Goodman®

Air Conditioning & Heating

# Product Specifications

*10.3 EER*

# PGC Commercial

## 7½ to 10 Ton

## Packaged Gas/Electric

**Cooling Capacity**
**86,000 - 116,000 BTU/h**

**Heating Capacity**
**193,000 - 225,000 BTU/h**

The Goodman® PGC Commercial Packaged Gas/Electric Unit features high-efficiency cooling and heating performance and low operating costs. This unit allows for ground-level or rooftop-mount and over/under or downflow applications. Its control box and compressors are easily accessible from side access panels. The PGC Commercial unit is housed in a heavy-gauge, galvanized-steel cabinet with a UV-resistant powder-paint finish.

### Standard Features

- Dual high-efficiency scroll compressors with internal motor protection (two-stage cooling)
- Heavy-gauge aluminized-steel, tubular heat exchanger cells
- Combination redundant gas valve and regulator
- Two independent condenser coils for two-stage operation
- Power-assisted combustion
- Compressor grommets for vibration isolation
- Integrated DSI Ignition Control
- Centrifugal fan for quiet and efficient operation
- Time delay for compressors' sequence
- Copper tube/aluminum fin coil
- Totally enclosed, permanently lubricated outdoor fan motors
- Fully charged R-22 systems
- High- and low-pressure controls on all systems
- Low ambient switch
- Expansion valve evaporator coil
- Reliable two-stage heating
- Belt-driven, variable-pitch sheave permits multi-speed adjustment

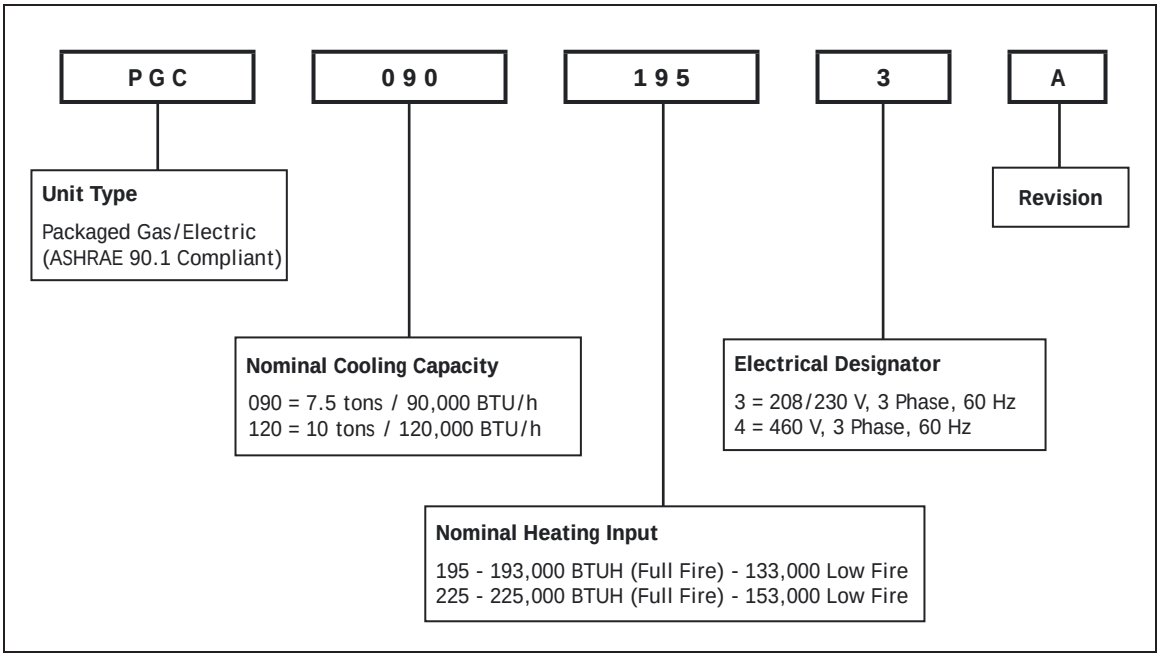
### Cabinet Features

- Heavy-gauge, galvanized-steel cabinet with attractive Architectural Gray powder-paint finish
- Factory wiring conveniently arranged to install accessories
- Vertical discharge with removable grilles provide easy access to fans and motors
- Galvanized-steel, powder-coated drain pan with ¾" NPT condensate connection
- Base rails with fork slots for convenient handling and added rigidity
- Built-in filter rack holds 2" disposable filters (included)

### Accessories

- See list of accessories on Page 10.

