

LUXAIRE®

Heating ■ Air Conditioning

TECHNICAL GUIDE

80 AFUE DELUXE TWO STAGE DOWNFLOW GAS-FIRED FURNACES

57-120 MBH INPUT
MID-EFFICIENCY
INDUCED COMBUSTION



MODELS: G8D-DN

DESCRIPTION

These high efficiency, compact units employ induced combustion, reliable hot surface ignition and high heat transfer tubular heat exchangers. The units are factory shipped for installation in down-flow applications.

These furnaces are designed for residential installation in a basement, closet, alcove, attic, recreation room or garage and are also 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.

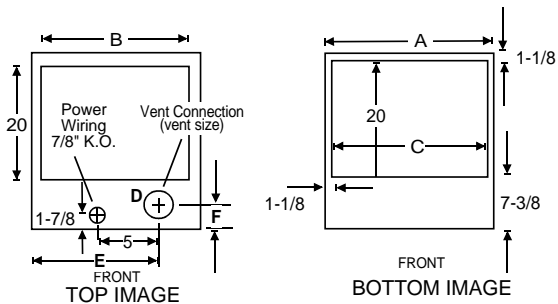
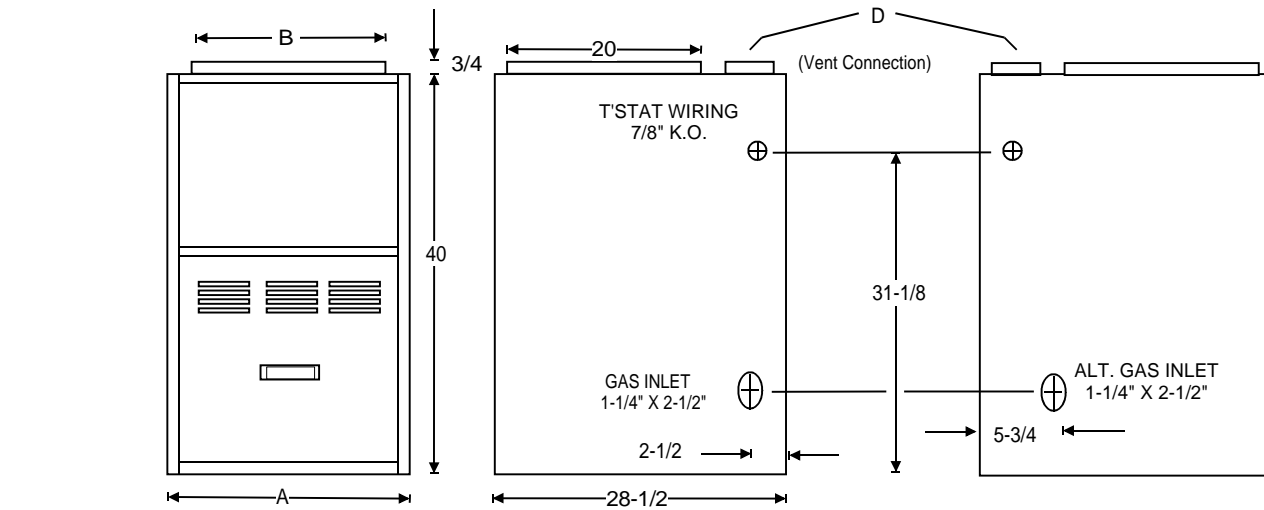
10-year heat exchanger warranty on commercial applications.

5-year limited parts warranty.

FEATURES

- Two stage heating operation includes:
 - Two stage gas valve
 - Two stage inducer operation
 - Two speed blower operation
 This provides both increased comfort level and very quiet unit operation
- Delay timer allows two stage operation with single stage thermostat
- Acoustically insulated blower compartment for reduced blower sound level
- Humidifier and Electronic Air Cleaner control wires are provided to the power wiring box for easy field connection.
- 100% shut off main gas valve for added safety
- Rollout safety control
- Low unit amp requirement for easy replacement application
- High quality two speed inducer motor for quiet operation
- Built-in self diagnostics with fault code display
- High velocity filter provided for field installation
- 40 VA control transformer fuse protected
- Cooling relay supplied for easy installation of add-on cooling
- Multi-speed PSC, direct-drive blower motor to match cooling requirements
- Adjustable fan-off settings to eliminate "cold-blow"
- Compact 40-in. height allows installation in small space confines
- All models are propane convertible





