

TECHNICAL GUIDE

96% TWO STAGE VARIABLE SPEED GAS-FIRED RESIDENTIAL MULTI-POSITION GAS FURNACES

MODELS: TM9V

NATURAL GAS

60 - 120 MBH INPUT





Due to continuous product improvement, specifications are subject to change without notice. Visit us on the web at www.york.com

Additional rating information can be found at www.ahridirectory.org

WARRANTY

Lifetime limited warranty on both heat exchangers to the original purchaser; a 20-year limited warranty from original installation date to subsequent purchaser.

10-year heat exchanger warranty on commercial applications.

Standard 5-year limited Parts warranty.

Extended 10-year limited parts warranty when product is registered online within 90 days of purchase for replacement or closing for new home construction.

DESCRIPTION

These compact units employ induced combustion, reliable hot surface ignition and high heat transfer aluminized tubular heat exchangers. The units are factory shipped for installation in upflow or horizontal applications and may be converted for downflow 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 IV listed and may be vented either through side wall or roof applications using approved plastic combustion air and venr piping.

FEATURES

- Two stage heating operation includes two stage gas valve, two stage inducer operation and variable speed ECM blower operation. Adjustable delay timer allows two stage operation with a single stage thermostat.
- Easily applied in upflow, horizontal left or right, or downflow installation with minimal conversion necessary.
- Compact, easy to install, ideal height 33" tall cabinet.
- ECM variable speed drive for cooling SEER enhancement, improved comfort with optional airflow delay profiles, and continuous fan options for IAQ performance.
- Easy access to controls to connect power/control wiring.
- Built-in, high level self diagnostics with fault code display.
- Low unit amp requirement for easy replacement application.
- All models are convertable to use propane (LP) gas.
- Electronic Hot Surface Ignition saves fuel cost with increased dependability and reliability.
- 100% shut off main gas valve for extra safety.
- 24V, 40 VA control transformer and blower relay supplied for add-on cooling.
- Hi-tech tubular aluminized steel primary heat exchanger with stainless steel tube/aluminum fin secondary heat exchanger for outstanding efficiency.
- Solid removable bottom panel allows easy conversion.
- Airflow leakage less than 1% of nominal airflow for ductblaster conditions.
- No knockouts to deal with, making installation easier.
- Movable duct connector flanges for application flexibility.
- Quiet inducer operation, burner, and blower operation.
- Inducer rotates for easy conversion of venting options.
- Fully supported blower assembly for easy access and removal of blower.
- External air filters used for maximum flexibility in meeting customers IAQ needs.
- Insulated blower compartment for thermal and acoustic performance.
- 1/4 turn knobs provided for easy independent door removal.
- Internal condensate trap design (patent pending) provides condensate management options, easy visual operation check, and is self priming to prevent nuisance problems.
- Protection included from air intake, exhaust vent or condensate blockage.
- Venting applications maybe installed as either 2 pipe sealed combustion or single pipe vent using indoor combustion air.

444555-YTG-B-0210



Cabinet & Duct Dimensions

| Model | Nominal CFM (m ³ /min) | Cabinet Size | Cabine | et Dimensions (I | nches) | Approximate Operating Weights |
|----------------|--------------------------------------|-----------------|--------|------------------|--------|----------------------------------|
| | | 5126 | Α | В | С | Lbs |
| TM9V060B12MP11 | 1200 | В | 17 1/2 | 16 3/8 | 13 1/4 | 122 |
| TM9V080B12MP11 | 1200 | В | 17 1/2 | 16 3/8 | 13 1/4 | 126 |
| TM9V080C16MP11 | 1600 | С | 21 | 19 7/8 | 16 1/2 | 136 |
| TM9V100C16MP11 | 1600 | С | 21 | 19 7/8 | 18 1/4 | 142 |
| TM9V100C20MP11 | 2000 | С | 21 | 19 7/8 | 18 1/4 | 145 |
| TM9V120D20MP11 | 2000 | D | 24 1/2 | 23 3/8 | 21 3/4 | 156 |