# NOMENCLATURE



# SPECIFICATIONS

| | PGC090195-3 | PGC090195-4 | PGC120225-3 | PGC120225-4 |
|---|---|---|---|---|
| **Cooling Capacity** | | | | |
| Total BTU/h | 86,000 | 86,000 | 116,000 | 116,000 |
| Sensible BTU/h | 63,600 | 63,600 | 85,000 | 85,000 |
| EER [2] | 10.3 | 10.3 | 10.3 | 10.3 |
| IPLV [3] | 10.7 | 10.7 | 10.7 | 10.7 |
| **Heating Capacity** | | | | |
| Max. Input BTU/h | 193,000 | 193,000 | 225,000 | 225,000 |
| Min. Input BTU/h | 133,000 | 133,000 | 153,000 | 153,000 |
| Output BTU/h | 154,400 | 154,400 | 180,000 | 180,000 |
| AFUE | 80% | 80% | 80% | 80% |
| Temperature Rise Range (°F) | 35-65 | 35-65 | 30-60 | 30-60 |
| **Indoor Blowers (2)** | | | | |
| Type | Belt | Belt | Belt | Belt |
| Wheel (D x W) | 12” x 12” | 12” x 12” | 12” x 15” | 12” x 15” |
| Indoor Nominal CFM | 3,000 | 3,000 | 3,800 | 3,800 |
| Horsepower | 1½ | 1½ | 3 | 3 |
| **Evaporator Coil (1)** | | | | |
| Face Area (ft²) | 11.2 | 11.2 | 14 | 14 |
| Rows Deep/ Fins per Inch | 3/ 16 | 3/ 16 | 3/ 16 | 3/ 16 |
| Tube Diameter - Material | ⅜” - Copper | ⅜” - Copper | ⅜” - Copper | ⅜” - Copper |
| Filter Size (ft²) / Quantity | 25 x 25 x 2 / 3 | 25 x 25 x 2 / 3 | 16 x 25 x 2 / 3 | 16 x 25 x 2 / 3 |
| | — | — | 20 x 25 x 2 / 3 | 20 x 25 x 2 / 3 |
| **Condenser Fans (2) / Coil (1)** | | | | |
| Horsepower | ½ | ½ | ½ | ½ |
| Fan Diameter | 24” | 24” | 24” | 24” |
| Outdoor Nominal CFM | 5,500 | 5,500 | 6,400 | 6,400 |
| Face Area (ft²) | 15.6 | 15.6 | 23.8 | 23.8 |
| Rows Deep/ Fins per Inch | 2/ 21 | 2/ 21 | 2/ 21 | 2/ 21 |
| Tube Diameter - Material | ⅜” - Copper | ⅜” - Copper | ⅜” - Copper | ⅜” - Copper |
| **Electrical Data** | | | | |
| Voltage-Phase | 208/230-3 | 460-3 | 208/230-3 | 460-3 |
| Compressor RLA/ LRA | 12.5/ 88 | 5.9/ 44 | 17.4/ 123 | 6.8/ 49.5 |
| Indoor Blower FLA | 4.2 | 2.1 | 8.4 | 4.2 |
| Outdoor Blower FLA | 2.6 | 1.3 | 2.6 | 1.3 |
| Min. Circuit Ampacity [4] | 38.1 | 18.2 | 54.5 | 22.5 |
| Max. Overcurrent Device [5] | 60 | 30 | 70 | 35 |
| **Operating Weight (lbs)** | 1,080 | 1,080 | 1,380 | 1,380 |
| **Ship Weight (lbs)** | 1,100 | 1,100 | 1,400 | 1,400 |

[1] Sensible capacity is gross, with no deduction for indoor motor heat
[2] BTU/Watt @ 80/ 67° F inside; 95° F outside air
[3] IPLV = Integrated Part Load Valve
[4] Wire size should be determined in accordance with National Electrical Codes. Extensive wire runs will require larger wire sizes.
[5] HACR breakers may be used in place of fuses up to 60 amps

# DIMENSIONS

All dimensions in inches; no scale.

