0	10 x 8	20	14	125
(G,L)M8S100C16DH11	100	155	3/4	11.0	11 X 10	20	14	140
(G,L)M8S100C20DH11	100	155	1	12.2	11 x 11	20	12	140
(G,L)M8S115C16DH11	115	165	3/4	11.0	11 x 10	20	14	150
(G,L)M8S115C20DH11	115	160	1	12.2	11 x 11	20	12	150
(G,L)M8S130D20DH11	130	170	1	12.2	11 x 11	20	12	160

Wire size and over current protection must comply with the National Electrical Code (NFPA-70-latest edition) and all local codes.

The furnace shall be installed so that the electrical components are protected from water.

Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE Test procedures.

BLOWER PERFORMANCE CFM - (WITHOUT FILTER)

MODELS	Speed	Airflow Data									
		Ext. Static Pressure (in. H2O)									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
(G,L)M8S040A12DH11	High	1620	1590	1480	1400	1310	1240	1140	1040	910	760
	Medium High	1430	1390	1340	1280	1220	1140	1050	960	820	710
	Medium Low	1210	1210	1190	1200	1100	1020	940	850	730	620
	Low	980	980	970	950	920	870	810	720	620	520
(G,L)M8S060A12DH11	High	1500	1470	1390	1320	1240	1170	1070	960	830	700
	Medium High	1380	1340	1280	1210	1150	1060	970	870	760	610
	Medium Low	1220	1200	1160	1110	1050	990	910	820	700	600
	Low	960	950	940	920	890	840	770	710	630	530
(G,L)M8S080A12DH11	High	1550	1480	1410	1330	1250	1150	1050	940	810	700
	Medium High	1400	1360	1290	1220	1150	1060	970	860	730	590
	Medium Low	1230	1210	1170	1120	1060	990	910	810	680	560
	Low	980	970	960	930	890	830	760	680	550	450
(G,L)M8S080B16DH11	High	2070	2000	1930	1850	1770	1670	1580	1470	1360	1250
	Medium	1650	1630	1610	1560	1490	1420	1360	1270	1170	1040
	Low	1410	1400	1370	1340	1320	1270	1210	1140	1050	950
(G,L)M8S080C16DH11	High	1895	1812	1736	1624	1544	1437	1311	1153	1032	836
	Medium	1726	1645	1581	1491	1412	1311	1192	1049	908	750
	Low	1561	1493	1430	1373	1304	1199	1089	967	816	699
(G,L)M8S100B12DH11	High	1710	1650	1580	1510	1420	1330	1260	1160	1090	930
	Medium High	1480	1440	1380	1330	1270	1180	1090	980	790	630
	Medium Low	1240	1230	1200	1170	1110	1030	950	850	710	600
	Low	980	980	980	970	930	890	800	720	630	530
(G,L)M8S100C16DH11	High	2210	2160	2100	2030	1940	1850	1750	1640	1520	1400
	Medium	1640	1640	1620	1590	1530	1500	1430	1360	1270	1160
	Low	1410	1410	1370	1360	1300	1260	1210	1150	1090	1010
(G,L)M8S100C20DH11	High	2400	2330	2240	2130	2030	1960	1820	1710	1570	1390
	Medium High	2130	2070	2000	1940	1840	1760	1660	1540	1420	1230
	Medium Low	1800	1760	1730	1650	1580	1510	1430	1300	1200	1030
	Low	1480	1450	1390	1360	1300	1240	1180	1080	960	860
(G,L)M8S115C16DH11	High	2210	2160	2100	2030	1940	1850	1750	1640	1520	1400
	Medium	1640	1640	1620	1590	1530	1500	1430	1360	1270	1160
	Low	1410	1410	1370	1360	1300	1260	1210	1150	1090	1010
(G,L)M8S115C20DH11	High	2400	2310	2220	2120	2010	1910	1800	1660	1520	1350
	Medium High	2090	2030	1970	1880	1790	1730	1640	1520	1370	1190
	Medium Low	1720	1690	1650	1600	1550	1460	1370	1270	1150	980
	Low	1440	1430	1400	1340	1280	1220	1140	1040	930	830
(G,L)M8S130D20DH11	High	2530	2420	2340	2250	2110	2020	1920	1750	1590	1410
	Medium High	2190	2150	2070	1970	1910	1790	1680	1550	1400	1250
	Medium Low	1800	1760	1720	1680	1610	1490	1410	1300	1160	1040
	Low	1450	1440	1410	1360	1310	1250	1170	1080	980	860

NOTES:

1. Airflow expressed in standard cubic feet per minute (CFM).
2. Motor voltage at 115 V.

HORIZONTAL SIDEWALL VENTING

For applications where vertical venting is not possible, the only approved method of horizontal venting is the use of an auxiliary power vent. Approved power venters are Fields Controls Model SWG-4Y or the appropriate Tjernlund GPAK model. Follow all application and installation details provided by the manufacturer of the power vent. This unit may be horizontally vented using 4" (10.2 cm) diameter pipe with a minimum length of 4.5 feet (1.37 m) and a maximum length of 34.5 feet (10.82 m) with up to 4 elbows.

FILTER PERFORMANCE

The airflow capacity data published in Blower Performance Tables above, represents blower performance WITHOUT filters. To determine the approximate blower performance of the system, apply the filter drop value for the filter being used or select an appropriate value from the Table below.