| Downflow Models G8D-DN | A | B | C | D | E | F |
|------------------------|--------|--------|--------|---|--------|-------|
| G8D06012DNA11 | 14-1/2 | 13-1/4 | 12-1/4 | 4 | 10-1/8 | 3-3/4 |
| G8D08012DNA11 | 14-1/2 | 13-1/4 | 12-1/4 | 4 | 10-1/8 | 3-3/4 |
| G8D08016DNB11 | 17-1/2 | 16-1/4 | 15-1/4 | 4 | 11-5/8 | 3-3/4 |
| G8D10012DNB11 | 17-1/2 | 16-1/4 | 15-1/4 | 4 | 11-5/8 | 3-3/4 |
| G8D12020DNC11 | 21 | 19-3/4 | 18-3/4 | 4 | 13-3/8 | 3-3/4 |

All dimensions are in inches, and are approximate.

RATINGS & PHYSICAL / ELECTRICAL DATA

| Downflow Models G8D-DN | INPUT MBH H/L | OUTPUT MBH H/L | NOM. CFM | AFUE* | LOW FIRE TEMP RISE °F | HIGH FIRE TEMP RISE °F | MAX. OUTL ET AIR TEMP °F | BLOWER | | | TOTAL UNIT AMPS | MAX. OVER-CURRENT PROTECT† | MIN WIRE SIZE (AWG) @ 75 FT. ONE WAY† | OPER WGT. (LBS) |
|------------------------|---------------|----------------|----------|-------|-----------------------|------------------------|--------------------------|--------|------|-----------|-----------------|----------------------------|---------------------------------------|-----------------|
| | | | | | | | | HP | AMPS | SIZE (IN) | | | | |
| G8D06012DNA11 | 57/42 | 46/34 | 1200 | 80.0 | 20 - 50 | 30 - 60 | 160 | 1/3 | 6.2 | 10 x 8 | 9.0 | 20 | 14 | 110 |
| G8D08012DNA11 | 80/59 | 64/48 | 1200 | 80.0 | 25 - 55 | 30 - 60 | 160 | 1/3 | 6.2 | 10 x 8 | 9.0 | 20 | 14 | 120 |
| G8D08016DNB11 | 80/59 | 64/48 | 1600 | 80.0 | 20 - 50 | 25 - 55 | 160 | 3/4 | 11.0 | 11 x 10 | 12.0 | 20 | 14 | 130 |
| G8D10012DNB11 | 100/65 | 80/52 | 1200 | 80.0 | 25 - 55 | 40 - 70 | 170 | 1/2 | 7.0 | 10 x 8 | 12.0 | 20 | 14 | 125 |
| G8D12020DNC11 | 120/78 | 96/64 | 2000 | 80.0 | 25 - 55 | 30 - 60 | 160 | 1 | 12.2 | 11 x 10 | 14.0 | 20 | 12 | 150 |

- *. AFUE numbers are determined in accordance with DOE test procedures.
- †. Wire size and overcurrent protection must comply with the National Electrical Code (NFPA-70-latest edition).
- For altitudes above 2,000 ft., reduce capacity 4% for each 1,000 ft. above sea level. Refer to Form 650.74-N1.1V.
- Wire size based on copper conductors, 60° C, 3% voltage drop.
- Continuous return air temperature must not be below 55° F.

BLOWER PERFORMANCE - DOWNFLOW - CFM (WITHOUT FILTERS*)

NOTE: Data below reflects air flows with single return opening, either left or right side or bottom