**Figure 1. Vertical discharge**

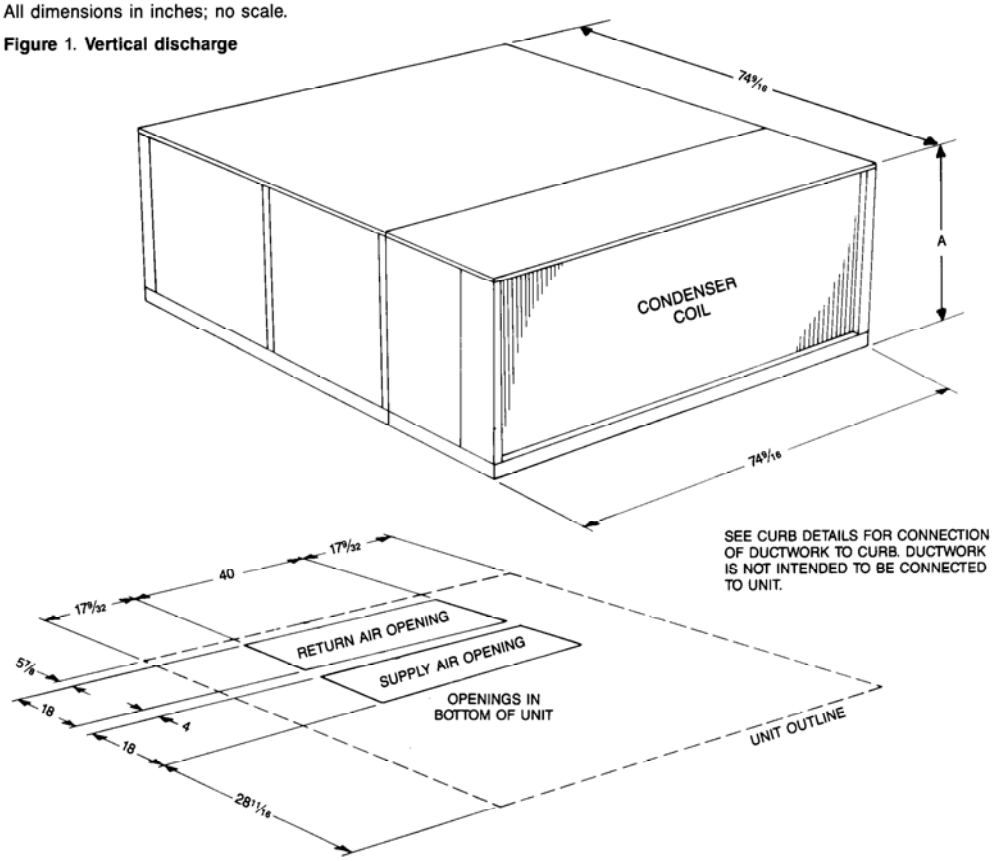
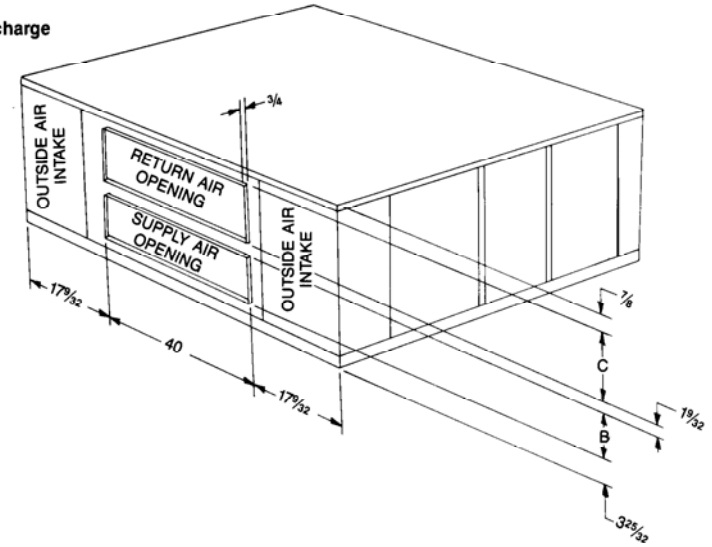



