



**FRIEDRICH**

1 8 8 3

## Endeavor® Line F-Series™ Gas Furnaces



### **FR801T**

80% A.F.U.E.† Heating Stages: Single Stage  
Motor Type: Constant Torque  
Input Rates: 50 to 125 kBTU [14.6 to 36.6 kW]  
Configuration Options: Downflow



† A.F.U.E. (Annual Fuel Utilization Efficiency) calculated in accordance with Department of Energy test procedures.

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## Features and Benefits

- **PlusOne® Diagnostics:** Industry-first, 7-segment LED for quick & easy service
- **PlusOne Ignition System:** Proven Direct Spark Ignition (DSI) for reliability and longevity
- **Low Profile, 34-inch Cabinet:** Makes our furnaces ideal for space-constrained installations
- **Hemmed Cabinet & Door Edges and Quarter-turn Door Fasteners (Upflow/Horizontal only):** Allows for safe, tool-less access and serviceability
- **Removable Heat Exchanger:** Improves serviceability. Aluminized steel construction provides maximum corrosion resistance and thermal fatigue reliability
- **Blower Shelf Design:** Ensures serviceability in all furnace orientations

Gas Furnaces

| <u>FR</u>       | <u>80</u>          | <u>1</u>          | <u>T</u>            | <u>050</u>                                                                                                         | <u>3</u>                           | <u>A</u>              | <u>14</u>                                                                | <u>DZ</u>                    | <u>S</u>                 | <u>N</u>      | <u>A</u>       | <u>S</u>           |
|-----------------|--------------------|-------------------|---------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------|--------------------------------------------------------------------------|------------------------------|--------------------------|---------------|----------------|--------------------|
| Brand           | Furnace Efficiency | Stages of Heating | Motor Type          | Heating Input                                                                                                      | AC Max. Capacity                   | Major Series          | Width                                                                    | Position                     | NOx                      | Controls      | Minor Series   | Option Code        |
| FR - Friedrich® | 80 - 80% AFUE      | 1 - Single-Stage  | T - Constant Torque | 050 - 50K BTUH [14.65 kW]<br>075 - 75K BTUH [21.00 kW]<br>100 - 100K BTUH [29.30 kW]<br>125 - 125K BTUH [36.63 kW] | 3 - 3 ton drive<br>5 - 5 ton drive | A - 1st Design Series | 14 - 14" Width<br>17 - 17.5" Width<br>21 - 21" Width<br>24 - 24.5" Width | DZ - Downflow Zero Clearance | S - Standard L - Low NOx | N - Non-Comm. | A - 1st Series | S - Standard Grade |

[ ] Designates Metric Conversions

| AVAILABLE MODELS    |
|---------------------|
| FR801T0503A14DZ*NAS |
| FR801T0753A17DZ*NAS |
| FR801T0755A21DZ*NAS |
| FR801T1005A21DZ*NAS |
| FR801T1255A24DZ*NAS |

\*S=Standard, N=Low NOx

| STANDARD EQUIPMENT                                       |
|----------------------------------------------------------|
| 100% Safety Lock Out                                     |
| 7 Segment LED                                            |
| Aluminized Steel Heat Exchanger Design                   |
| Blower Compartment Door Safety Switch                    |
| Completely Assembled and Wired                           |
| Cool Fan Off Delay                                       |
| Direct Drive Motor                                       |
| Electronic Air Cleaner Connections                       |
| Field Selectable Heat Fan Off Delay                      |
| Flame Sense Current Diagnostics                          |
| Fully Insulated Heat Exchanger Cabinet                   |
| Humidifier Connections                                   |
| Induced Draft Motor                                      |
| Limit Controls                                           |
| Low Speed Continuous Fan Option                          |
| Manual Shut-Off Valve                                    |
| Multi-Speed Constant Torque Blower Motor                 |
| One Hour Automatic Retry                                 |
| Power and Self-Test Diagnostics                          |
| Pressure Switch                                          |
| Redundant Main Gas Control                               |
| Single Speed Option for Heating and Cooling Applications |
| Blower Insulation                                        |
| Solid State Time On/Off Blower Control                   |
| Transformer                                              |