| MODELS: G8D-DN† | SPEED TAP | EXTERNAL STATIC PRESSURE, INCHES W.C. | | | | | | | | | |
|--|-----------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | | 0.10 | 0.20 | 0.30 | 0.40 | 0.50 | 0.60 | 0.70 | 0.80 | 0.90 | 1.00 |
| 60 / 48 / 1200 / "A" 80 / 64 / 1200 / "A" | HIGH | 1580 | 1540 | 1475 | 1405 | 1305 | 1230 | 1130 | 1015 | 855 | 695 |
| | MED-HIGH | 1140 | 1125 | 1110 | 1075 | 1035 | 980 | 920 | 815 | 700 | 570 |
| | MED-LOW | 870 | 860 | 840 | 815 | 770 | 725 | 675 | 600 | 530 | 425 |
| | LOW | 695 | 675 | 655 | 635 | 610 | 575 | 530 | 470 | 400 | 290 |
| 100 / 80 / 1200 / "B" | HIGH | 1775 | 1720 | 1660 | 1585 | 1510 | 1420 | 1315 | 1195 | 1055 | 865 |
| | MED | 1380 | 1360 | 1350 | 1330 | 1280 | 1230 | 1150 | 1050 | 920 | 760 |
| | LOW | 1030 | 1015 | 1000 | 985 | 965 | 950 | 895 | 805 | 710 | 595 |
| 80 / 64 / 1600 / "B" | HIGH | 2110 | 2050 | 1995 | 1910 | 1840 | 1780 | 1690 | 1610 | 1515 | 1415 |
| | MED | 1895 | 1860 | 1825 | 1765 | 1700 | 1630 | 1560 | 1495 | 1410 | 1310 |
| | LOW | 1690 | 1675 | 1660 | 1605 | 1550 | 1490 | 1440 | 1360 | 1280 | 1200 |
| 115 / 92 / 2000 / "C" | HIGH | 2515 | 2440 | 2355 | 2265 | 2190 | 2100 | 1990 | 1875 | 1740 | 1600 |
| | MED | 2085 | 2070 | 2040 | 2000 | 1925 | 1850 | 1765 | 1660 | 1555 | 1430 |
| | LOW | 1720 | 1710 | 1695 | 1685 | 1625 | 1580 | 1515 | 1440 | 1345 | 1215 |

* . Airflow is expressed in standard cubic feet per minute.

Motor voltage at 115V

† . Input / Output / CFM / Cabinet Width (A = 14-1/2, B = 17-1/2, C = 21, D = 24-1/2)

- Airflow is expressed in standard cubic feet per minute.
- Motor voltage at 115V

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.

FILTER PERFORMANCE - PRESSURE DROP INCHES W.C.

| Airflow Range | Minimum Opening Size (in. ²) | | Filter Type | | | | | |
|---------------|---|------------|-------------|------------|------------|------------|-----------|------------|
| | | | Disposable | | Hogs Hair* | | Pleated | |
| | 1 Opening | 2 Openings | 1 Opening | 2 Openings | 1 Opening | 2 Openings | 1 Opening | 2 Openings |
| 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 | 658 | 0.15 | 0.09 | 0.14 | 0.08 | 0.30 | 0.17 |
| 1751 - 2000 | 380 | 658 | 0.19 | 0.11 | 0.18 | 0.10 | 0.30 | 0.17 |
| 2001 & Above | 463 | 658 | 0.19 | 0.11 | 0.18 | 0.10 | 0.30 | 0.17 |

* . Hogs Hair Filters are the type supplied with furnace (if supplied).

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 a 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 120,000 Btuh furnace with 2 return openings and 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": 2130 CFM
 Airflow @ 0.60": 2050 CFM
2. Subtract the airflow @ 0.50" from the airflow @ 0.60" to obtain airflow difference.
 2050 - 2130 = -80 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.
 $(0.8) \times (-80) = -64$
5. Subtract airflow reduction value from airflow @ 0.50" to obtain actual airflow @ 0.58" ESP.
 2130 - 64 = 2066

FILTER SIZE/ADD-ON COOLING

| Model | Filter Size | Add-On Cooling | |
|---------------|-------------|----------------|---------------|
| | | Tons | CFM @ .5 ESP* |
| G8D06012DNA11 | (2) 14 x 20 | 1, 1-1/2, 2 | 1305 |
| G8D08012DNA11 | (2) 14 x 20 | 2, 2-1/2, 3 | 1305 |
| G8D08016DNB11 | (2) 14 x 20 | 3, 3- 1/2, 4 | 1840 |
| G8D10012DNB11 | (2) 14 x 20 | 2, 2-1/2, 3 | 1510 |
| G8D12020DNC11 | (2) 14 x 20 | 3, 3-1/2, 4 | 2190 |

*. ESP (External Static Pressure).5" W.C. is at furnace outlet ahead of cooling coil, and includes filter.