**Figure 2. Horizontal discharge**

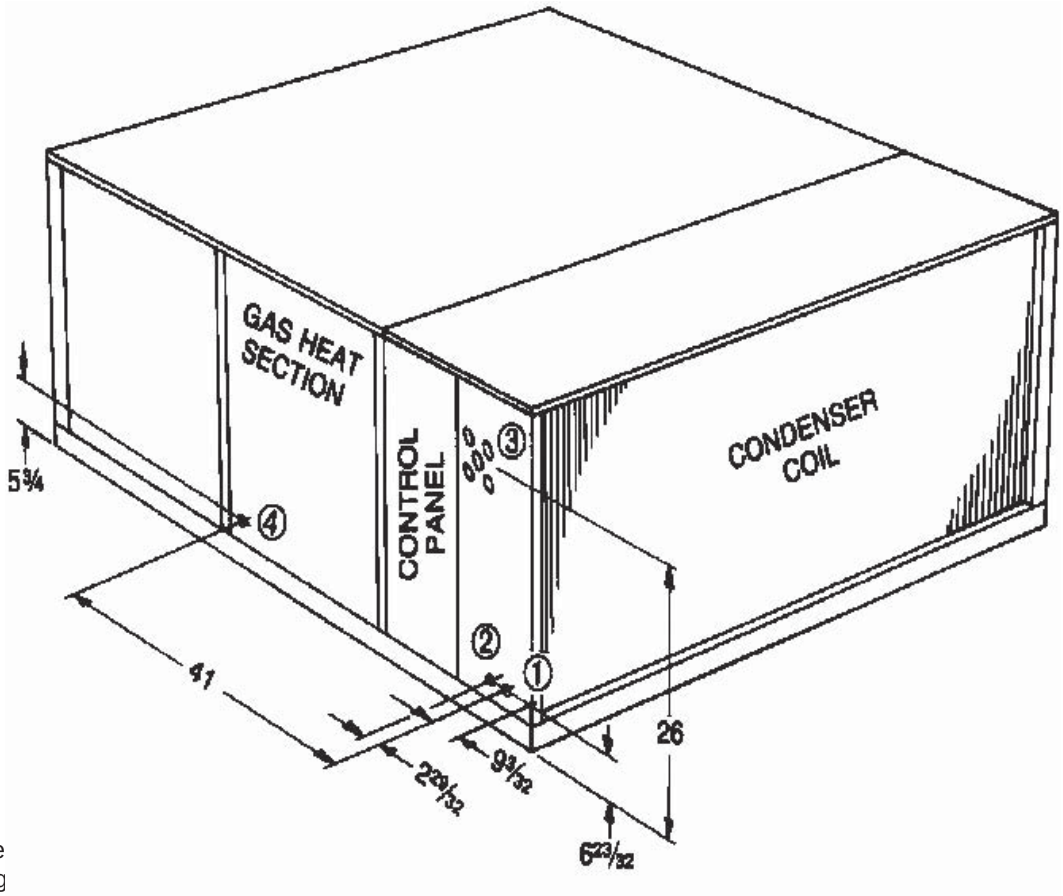
**(Kit Required)**




| Unit Size | A (Height) | B (Supply Air) | C (Return Air) |
|---|---|---|---|
| PGC090-X | 36” | “12½” | “179/16” |
| PGC120-X | 52” | “20¼” | “2513/16” |