WARNING

THIS FURNACE IS NOT APPROVED  
OR RECOMMENDED  
FOR USE IN MOBILE HOMES

## Physical Data and Specifications—Downflow Models

| MODEL NUMBERS R801T<br>Constant Tq-Dflow Series    | FR801T0503<br>A14DZ*NAS            | FR801T0753<br>A17DZ*NAS              | FR801T0755<br>A21DZ*NAS              | FR801T1005<br>A21DZ*NAS              | FR801T1255<br>A24DZ*NAS          |
|----------------------------------------------------|------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------------|
| Input-BTU/Hr [kW]                                  | 50,000 [15]                        | 75,000 [22]                          | 75,000 [22]                          | 100,000 [29]                         | 125,000 [37]                     |
| Heating Capacity BTU/Hr [kW] ①                     | 40,000 [12]                        | 60,000 [18]                          | 60,000 [18]                          | 80,000 [23]                          | 100,000 [29]                     |
| Blower (D x W) [mm]                                | 11 x 6<br>[279 x 152]              | 11 x 7<br>[279 x 178]                | 11 x 10<br>[279 x 254]               | 11 x 10<br>[279 x 254]               | 11 x 10<br>[279 x 254]           |
| Motor H.P. [W]<br>Type                             | 1/2 [373]<br>5 Spd Constant Torque | 3/4 [559.5]<br>5 Spd Constant Torque | 3/4 [559.5]<br>5 Spd Constant Torque | 3/4 [559.5]<br>5 Spd Constant Torque | 1 [746]<br>5 Spd Constant Torque |
| Min. Circuit Ampacity                              | 7                                  | 11                                   | 11                                   | 12                                   | 15                               |
| Min. Overload Protection Device                    | 15                                 | 15                                   | 15                                   | 15                                   | 20                               |
| Max. Overload Protection Device                    | 15                                 | 15                                   | 15                                   | 20                                   | 20                               |
| Motor Full Load Amps                               | 5.8                                | 8.8                                  | 8.8                                  | 8.8                                  | 11.1                             |
| Heating Speed                                      | Med                                | Med-Low                              | Med                                  | Med-High                             | Med-High                         |
| Cooling Speed                                      | High                               | High                                 | High                                 | High                                 | High                             |
| Cooling in CFM [L/s] @ 0.5"wc<br>[0.12 kPa] E.S.P. | 1301<br>[614]                      | 1200<br>[566]                        | 2000<br>[944]                        | 2000<br>[944]                        | 2000<br>[944]                    |
| Max. E.S.P. (In. W.C.) [kPa]                       | .9 [0.224]                         | .9 [0.224]                           | .9 [0.224]                           | .9 [0.224]                           | .9 [0.224]                       |
| Temperature Rise Range °F [°C]                     | 25-55<br>[13.9-30.6]               | 35-65<br>[19.4-36.1]                 | 25-55<br>[13.9-30.6]                 | 30-60<br>[16.6-33.3]                 | 35-65<br>[19.4-36.1]             |
| Approx. Shipping Weight (Lbs.)<br>[kg]             | 108.5<br>[49]                      | 120.5<br>[55]                        | 128.5<br>[58]                        | 140<br>[63]                          | 151<br>[68]                      |
| AFUE ②                                             | 80.0%                              | 80.0%                                | 80.0%                                | 80.0%                                | 80.0%                            |

**NOTES:** All models are 115V, 60HZ, 1 Ph. Gas connection size for all models is 1/2" [12 mm] N.P.T.

① In accordance with D.O.E. test procedures.

② See Conversion Kit Index Form for high altitude derate.