Ratings & Physical / Electrical Data

| Model | Input High/Low | Output High/Low | Total Unit | AFUE | High Fire Air Temp. Rise | Low Fire Air Temp. Rise |
|----------------|--------------------------|--------------------|---------------|-------------|-----------------------------|----------------------------------|
| | MBH | MBH | Amps | % | °F | °F |
| TM9V060B12MP11 | 60/39 | 58/37 | 9 | 96 | 35 - 65 | 35 - 65 |
| TM9V080B12MP11 | 80/52 | 77/50 | 9 | 96 | 35 - 65 | 30 - 60 |
| TM9V080C16MP11 | 80/52 | 77/50 | 12 | 96 | 35 - 65 | 35 - 65 |
| TM9V100C16MP11 | 100/65 | 96/62 | 12 | 96 | 35 - 65 | 30 - 65 |
| TM9V100C20MP11 | 100/65 | 96/62 | 14 | 96 | 35 - 65 | 35 - 65 |
| TM9V120D20MP11 | 120/78 | 115/75 | 14 | 96 | 35 - 65 | 35 - 65 |
| Model | Max. Outlet Air Temp. | Blov | ver | Blower Size | Max. Over-current | Min. Wire Size (awg) @ 75 ft. |
| | °F | HP | Amps | ln. | Protect | One Way |
| TM9V060B12MP11 | 170 | 1/2 | 7 | 11 x 8 | 15 | 14 |
| TM9V080B12MP11 | 175 | 1/2 | 7 | 11 x 8 | 15 | 14 |
| TM9V080C16MP11 | 175 | 3/4 | 10.2 | 11 x 10 | 15 | 14 |
| TM9V100C16MP11 | 175 | 3/4 | 10.2 | 11 x 10 | 15 | 14 |
| TM9V100C20MP11 | 175 | 1 | 12.7 | 11 x 11 | 20 | 12 |
| TM9V120D20MP11 | 170 | 1 | 12.7 | 11 x 11 | 20 | 12 |

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

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.

FILTER PERFORMANCE

The airflow capacity data published in the "Blower Performance" table shown represents blower performance WITHOUT filters.

All applications of these furnaces require the use of field installed air filters. All filter media and mounting hardware or provisions must be field installed external to the furnace cabinet. DO NOT attempt to install any filters inside the furnace.

NOTICE

Single side return above 1800 CFM is approved as long as the filter velocity does not exceed filter manufacturer's recommendation and a transition is used to allow use on a 20x25 filter.

Recommended Filter Sizes (High velocity 600 FPM)

| CFM | Cabinet Size | Side (in) | Bottom (in) |
|------|-----------------|--------------|----------------|
| 1200 | В | 16 x 25 | 16 x 25 |
| 1600 | С | 16 x 25 | 20 x 25 |
| 2000 | С | (2) 16 x 25 | 20 x 25 |
| 2000 | D | (2) 16 x 25 | 22 x 25 |

 Air velocity through throwaway type filters may not exceed 300 feet per minute (91.4 m/min). All velocities over this require the use of high velocity filters.

2. Do not exceed 1800 CFM using a single side return and a 16x25 filter. For CFM greater than 1800, you may use two side returns or one side and the bottom or one return with a transition to allow use of a 20x25 filter.

Unit Clearances to Combustibles

| Application | Upflow | Downflow | Horizontal |
|--------------|-------------|--------------------------|-------------|
| Тор | 1" | 0" | 0" |
| Vent | 0" | 0" | 0" |
| Rear | 0" | 0" | 0" |
| Side | 0" | 0" | 1" |
| Front* | 0" | 0" | 0" |
| Floor | Combustible | Combustible ¹ | Combustible |
| Closet | Yes | Yes | Yes |
| Line Contact | No | No | Yes |

1. For combustible floors only when used with special sub-base.

* - 24" clearance in front and 18" on side recommended for service access.

All furnaces approved for alcove and attic installation.

ACCESSORIES

Propane (LP) Conversion Kit - This accessory conversion kit may be used to convert natural gas (N) units for propane (LP) operation.

S1-1NP0347 - All Models

Concentric Vent Termination - For use through rooftop, sidewall. Allows combustion air to enter and exhaust to exit through single common hole. Eliminates unslightly elbows for a cleaner installation.

S1-1CT0302 (2") & S1-1CT0302-636 (2") S1-1CT0303 (3") & S1-1CT0303-636 (3")

Sidewall Vent Termination Kit - For use on sidewall, two-pipe installations only. Provide a more attractive termination for locations where the terminal is visable on the side of the home.