X= Electrical Designation

# DIMENSIONS—ELECTRICAL CONNECTIONS

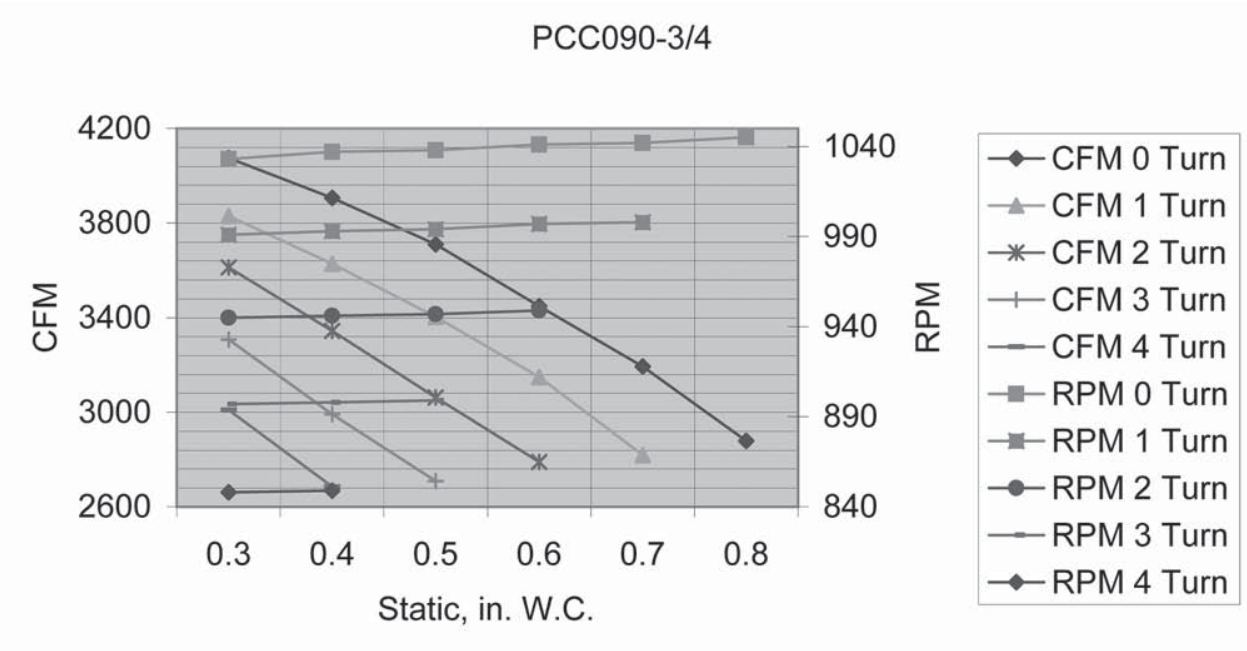


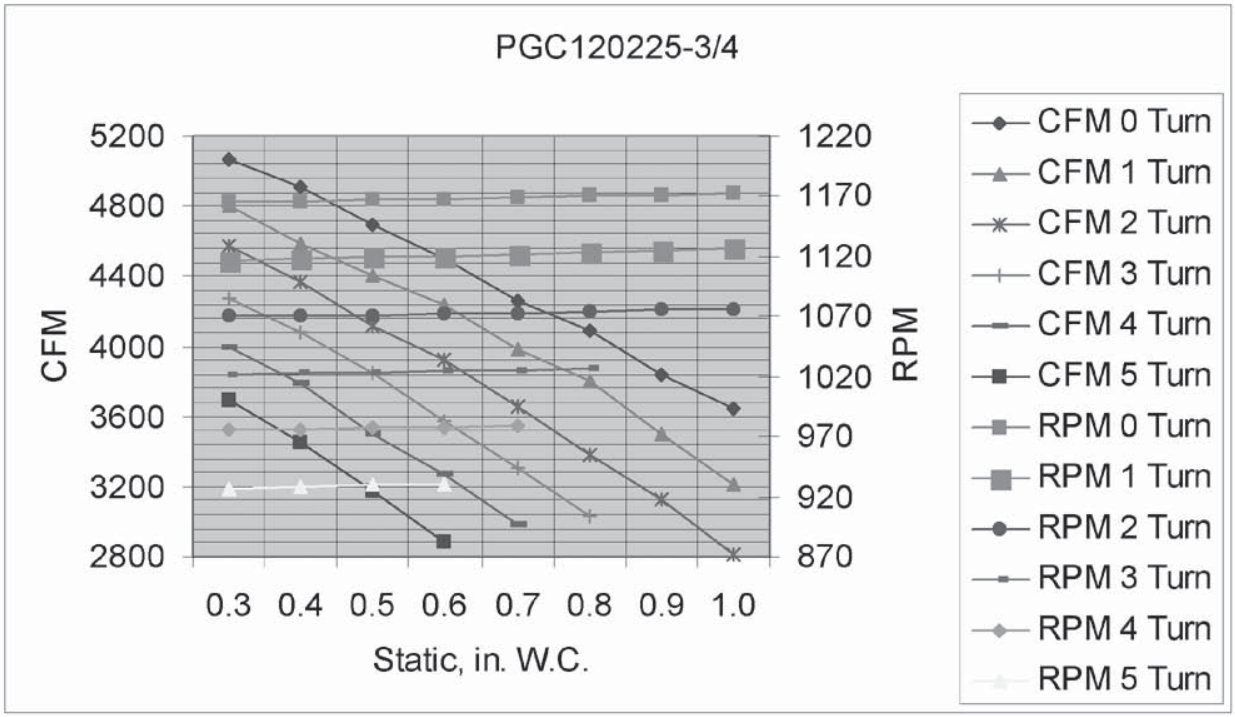

1. Main power e
2. Control wiring
3. Optional field-installed internal disconnect switch
4. Gas piping entrance location

## GAS PIPING CONNECTION SIZE

| Furnace Size | Female NPT |
|---|---|
| 195 | 3/4” |
| 225 | |

# FAN PERFORMANCE DATA



# COMPONENT PRESSURE DROPS

| Model | CFM | Wet Coil | Gas Furnace Section | | Med. Efficiency Filters | Econo. Return Air Damper |
|---|---|---|---|---|---|---|
| | | | 195 | 225 | | |
| PGC090-X | 2600 | 0.06 | 0.1 | - | 0.03 | 0.14 |
| | 3000 | 0.06 | 0.14 | - | 0.04 | 0.14 |
| | 3400 | 0.07 | 0.17 | - | 0.05 | 0.18 |
| PGC120-X | 3600 | 0.05 | - | 0.13 | 0.03 | 0.14 |
| | 4000 | 0.05 | - | 0.16 | 0.04 | 0.14 |
| | 4400 | 0.05 | - | 0.19 | 0.04 | 0.14 |