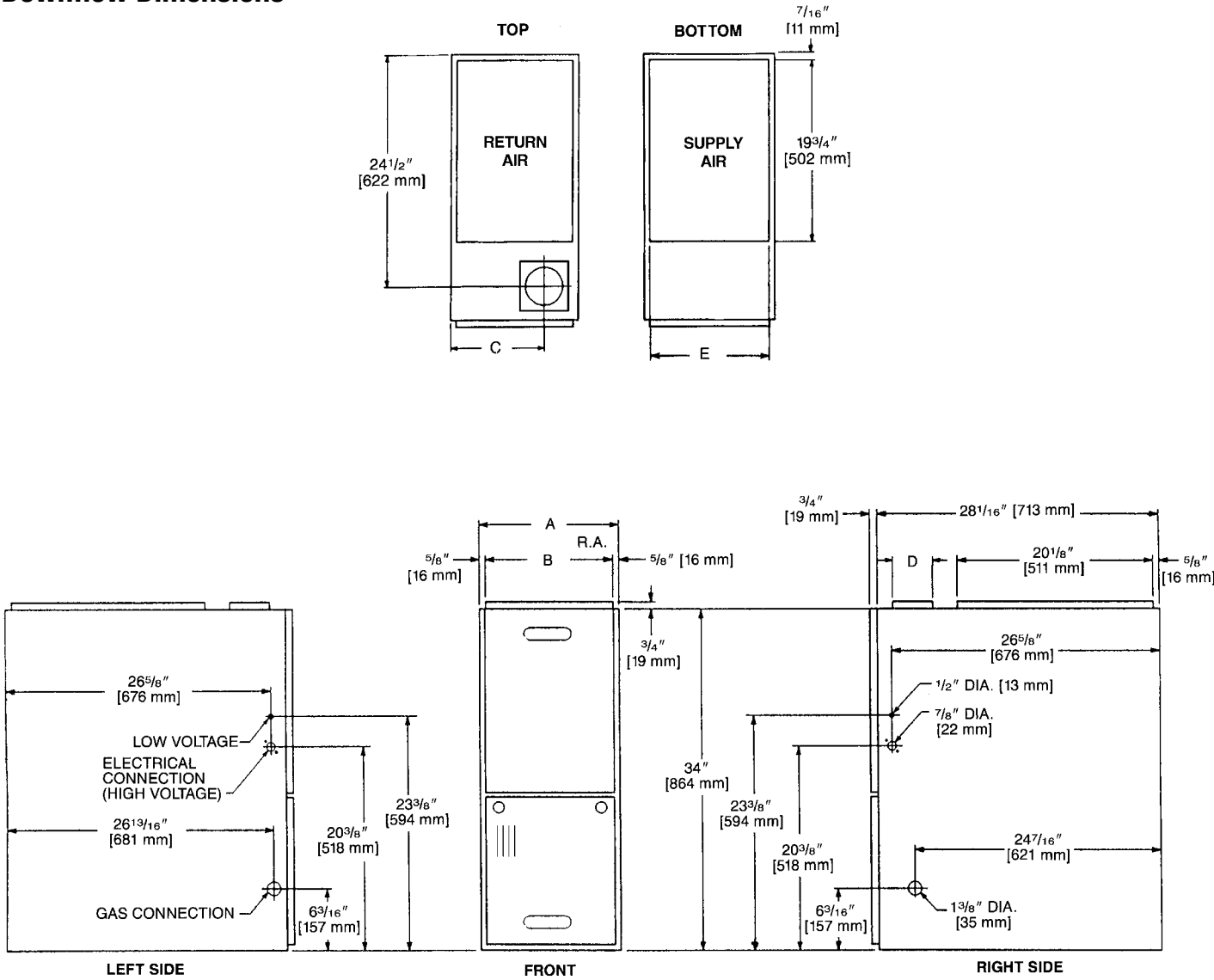
\*S=Standard, N=Low NOx

This furnace does not meet air district requirements of 14 ng/J NOx emissions limit, and thus is subject to a mitigation fee of up to \$450.

This furnace is to be installed for propane firing only in air districts requiring 14 ng/J NOx emission limits. Operating in natural gas mode is in violation of these Rules.

