Inspections Division
Date: 06/24/16

# 987MA EVOLUTION® MODULATING 4-WAY MULTIPOISE, VARIABLE SPEED CONDENSING GAS FURNACE, SERIES B

bryant®

# Product Data

A11264

The 987MA Multipoise Variable-Speed Condensing Gas Furnace features the modulating Evolution® System. The Perfect Heat® Technology modulating gas system is at the heart of the comfort provided by this furnace, along with the Perfect ECM™ full-featured variable-speed communicating blower motor, and variable-speed inducer motor. With an Annual Fuel Utilization Efficiency (AFUE) of up to 98.3%, the Evolution modulating gas furnace provides exceptional savings as well. This Evolution Gas Furnace also features 4-way multipoise installation flexibility, and is available in six model sizes. The 987MA can be vented for direct vent/two-pipe, ventilated combustion air. A Bryant Evolution Control and Evolution Air Conditioner or Heat Pump, can be used to form a complete Evolution System. All units meet California Air Quality Management District emission requirements. All sizes are design certified in Canada.

## STANDARD FEATURES

- Evolution System; compatible with **single- and multi-zone** Evolution systems.
- Evolution Features—match with the Evolution Control for Evolution System benefits.
- All sizes meet ENERGY STAR® Version 4.0 criteria for gas furnaces: 95+AFUE; AMACF electrical rating; 2% or less cabinet airflow leakage.
- Quiet operation. Compare for yourself at HVACpartners.com.
- Ideal height 35" (889 mm) cabinet: short enough for taller coils, but still allows enough room for service.
- Silicon Nitride Perfect Light™ Hot Surface Igniter.
- SmartEvap™ technology helps control humidity levels in the home when used with a compatible humidity control system.
- FanOn Plus™ technology allows control of continuous fan speed from a compatible thermostat.
- External Media Filter Cabinet included.
- 4-way multipoise design for upflow, downflow or horizontal installation with unique vent elbow and optional through-the-cabinet downflow venting capability.
- Full-featured variable-speed communicating blower motor, variable-speed inducer motor, and modulating gas valve.
- Aluminized-steel primary heat exchanger.
- Stainless-steel condensing secondary heat exchanger.
- Propane convertible (see Accessory list).
- Factory-configured ready for upflow applications.
- Fully-insulated casing including blower section.
- Convenient Air Purifier and Humidifier connections.
- Direct-vent/sealed combustion or ventilated combustion air.
- Installation flexibility: sidewall or vertical vent.
- Residential installations may be eligible for consumer financing through the Retail Credit Program.
- Variable-Speed blower motor, variable-speed inducer motor, and modulating gas valve.
- Self-diagnostics and extended diagnostic data through the Advanced Product Monitor (APM) accessory or Evolution User Interface.
- Adjustable blower speed for cooling, continuous fan, and dehumidification.
- Certified to leak 2% or less of nominal air conditioning CFM delivered when pressurized to 1-in. water column with all present air inlets, air outlets, and condensate drain port(s) sealed.

EVOLUTION™ SYSTEM

Perfect Humidity™

ENERGY STAR

DESIGN CERTIFIED®

CERTIFIED®

AHRI CERTIFIED www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

Certified System™ ISO 9001 QMI-SAI Global

Always Ask For FACTORY AUTHORIZED PARTS

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# SPECIFICATIONS

The furnace should be sized to provide 100 percent of the design heating load requirement plus any margin that occurs because of furnace model size capacity increments. None of the furnace model sizes can be used if the heating load is 20,000 BTU or lower. Use Air Conditioning Contractors of America (Manual J and S); American Society of Heating, Refrigerating, and Air-Conditioning Engineers; or other approved engineering method to calculate heating load estimates and select the furnace. Excessive oversizing of the furnace may cause the furnace and/or vent to fail prematurely, customer discomfort and/or vent freezing.

Failure to follow these guidelines is considered faulty installation and/or misapplication of the furnace; and resulting failure, damage, or repairs may impact warranty coverage.

987MA

| Heating Capacity and Efficiency | | | 42060 | 60060 | 42080 | 60080 | 66100 | 66120 |
|---|---|---|---|---|---|---|---|---|
| Input | Maximum Heat | (BTUH) | 60,000 | 60,600 | 80,000 | 80,000 | 100,000 | 120,000 |
| | Intermediate Heat | (BTUH) | 39,000 | 39,000 | 52,000 | 52,000 | 65,000 | 78,000 |
| | Minimum Heat | (BTUH) | 24,000 | 24,000 | 32,000 | 32,000 | 40,000 | 48,000 |
| Output | Maximum Heat | (BTUH) | 59,000 | 60,000 | 78,000 | 78,000 | 98,000 | 117,000 |
| | Intermediate Heat | (BTUH) | 38,000 | 39,000 | 51,000 | 51,000 | 64,000 | 76,000 |
| | Minimum Heat | (BTUH) | 24,000 | 24,000 | 31,000 | 31,000 | 39,000 | 47,000 |
| Certified Temperature Rise Range °F (°C) | | Maximum Heat | 35 - 65 (19 - 36) | 35 - 65 (19 - 36) | 40 - 70 (22 - 39) | 40 - 70 (22 - 39) | 45 - 75 (25 - 42) | 45 - 75 (25 - 42) |
| | | Intermediate Heat | 50 - 80 (28 - 44) | 40 - 70 (22 - 39) | 50 - 80 (28 - 44) | 50 - 80 (28 - 44) | 50 - 80 (28 - 44) | 50 - 80 (28 - 44) |
| | | Minimum Heat | 35 - 65 (19 - 36) | 25 - 55 (14-31) | 35 - 65 (19 - 36) | 35 - 65 (19 - 36) | 35 - 65 (19 - 36) | 35 - 65 (19 - 36) |