# COOLING CAPACITY DATA

### PGC090-X @ 3,000 CFM

| AMB.˚ F | EVAP. EAT | 75˚ F DB | | | 80˚ F DB | | | 85˚ F DB | | | 90˚ F DB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KW | MBHT | MBHS | KW | MBHT | MBHS | KW | MBHT | MBHS | KW | MBHT | MBHS |
| 85 | 61 WB | 7.6 | 83.8 | 72.1 | 7.6 | 85.7 | 84.8 | 7.7 | 90.6 | 90.6 | 7.7 | 95.5 | 95.5 |
| | 64 WB | 7.7 | 88.7 | 63.3 | 7.7 | 88.7 | 77.9 | 7.7 | 90.6 | 90.6 | 7.7 | 95.5 | 95.5 |
| | 67 WB | 7.7 | 94.5 | 54.6 | 7.7 | 94.5 | 69.2 | 7.7 | 94.5 | 82.8 | 7.8 | 95.5 | 95.5 |
| | 70 WB | 7.8 | 100.3 | 45.8 | 7.8 | 100.3 | 60.4 | 7.8 | 100.3 | 74.0 | 7.8 | 100.3 | 88.7 |
| | 73 WB | 7.8 | 106.2 | 37.0 | 7.8 | 106.2 | 51.6 | 7.8 | 106.2 | 65.3 | 7.9 | 106.2 | 79.9 |
| 90 | 61 WB | 7.8 | 81.8 | 71.1 | 7.9 | 83.8 | 83.8 | 8.0 | 88.7 | 88.7 | 8.0 | 94.5 | 94.5 |
| | 64 WB | 8.0 | 86.7 | 62.4 | 8.0 | 87.7 | 77.0 | 8.0 | 88.7 | 88.7 | 8.0 | 94.5 | 94.5 |
| | 67 WB | 8.1 | 92.5 | 53.6 | 8.1 | 92.5 | 68.2 | 8.1 | 92.5 | 82.8 | 8.1 | 94.5 | 94.5 |
| | 70 WB | 8.1 | 97.4 | 44.8 | 8.1 | 97.4 | 59.4 | 8.1 | 98.4 | 74.0 | 8.2 | 98.4 | 87.7 |
| | 73 WB | 8.2 | 103.3 | 36.0 | 8.2 | 103.3 | 50.7 | 8.2 | 105.2 | 64.3 | 8.4 | 103.3 | 78.9 |
| 95 | 61 WB | 8.2 | 80.9 | 71.1 | 8.3 | 82.8 | 82.8 | 8.3 | 87.7 | 87.7 | 8.4 | 93.5 | 93.5 |
| | 64 WB | 8.3 | 85.7 | 62.4 | 8.3 | 85.7 | 76.0 | 8.3 | 87.7 | 87.7 | 8.4 | 93.5 | 93.5 |
| | 67 WB | 8.4 | 90.6 | 53.6 | 8.4 | 90.6 | 68.2 | 8.4 | 90.6 | 81.8 | 8.4 | 93.5 | 93.5 |
| | 70 WB | 8.4 | 96.4 | 44.8 | 8.4 | 96.4 | 58.5 | 8.4 | 96.4 | 73.1 | 8.4 | 96.4 | 87.7 |
| | 73 WB | 8.5 | 101.3 | 35.1 | 8.5 | 101.3 | 49.7 | 8.5 | 101.3 | 64.3 | 8.6 | 101.3 | 78.9 |
| 100 | 61 WB | 8.5 | 78.9 | 70.1 | 8.6 | 80.9 | 80.9 | 8.6 | 86.7 | 86.7 | 8.7 | 91.6 | 91.6 |
| | 64 WB | 8.6 | 83.8 | 61.4 | 8.6 | 83.8 | 76.0 | 8.6 | 86.7 | 86.7 | 8.7 | 91.6 | 91.6 |
| | 67 WB | 8.7 | 88.7 | 52.6 | 8.7 | 88.7 | 67.2 | 8.7 | 88.7 | 80.9 | 8.7 | 91.6 | 91.6 |
| | 70 WB | 8.8 | 94.5 | 43.8 | 8.8 | 94.5 | 58.5 | 8.8 | 94.5 | 72.1 | 8.8 | 94.5 | 85.7 |
| | 73 WB | 8.9 | 99.4 | 35.1 | 9.0 | 99.4 | 48.7 | 9.0 | 99.4 | 63.3 | 9.0 | 99.4 | 77.9 |
| 105 | 61 WB | 8.9 | 77.0 | 69.2 | 8.9 | 79.9 | 79.9 | 9.0 | 84.8 | 84.8 | 9.1 | 89.6 | 89.6 |
| | 64 WB | 8.9 | 81.8 | 60.4 | 8.9 | 81.8 | 75.0 | 9.0 | 84.8 | 84.8 | 9.1 | 89.6 | 89.6 |
| | 67 WB | 9.1 | 86.7 | 51.6 | 9.1 | 86.7 | 66.3 | 9.1 | 86.7 | 79.9 | 9.1 | 89.6 | 89.6 |
| | 70 WB | 9.1 | 91.6 | 42.9 | 9.1 | 91.6 | 57.5 | 9.2 | 92.5 | 71.1 | 9.2 | 92.5 | 85.7 |
| | 73 WB | 9.4 | 98.4 | 34.1 | 9.4 | 98.4 | 48.7 | 9.4 | 98.4 | 62.4 | 9.4 | 98.4 | 77.0 |

**Notes:**

1. Capacities are gross and are based on 230, 460 operation. 208-volt operation must be derated by 0.98. Gross capacities do not include evaporator motor heat
2. KW is for entire unit.
3 See table for capacity correction factors at other than nominal CFM.

SHADED AREA REPRESENTS 100% SENSIBLE COOLING.

| | |
|---|---|
| AMB | Ambient Air Temperature |
| EAT | Entering Air Temperature |
| DB | Evaporator Dry Bulb EAT |
| WB | Evaporator Wet Bulb EAT |
| KW | 1,000 Watts |
| MBHT | 1,000 BTU/h Total Cooling |
| MBHS | 1,000 BTU/h Sensible Cooling |
| CFM | Evaporator Airflow Ft.$^3$/min (Table 9a) |