[ ] Designates Metric Conversions

Downflow Dimensions



Dimensional Data—Downflow Models

| MODEL<br>FR801T-DZ | A            | B                         | C                       | D | E                       | REDUCED CLEARANCES (IN.) [mm] |               |      |        |        |           |
|--------------------|--------------|---------------------------|-------------------------|---|-------------------------|-------------------------------|---------------|------|--------|--------|-----------|
|                    |              |                           |                         |   |                         | LEFT<br>SIDE                  | RIGHT<br>SIDE | BACK | TOP    | FRONT  | VENT      |
| 050                | 14 [356]     | 12 <sup>27/32</sup> [326] | 10 <sup>3/8</sup> [264] | ① | 13 <sup>1/8</sup> [333] | 0                             | 4 [102] ②     | 0    | 1 [25] | 3 [76] | 6 [152]   |
| 050417             | 17 1/2 [445] | 16 <sup>11/32</sup> [415] | 12 <sup>1/8</sup> [308] | ① | 16 <sup>5/8</sup> [422] | 0                             | 3 [76] ②      | 0    | 1 [25] | 3 [76] | 6 [152]   |
| 075521             | 21 [533]     | 19 <sup>27/32</sup> [504] | 13 <sup>7/8</sup> [352] | ① | 20 <sup>1/8</sup> [511] | 0                             | 0             | 0    | 1 [25] | 3 [76] | 6 [152] ③ |
| 100                | 21 [533]     | 19 <sup>27/32</sup> [504] | 13 <sup>7/8</sup> [352] | ① | 20 <sup>1/8</sup> [511] | 0                             | 0             | 0    | 1 [25] | 3 [76] | 6 [152] ③ |
| 125                | 24 1/2 [622] | 23 <sup>11/32</sup> [593] | 15 <sup>5/8</sup> [397] | ① | 23 <sup>5/8</sup> [600] | 0                             | 0             | 0    | 1 [25] | 3 [76] | 6 [152] ③ |

NOTES: ① May require a 3" [76 mm] to 4" [102 mm] or 3" [76 mm] to 5" [127 mm] adapter.  
② May be 0" [0 mm] with type B vent.  
③ May be 1" [25 mm] with type B vent.  
Furnaces must be vented in accordance with the National Fuel Gas Code, ANSI Z223.1 and in accordance with local codes.