UNIT CLEARANCES TO COMBUSTIBLES (ALL DIMENSIONS IN INCHES)

(All surfaces identified with the unit in an upflow configuration)

| APPLICATION | TOP | FRONT | REAR | LEFT SIDE | RIGHT SIDE | FLUE | FLOOR/ BOTTOM | CLOSET | ALCOVE | ATTIC | LINE CONTACT |
|--------------------------------------|-----|-------|------|-----------|------------|------|---------------|--------|--------|-------|--------------|
| DOWNFLOW MODELS P*DD / G8D-DN | | | | | | | | | | | |
| DOWNFLOW | 1 | 6 | 0 | 0 | 3 | 6 | 1* | YES | YES | YES | NO |
| DOWNFLOW B-VENT | 1 | 3 | 0 | 0 | 0 | 1 | 1* | YES | YES | YES | NO |

*. Special floor base or air conditioning coil required for use on combustible floor.

ACCESSORIES

Propane Conversion Kits – 1NP0480

These accessory conversion kits may be used to convert natural gas units for propane (LP) operation. Conversions must be made by qualified distributor or dealer personnel.

High Altitude Pressure Switch Kits

These accessory kits may be used to convert units for high altitude operation. Conversion must be made by qualified distributor or dealer personnel.

| KIT | APPLICATION | MODELS |
|---------|-------------------|---------------|
| 1PS0313 | 2000 - 10,000 FT | G8D06012DNA11 |
| | | G8D08012DNA11 |
| | | G8D08016DNB11 |
| | | G8D10012DNB11 |
| 1PS0314 | 2000 - 10,000 FT. | G8D12020DNC11 |

NOTES: For high altitude conversion, an orifice change may also be required. See Form 650.77-N1.1V for application information.

Combustible Floor Base

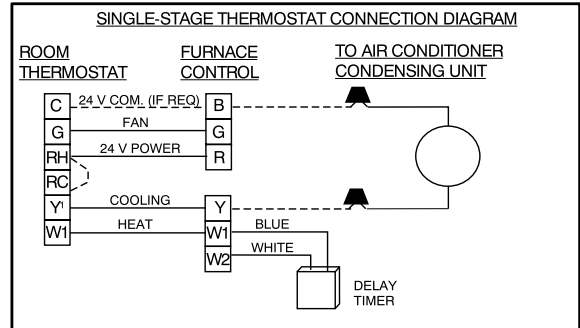
1CB0314 - for 14-1/2" cabinet models

1CB0317 - for 17-1/2" cabinet models

1CB0321 - for 21" cabinet models

FIELD WIRING DIAGRAMS

SINGLE STAGE THERMOSTAT



TWO STAGE THERMOSTAT

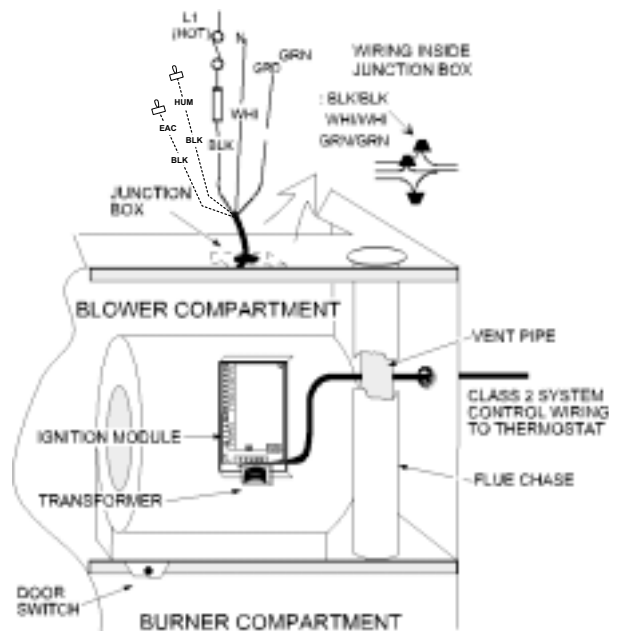
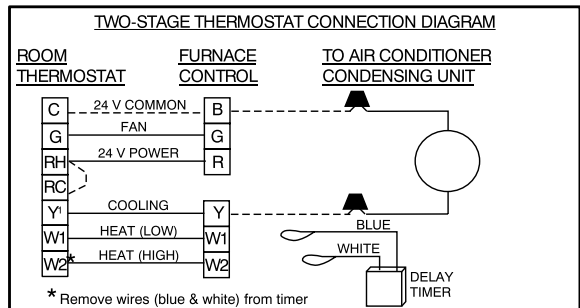


FIGURE 1 : DOWNFLOW MODELS (P*DD & G8D-DN) ELECTRICAL WIRING

NOTES

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NOTES

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