# COOLING CAPACITY DATA (CONT.)

## PGC120-X @ 4,000 CFM

| AMB.˚ F | EVAP. EAT | 75˚ F DB | | | 80˚ F DB | | | 85˚ F DB | | | 90˚ F DB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KW | MBHT | MBHS | KW | MBHT | MBHS | KW | MBHT | MBHS | KW | MBHT | MBHS |
| 85 | 61 WB | 10.2 | 115.9 | 99.7 | 10.2 | 118.6 | 117.2 | 10.3 | 125.3 | 125.3 | 10.3 | 132.0 | 132.0 |
| | 64 WB | 10.3 | 122.6 | 87.6 | 10.3 | 122.6 | 107.8 | 10.3 | 125.3 | 125.3 | 10.3 | 132.0 | 132.0 |
| | 67 WB | 10.3 | 130.7 | 75.4 | 10.3 | 130.7 | 95.6 | 10.3 | 130.7 | 114.5 | 10.5 | 132.0 | 132.0 |
| | 70 WB | 10.6 | 138.8 | 63.3 | 10.6 | 138.8 | 83.5 | 10.6 | 138.8 | 102.4 | 10.6 | 138.8 | 122.6 |
| | 73 WB | 10.6 | 146.9 | 51.2 | 10.6 | 146.9 | 71.4 | 10.6 | 146.9 | 90.3 | 10.7 | 146.9 | 110.5 |
| 90 | 61 WB | 10.6 | 113.2 | 98.3 | 10.7 | 115.9 | 115.9 | 10.8 | 122.6 | 122.6 | 10.8 | 130.7 | 130.7 |
| | 64 WB | 10.8 | 119.9 | 86.2 | 10.8 | 121.3 | 106.4 | 10.8 | 122.6 | 122.6 | 10.8 | 130.7 | 130.7 |
| | 67 WB | 10.9 | 128.0 | 74.1 | 10.9 | 128.0 | 94.3 | 10.9 | 128.0 | 114.5 | 10.9 | 130.7 | 130.7 |
| | 70 WB | 10.9 | 134.7 | 62.0 | 10.9 | 134.7 | 82.2 | 10.9 | 136.1 | 102.4 | 11.0 | 136.1 | 121.2 |
| | 73 WB | 11.0 | 142.8 | 49.8 | 11.0 | 142.8 | 70.1 | 11.0 | 145.5 | 88.9 | 11.3 | 142.8 | 109.1 |
| 95 | 61 WB | 11.0 | 111.8 | 98.3 | 11.1 | 114.5 | 114.5 | 11.1 | 121.3 | 121.2 | 11.3 | 129.3 | 129.3 |
| | 64 WB | 11.1 | 118.6 | 86.2 | 11.1 | 118.6 | 105.1 | 11.1 | 121.3 | 121.2 | 11.3 | 129.3 | 129.3 |
| | 67 WB | 11.3 | 125.3 | 74.1 | 11.3 | 125.3 | 94.3 | 11.3 | 125.3 | 113.2 | 11.4 | 129.3 | 129.3 |
| | 70 WB | 11.3 | 133.4 | 62.0 | 11.4 | 133.4 | 80.8 | 11.4 | 133.4 | 101.0 | 11.4 | 133.4 | 121.2 |
| | 73 WB | 11.5 | 140.1 | 48.5 | 11.5 | 140.1 | 68.7 | 11.5 | 140.1 | 88.9 | 11.6 | 140.1 | 109.1 |
| 100 | 61 WB | 11.5 | 109.1 | 97.0 | 11.6 | 111.8 | 111.8 | 11.6 | 119.9 | 119.9 | 11.7 | 126.6 | 126.6 |
| | 64 WB | 11.6 | 115.9 | 84.9 | 11.6 | 115.9 | 105.1 | 11.6 | 119.9 | 119.9 | 11.7 | 126.6 | 126.6 |
| | 67 WB | 11.7 | 122.6 | 72.7 | 11.7 | 122.6 | 93.0 | 11.7 | 122.6 | 111.8 | 11.7 | 126.6 | 126.6 |
| | 70 WB | 11.8 | 130.7 | 60.6 | 11.8 | 130.7 | 80.8 | 11.8 | 130.7 | 99.7 | 11.8 | 130.7 | 118.5 |
| | 73 WB | 12.0 | 137.4 | 48.5 | 12.2 | 137.4 | 67.4 | 12.2 | 137.4 | 87.6 | 12.2 | 137.4 | 107.8 |
| 105 | 61 WB | 12.0 | 106.4 | 95.6 | 12.0 | 110.5 | 110.5 | 12.2 | 117.2 | 117.2 | 12.3 | 124.0 | 123.9 |
| | 64 WB | 12.0 | 113.2 | 83.5 | 12.0 | 113.2 | 103.7 | 12.2 | 117.2 | 117.2 | 12.3 | 124.0 | 123.9 |
| | 67 WB | 12.3 | 119.9 | 71.4 | 12.3 | 119.9 | 91.6 | 12.3 | 119.9 | 110.5 | 12.3 | 124.0 | 123.9 |
| | 70 WB | 12.3 | 126.6 | 59.3 | 12.3 | 126.6 | 79.5 | 12.4 | 128.0 | 98.3 | 12.4 | 128.0 | 118.5 |
| | 73 WB | 12.6 | 136.1 | 47.2 | 12.6 | 136.1 | 67.4 | 12.6 | 136.1 | 86.2 | 12.6 | 136.1 | 106.4 |

**Notes:**

1. Capacities are gross and are based on 230, 460 operation. 208-volt operation must be derated by 0.98. Gross capacities do not include evaporator motor heat
2. KW is for entire unit.
3. See table for capacity correction factors at other than nominal CFM.