[ ] Designates Metric Conversions

# Blower Performance Data—Downflow Models

| AIR FLOW PERFORMANCE - 80% SINGLE STAGE DOWNFLOW CONSTANT TORQUE |                                |                              |                                                                              |               |               |              |               |               |               |              |              |              |
|------------------------------------------------------------------|--------------------------------|------------------------------|------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|---------------|---------------|--------------|--------------|--------------|
| INPUT<br>(BTU)<br>CABINET<br>WIDTH (IN)                          | AIRFLOW<br>CONTROL<br>SETTINGS | SPEED<br>TAP/ WIRE<br>COLORS | CFM [L/s] AIR DELIVERY<br>EXTERNAL STATIC PRESSURE INCHES WATER COLUMN [KPA] |               |               |              |               |               |               |              |              |              |
|                                                                  |                                |                              | 0.1<br>[0.02]                                                                | 0.2<br>[0.05] | 0.3<br>[0.07] | 0.4<br>[.10] | 0.5<br>[0.12] | 0.6<br>[0.15] | 0.7<br>[0.17] | 0.8<br>[.19] | 0.9<br>[.22] | 1.0<br>[.25] |
| 50k<br>14"                                                       | FACTORY<br>SETTING FAN         | LOW/RED                      | 909                                                                          | 747           | 618           | 517          | 439           | 377           | 326           | 280          | 234          | 183          |
|                                                                  | COOL                           | MEDIUM<br>LOW/ YELLOW        | 982                                                                          | 899           | 828           | 766          | 712           | 664           | 620           | 577          | 534          | 490          |
|                                                                  | HEAT OR<br>HEAT/COOL           | MEDIUM/<br>PURPLE            | 1027                                                                         | 993           | 958           | 921          | 882           | 843           | 802           | 762          | 721          | 680          |
|                                                                  | COOL                           | MEDIUM<br>HIGH/ BLUE         | 1172                                                                         | 1130          | 1093          | 1060         | 1030          | 1001          | 972           | 941          | 907          | 869          |
|                                                                  | FACTORY<br>SETTING COOLING     | HIGH/BLACK                   | 1296                                                                         | 1262          | 1232          | 1204         | 1177          | 1150          | 1123          | 1094         | 1063         | 1029         |
| 75k<br>17"                                                       | FACTORY<br>SETTING FAN         | LOW/RED                      | 1018                                                                         | 957           | 913           | 866          | 816           | 772           | 720           | 670          | 626          | 588          |
|                                                                  | HEAT OR<br>HEAT/COOL           | MEDIUM<br>LOW/ YELLOW        | 1146                                                                         | 1111          | 1059          | 1012         | 967           | 928           | 889           | 845          | 800          | 755          |
|                                                                  | COOL                           | MEDIUM/<br>PURPLE            | 1325                                                                         | 1257          | 1199          | 1144         | 1089          | 1028          | 975           | 922          | 871          | 813          |
|                                                                  | COOL                           | MEDIUM<br>HIGH/ BLUE         | 1554                                                                         | 1490          | 1429          | 1365         | 1306          | 1272          | 1218          | 1170         | 1122         | 1077         |
|                                                                  | FACTORY<br>SETTING COOLING     | HIGH/BLACK                   | 1752                                                                         | 1682          | 1625          | 1574         | 1525          | 1473          | 1421          | 1379         | 1341         | 1296         |
| 75k<br>21"                                                       | FACTORY<br>SETTING FAN         | LOW/RED                      | 1011                                                                         | 987           | 928           | 861          | 796           | 739           | 675           | 604          | 553          | 513          |
|                                                                  | COOL                           | MEDIUM<br>LOW/ YELLOW        | 1341                                                                         | 1287          | 1216          | 1162         | 1105          | 1054          | 1000          | 952          | 899          | 847          |
|                                                                  | HEAT OR<br>HEAT/COOL           | MEDIUM/<br>PURPLE            | 1535                                                                         | 1487          | 1434          | 1384         | 1333          | 1280          | 1230          | 1190         | 1142         | 1099         |
|                                                                  | COOL                           | MEDIUM<br>HIGH/ BLUE         | 1689                                                                         | 1644          | 1596          | 1559         | 1499          | 1454          | 1414          | 1370         | 1331         | 1280         |
|                                                                  | FACTORY<br>SETTING COOLING     | HIGH/BLACK                   | 1848                                                                         | 1801          | 1762          | 1717         | 1678          | 1632          | 1598          | 1556         | 1527         | 1470         |
| 100k<br>21"                                                      | FACTORY<br>SETTING FAN         | LOW/RED                      | 1123                                                                         | 1035          | 968           | 897          | 838           | 768           | 692           | 618          | 570          | 525          |
|                                                                  | COOL                           | MEDIUM<br>LOW/ YELLOW        | 1421                                                                         | 1365          | 1316          | 1266         | 1219          | 1157          | 1105          | 1052         | 1004         | 959          |
|                                                                  | COOL                           | MEDIUM/<br>PURPLE            | 1684                                                                         | 1632          | 1744          | 1549         | 1506          | 1462          | 1421          | 1379         | 1333         | 1277         |
|                                                                  | HEAT OR<br>HEAT/COOL           | MEDIUM<br>HIGH/ BLUE         | 1865                                                                         | 1825          | 1780          | 1747         | 1705          | 1677          | 1636          | 1597         | 1562         | 1499         |
|                                                                  | FACTORY<br>SETTING COOLING     | HIGH/BLACK                   | 1997                                                                         | 1955          | 1916          | 1875         | 1841          | 1803          | 1769          | 1730         | 1700         | 1646         |
| 125k<br>24"                                                      | FACTORY<br>SETTING FAN         | LOW/RED                      | 1127                                                                         | 1064          | 993           | 931          | 867           | 805           | 749           | 687          | 628          | 578          |
|                                                                  | COOL                           | MEDIUM<br>LOW/ YELLOW        | 1438                                                                         | 1381          | 1330          | 1277         | 1227          | 1171          | 1118          | 1061         | 1024         | 976          |
|                                                                  | COOL                           | MEDIUM/<br>PURPLE            | 1726                                                                         | 1664          | 1622          | 1588         | 1544          | 1494          | 1446          | 1404         | 1360         | 1317         |
|                                                                  | HEAT OR<br>HEAT/COOL           | MEDIUM<br>HIGH/ BLUE         | 1883                                                                         | 1832          | 1789          | 1756         | 1711          | 1678          | 1617          | 1587         | 1551         | 1495         |
|                                                                  | FACTORY<br>SETTING COOLING     | HIGH/BLACK                   | 2209                                                                         | 2166          | 2129          | 2090         | 2059          | 2010          | 1976          | 19144        | 1911         | 1875         |