| Airflow Capacity and Blower Data | | 42060 | 60060 | 42080 | 60080 | 66100 | 66120 |
|---|---|---|---|---|---|---|---|
| Rated External Static Pressure (in. w.c.) | Heating | 0.12 | 0.12 | 0.15 | 0.15 | 0.20 | 0.20 |
| | Cooling | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Airflow Delivery | Maximum Heat | 1075 | 1080 | 1500 | 1345 | 1575 | 1820 |
| | Intermediate Heat | 530 | 690 | 750 | 795 | 955 | 1100 |
| | Minimum Heat | 415 | 555 | 620 | 595 | 745 | 900 |
| | Cooling | 1335 | 1905 | 1375 | 1945 | 2160 | 2185 |
| Cooling Capacity (tons) @ 400, 350 CFM/ton | 400 CFM/ton | 3 | 4.5 | 3.5 | 4.5 | 5.5 | 5.5 |
| | 350 CFM/ton | 3.5 | 5.5 | 4 | 5.5 | 6 | 6 |
| Direct-Drive Motor Type | | Electronically Commutated Motor (ECM) | | | | | |
| Direct-Drive Motor HP | | 1/2 | 1 | 1/2 | 1 | 1 | 1 |
| Motor Full Load Amps | | 7.7 | 12.8 | 7.7 | 12.8 | 12.8 | 12.8 |
| RPM Range | | 300 - 1300 | | | | | |
| Speed Selections | | Variable (Communicating) | | | | | |
| Blower Wheel Dia x Width | in. | 11 x 8 | 11 x 10 | 11 x 8 | 11 x 10 | 11 x 10 | 11 x 11 |
| Air Filtration System | | Factory Supplied Media Cabinet<br>Field Supplied Filter | | | | | |
| Filter Used for Certified Watt Data* | | KGAWF**06UFR | | | | | |

| Electrical Data | | 42060 | 60060 | 42080 | 60080 | 66100 | 66120 |
|---|---|---|---|---|---|---|---|
| Input Voltage | Volts-Hertz-Phase | 115-60-1 | | | | | |
| Operating Voltage Range | Min-Max | 104 -127 | | | | | |
| Maximum Input Amps | Amps | 9.7 | 14.8 | 9.7 | 14.8 | 14.8 | 14.8 |
| Unit Ampacity | Amps | 12.7 | 19.1 | 12.7 | 19.1 | 19.1 | 19.1 |
| Minimum Wire Size | AWG | 14 | 12 | 14 | 12 | 12 | 12 |
| Maximum Wire Length @ Minimum Wire Size | Feet | 29 | 30 | 29 | 30 | 30 | 30 |
| | (M) | (8.8) | (9.1) | (8.8) | (9.1) | (9.1) | (9.1) |
| Maximum Fuse/Ckt Bkr (Time-Delay Type Recommended) | Amps | 15 | 20 | 15 | 20 | 20 | 20 |
| Transformer Capacity (24vac output) | | 40VA | | | | | |
| External Control Power Available | Heating | 27.9 VA | | | | | |
| | Cooling | 34.6 VA | | | | | |

| Controls | | 42060 | 60060 | 42080 | 60080 | 66100 | 66120 |
|---|---|---|---|---|---|---|---|
| Gas Connection Size | | 1/2" - NPT | | | | | |
| Burners (Monoport) | | 3 | 3 | 4 | 4 | 5 | 6 |
| Gas Valve (Redundant) | Manufacturer | White Rogers | | | | | |
| Minimum Inlet Gas pressure (in. wc) | | 4.5 | | | | | |
| Maximum Inlet Gas pressure (in. wc) | | 13.6 | | | | | |

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# DIMENSIONAL DRAWING

NOTES:
1. Doors may vary by model.
2. Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer's recommendations for equivalent diameters.
   a. For 800 CFM-16-in. (406 mm) round or 14 1/2 x 12-in. (368 x 305 mm) rectangle.
   b. For 1200 CFM-20-in. (508 mm) round or 14 1/2 x 19 1/2-in. (368 x 495 mm) rectangle.
   c. For 1600 CFM-22-in. (559 mm) round or 14 1/2 x 22 1/16-in. (368 x 560mm) rectangle.
   d. Return air above 1800 CFM at 0.5 in. w.c. ESP on 24.5" casing, requires one of the following configurations: 2 sides, 1 side and a bottom or bottom only. See Air Delivery table in this document for specific use to allow for sufficient airflow to the furnace.
3. Vent and Combustion air pipes through blower compartment must use accessory "Vent Kit - Through the Cabinet". See accessory list for current part number.

A12267

| 987MA FURNACE SIZE | A CABINET WIDTH | B OUTLET WIDTH | C BOTTOM INLET WIDTH | D AIR INTAKE | SHIP WT. LB (KG) |
|---|---|---|---|---|---|
| 42060 | 17-1/2 (445) | 15-7/8 (403) | 16 (406) | 8-3/4 (222) | 154.0 (69.3) |
| 42080 | | | | | 164.0 (73.8) |
| 60060 | 21 (533) | 19-3/8 (492) | 19-1/2 (495) | 10-1/2 (267) | 158.5 (72.0) |
| 60080 | | | | | 168.5 (76.6) |
| 66100 | | | | | 178.5 (80.3) |
| 66120 | 24-1/2 (622) | 22-7/8 (581) | 23 (584) | 12-1/4 (311) | 202.5 (91.1) |