SHADED AREA REPRESENTS 100% SENSIBLE COOLING.

| | | | |
|---|---|---|---|
| AMB | Ambient Air Temperature | KW | 1,000 Watts |
| EAT | Entering Air Temperature | MBHT | 1,000 BTU/h Total Cooling |
| DB | Evaporator Dry Bulb EAT | MBHS | 1,000 BTU/h Sens. Cooling |
| WB | Evaporator Wet Bulb EAT | CFM | Evaporator Airflow Ft.$^3$/min |

### COOLING CAPACITY CORRECTION FACTORS

| | CFM | | | | | | |
|---|---|---|---|---|---|---|---|
| | -15% | -10% | -5% | STD. | +5% | +10% | +15% |
| Total MBH | 0.971 | 0.985 | 0.991 | 0 | 1.006 | 1.012 | 1.019 |
| Sensible MBH | 0.925 | 0.952 | 0.974 | 0 | 1.024 | 1.048 | 1.070 |
| kW | 0.985 | 0.989 | 0.995 | 0 | 1.004 | 1.006 | 1.011 |

### EVAPORATOR MOTOR HEAT

| Horsepower | BTU/h |
|---|---|
| 1.5 | 4,650 |
| 3 | 9,300 |

# HEATING CAPACITY DATA

## GAS HEAT AIR TEMPERATURE RISE

| | Model | 195 | 225 |
|---|---|---|---|
| | Number of Tubes | 6 | 7 |
| | Ventor Motor HP | 1/16 | 1/12 |
| | MBH Input | 193 | 225 |
| | MBH Output | 154.4 | 180.0 |
| | Max. Air Temperature Rise | 65 | 60 |
| CFM | 2,600 | 55.0 | - |
| | 2,800 | 51.1 | - |
| | 3,000 | 47.7 | 55.6 |
| | 3,200 | 44.7 | 52.1 |
| | 3,400 | 42.1 | 49.1 |
| | 3,600 | 39.7 | 46.3 |
| | 3,800 | - | 43.9 |
| | 4,000 | - | 41.7 |
| | 4,200 | - | 39.7 |
| | 4,400 | - | 37.9 |
| | 4,600 | - | 36.3 |

NOTES:
1. See Gas Furnace Air Temperature Rise table for furnace availability in various unit sizes.
2. Capacities are approved for altitudes to 2,000'. At higher elevations, heating capacity must be reduced 4% (x0.96) for each 1,000' above sea level.
3. Air temperature rise is for total heating capacity. Temperature rises at other conditions may be calculated by using the formula:

$$\text{Temperature Rise} = \frac{\text{Output Capacity - BTU/h}}{1.08 \times \text{ft.}^3\text{/min. Airflow}}$$

4. For altitudes over 2,000', air temperature rise must be calculated using the formula:

$$\text{Temperature Rise} = \frac{\text{Output Capacity - BTU/h}}{14.4 \times \text{ft.}^3\text{/min. Airflow} \times \text{Specific Weight of Air}}$$

5. Two-stage control is standard.
6. Output capacity based on nominal 1,000 BTU/Ft.$^3$ natural gas or 2,500 Btu/Ft.$^3$ propane.

## GAS FURNACE AIR TEMPERATURE RISE

| Unit Size | Model Number | |
|---|---|---|
| | 195 | 225 |
| 7½ | X | N/A |
| 10 | N/A | X |

X - Furnace Available
N/A - Furnace Not Available

# Accessories

## Thermostat (CHT90-120)

**Two-stage cool and two-stage heat thermostat with subbase, manual changeover, fan on or auto.**

Note: A variety of thermostat configurations can be used on this equipment based on the application needs. For example, our CHTS36-60 can be used if two-stage cooling and single-stage heat is desired. Our CHT18-60 can be used if single-stage cooling and heating is desired. A single-stage cooling and two-stage heating thermostat can be used.

## Rooftop Lift Kit (RLK90-120)

Kit consists of four ½" shackles that are used to lift the equipment into position on a roof, etc. The shackles are to be attached to the mounting holes in the base rails. Wire or strap material along with field supplied spreader bars are employed to complete the lifting assembly (see rigging detail).

## Low Ambient Control (LA-01)

Liquid temperature- (or pressure-) operated solid state control that varies the speed of one of the condenser fans. Low ambient control reduces fan motor RPM as liquid temperature (or pressure) decreases. Caution: If control is used below 50 °F, accumulators should be added to the equipment to avoid slugging of the compressors.

## Roof Curb (PGC-5)

Full perimeter curb for equipment in the down discharge application. Curb includes provisions for duct attachment prior to setting unit. Curb is shipped knocked down with all necessary hardware and gasket material.

## Manual and Motorized Fresh Air Dampers (PGMD-5 & PGMDM-5)

Manual damper is fixed position type for 0 to 25% fresh air. Motorized damper is a field-adjustable mechanical damper for 0 to 25% fresh air. Damper automatically closes when blower stops.

## Economizers (PGED090/102-5A & PGED120/180-5A, PGEH090/102-5 & PGEH120/180-5)

Fully modulating, enthalpy-controlled economizers shipped with major components pre-assembled. Plug assembly on equipment and economizer provides easy foolproof wiring.

## Horizontal Duct Kit (PGHDK090/102-5A & PGHDK120/180-5A)

The unit is shipped in the downflow (vertical) duct configuration. The horizontal duct kit must be installed in the field for horizontal duct configuration.

## Panel Louver Kit (PLK090/102-5 & PLK120/180-5)

Louvered panels for condenser coil protection.

## Liquid Propane Kit (LPW-06)

Kit consists of an L.P. two-stage gas valve and main gas orifices to convert appliance from natural gas to liquid propane fuel.

This page has been intentionally left blank.