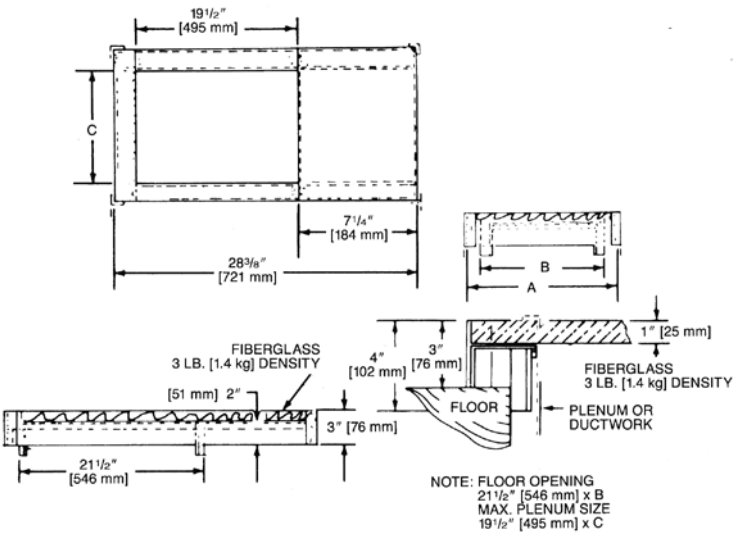
[ ] Designates Metric Conversions

Downflow Accessories

**DOWNFLOW WARNING:** Unit design is certified for installation on non-combustible floor. A special factory supplied combustible floor sub-base is required when installing on a combustible floor. Failure to install the sub-base may result in fire, property damage and personal injury.

Combustible Floor Base Dimensions

| COMBUSTIBLE FLOOR BASE | USE WITH FURNACE SIZES      | A<br>IN. [mm] | B<br>IN. [mm] | C<br>IN. [mm] |
|------------------------|-----------------------------|---------------|---------------|---------------|
| RXGC-B14               | R801C050                    | 14 1/2 [368]  | 13 1/4 [337]  | 11 1/4 [286]  |
| RXGC-B17               | R801C075317                 | 18 [457]      | 16 3/4 [425]  | 14 3/4 [451]  |
| RXGC-B21               | R801C100521,<br>R801C075521 | 21 1/2 [546]  | 20 1/4 [514]  | 18 1/4 [464]  |
| RXGC-B24               | R801C125                    | 25 [635]      | 23 3/4 [603]  | 21 3/4 [552]  |



[ ] Designates Metric Conversions

RXGF-CC\*

**FILTER RACK**—Downflow top return mount. Requires (2) 14 x 20 Filters.

**NOTE:** Filter racks are shipped without filters.

\*Filters available through PROSTOCK ®.

For High Altitudes:

**HIGH ALTITUDE OPTION CODE:** U.S. & Canada –  
None required for high altitudes.

**HIGH ALTITUDE CONVERSION KITS:** U.S. & Canada –  
None required for high altitudes.

80+ HIGH ALTITUDE INSTRUCTIONS

Caution: Always follow National Fuel Gas Code (NFGC) guidelines when converting for high altitudes.

High altitude option codes are not required for these models. However, the burner orifice size needs to be recalculated and verified at elevations above 2000 ft. See Installation Instructions for more information.

**NOTE:** For Canadian installations only, an optional derate (manifold gas pressure reduction) method may be used to adjust the furnace for altitude. See Installation Instructions for more information. This optional method may **NOT** be used for U.S. installations.

**L.P. CONVERSION KIT:** RXGJ-FP15





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## GENERAL TERMS OF LIMITED WARRANTY\*

Friedrich® will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

**\*For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

|                                                   |                   |
|---------------------------------------------------|-------------------|
| Conditional Parts<br>(Registration Required)..... | Ten (10) Years    |
| Heat Exchanger .....                              | Twenty (20) Years |

**Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.**

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In keeping with its policy of continuous progress and product improvement, manufacturer reserves the right to make changes without notice.

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