NOTE: The filter pressure drop values in Blower Performance Tables are typical values for the type of filter listed and should only be used as a guideline. Actual pressure drop ratings for each filter type vary between filter manufacturer.

RECOMMENDED FILTER SIZES

Cabinet Size	Top Return (in)
A	(2) 14 x 20
B	(2) 14 x 20
C	(2) 14 x 20
D	(2) 14 x 20

NOTES:

1. Air velocity through throwaway type filters may not exceed 300 feet per minute. All velocities over this require the use of high velocity filters.

FILTER PERFORMANCE - PRESSURE DROP INCHES W.C. AND (KPA)

Airflow Range	Minimum Opening Size	Filter Type		
		Disposable	Washable Fiber	Pleated
CFM	in ²	In W.C.	In W.C.	In W.C.
0 - 750	230	0.01	0.01	0.15
751 - 1000	330	0.05	0.05	0.20
1001 - 1250	330	0.10	0.10	0.20
1251 - 1500	330	0.10	0.10	0.25
1501 - 1750	380	0.15	0.14	0.30
1751 - 2000	380	0.19	0.18	0.30
2001 & Above	463	0.19	0.18	0.30

APPLYING FILTER PRESSURE DROP TO DETERMINE SYSTEM AIRFLOW

To determine the approximate airflow of the unit with a filter in place, follow the steps below:

1. Select the filter type.
2. Select the number of return air openings or calculate the return opening size in square inches to determine the proper filter pressure drop.
3. Determine the External System Static Pressure (ESP) without the filter.
4. Select a filter pressure drop from the table based upon the number of return air openings or return air opening size and add to the ESP from Step 3 to determine the total system static.
5. If total system static matches an ESP value in the airflow table (i.e. 0.20, 0.60, etc.) the system airflow corresponds to the intersection of the ESP column and Model/ Blower Speed row.
6. If the total system static falls between ESP values in the table (i.e. 0.58, 0.75, etc.), the static pressure may be rounded to the nearest value in the table determining the

airflow using Step 5 or calculate the airflow by using the following example.

Example: For a 60,000 Btuh furnace operating on high speed blower, it is found that total system static is 0.58" w.c. To determine the system airflow, complete the following steps:

1. Obtain the airflow values at 0.50" & 0.60" ESP.
Airflow @ 0.50": 1240 CFM
Airflow @ 0.60": 1170 CFM
2. Subtract the airflow @ 0.50" from the airflow @ 0.60" to obtain airflow difference.
1170 - 1240 = -70 CFM
3. Subtract the total system static from 0.50" and divide this difference by the difference in ESP values in the table, 0.60" - 0.50", to obtain a percentage.
 $(0.58 - 0.50) / (0.60 - 0.50) = 0.8$
4. Multiply percentage by airflow difference to obtain airflow reduction.
 $(0.8) \times (-70) = -56$
5. Subtract airflow reduction value to airflow @ 0.50" to obtain actual airflow @ 0.58" ESP.

UNIT CLEARANCES TO COMBUSTIBLES

Application	Top	Front	Rear	Left Side	Right Side	Flue	Floor/ Bottom	Closet	Alcove	Attic	Line Contact
	In.	In.	In.	In.	In.	In.					
Downflow	1	6	0	0	3	6	1 ¹	Yes	Yes	Yes	No
Downflow B-Vent	1	3	0	0	0	1	1 ¹	Yes	Yes	Yes	No
Horizontal	1	6	0	0	3	6	Combustible	No	Yes	Yes	Yes ²
Horizontal B-Vent	1	3	0	0	0	1	Combustible	No	Yes	Yes	Yes ²

1. Special floor base or air conditioning coil required for use on combustible floor.
2. Line contact only permitted between lines formed by the intersection of the rear panel and side panel (top in horizontal position) of the furnacejacket and building joists, studs or framing.

ACCESSORIES**PROPANE (LP) CONVERSION KIT -
1NP0347 (ALL MODELS)**

This accessory conversion kit may be used to convert natural gas units for propane (LP) operation at altitudes up to 2,000 ft. Conversion should be made by qualified distributor or dealer personnel.

COMBUSTIBLE FLOOR BASE -

1CB0314 = For 14-1/4" cabinet models

1CB0317 = For 17-1/2" cabinet models

1CB0321 = For 21" cabinet models

1CB0324 = For 24-1/2" cabinet models

HIGH ALTITUDE PRESSURE SWITCHES -

For installation where the altitude is less than 8,000 feet it is not required that the pressure switch be changed. For altitudes above 8,000 feet see kits below. Conversion must be made by qualified distributor or dealer personnel.

1PS0301 - 040, 060, 080MBH

1PS0311 - 100, 115, 130 MBH

ROOM THERMOSTATS - A wide selection of compatible thermostats are available to provide optimum performance and features for any installation.

1H/1C, manual change-over electronic non-programmable thermostat.

1H/1C, auto/manual changeover, electronic programmable, deluxe 7-day, thermostat.

1H/1C, auto/manual changeover, electronic programmable.

* For the most current accessory information, refer to the price book or consult factory.

NOTES

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279748-BTG-A-0407
Supersedes: 246795-BTG-C-0706

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