S1-1HT0901 (3") S1-1HT0902 (2")

Condensate Neutralizer Kit - Neutralizer cartridge has a 1/2" plastic tube fittings for installation in the drain line. Calcium carbonate refill media is also available from the Source 1 Parts (p/ n 026-30228-000).

1NK0301

Side Return Filter Racks -

S1-1SR0200 - All Models S1-1SR0402 - All Models

Bottom Return Filter Racks - 1BR05xx series are galvanized steel filter racks. 1BR06xx are pre-painted steel filter racks to match the appearance of the furnace cabinet.

S1-1BR0517 or 1BR0617 - For 17-1/2" cabinets S1-1BR0521 or 1BR0621 - For 21" cabinets S1-1BR0524 or 1BR0624 - For 24-1/2" cabinets

Combustible Floor Base Kit - For installation of these furnaces in downflow applications directly onto combustible flooring material, These kits are required to prevent potential overheating situations.tible floor base kit provides access for combustible airflow.

S1-1CB0517 - For 17-1/2" cabinets S1-1CB0521 - For 21" cabinets

S1-1CB0524 - For 24-1/2" cabinets

EAC Transition Kits - For installation of EAC accessories with these furnaces to provide easy transition of return airflow through the EAC to get the proper sealing and reduced airflow leakage.

S1-1TK1001 - For all models using side return

S1-1TK1017 - For 17-1/2" cabinets using bottom return

S1-1TK1021 - For 21" cabinets using bottom return

S1-1TK1024 - For 24-1/2" cabinets using bottom return

High Altitude Pressure Switches - For installation where the altitude is less than 5,000 feet it is not required that the pressure switch be changed. For altitudes above 5,000 feet, see kits below.

S1-1PS3308 - All Models

Thermostats - Compatible thermostat controls are available through accessory sourcing. For optimum performance and installation, refer to the UPGNET "Low Voltage Wiring Diagram" document to select and apply controls.

AIR FLOW DATA

| 060B1 | | 1 / LOW SPEED COOLING AND HEAT PUMP 080B12 | | Jumper Settings | |
|--------------|------------|---|------|-----------------|----------|
| High | Low | | | COOL Tap | ADJ Tap |
| | - | High | Low | | |
| 1343 | 865 | 1320 | 882 | A | В |
| 1116 | 727 | 1093 | 755 | В | В |
| 1235 | 791 | 1203 | 810 | A | A |
| 1026 | 661 | 1001 | 693 | В | A |
| 1079 | 709 | 1080 | 730 | A | С |
| 889 | 590 | 880 | 641 | С | В |
| 900 | 599 | 910 | 642 | В | С |
| 787 | 531 | 803 | 585 | D | B |
| 814 | 542 | 836 | 597 | C | A |
| 712 | 490 | 738 | 557 | D | A |
| 725 | 499 | 749 | 561 | C | C |
| | | | | D | C |
| 641 | 456 | 682 | 529 | = | - |
| 080C1 | 16 | 100 | C16 | Jumper | Settings |
| High | Low | High | Low | COOL Tap | ADJ Tap |
| 1787 | 1171 | 1818 | 1192 | A | В |
| 1503 | 987 | 1545 | 1030 | В | В |
| 1620 | 1053 | 1661 | 1083 | A | A |
| 1405 | 914 | 1427 | 936 | B | A |
| 1462 | 964 | 1427 | 991 | A | C |
| | | | | | |
| 1217 | 785 | 1234 | 819 | С | В |
| 1245 | 818 | 1265 | 832 | В | С |
| 940 | 608 | 977 | 648 | D | В |
| 1091 | 702 | 1116 | 728 | С | А |
| 852 | 551 | 884 | 572 | D | A |
| 983 | 626 | 1019 | 666 | С | С |
| 764 | 544 | 791 | 519 | D | С |
| 100C2 | | 120 | | Jumper | |
| | | | | - | ADJ Tap |
| High | Low | High | Low | COOL Tap | |
| 2019 | 1290 | 2006 | 1397 | A | В |
| 1790 | 1174 | 1687 | 1131 | В | В |
| 1818 | 1195 | 1845 | 1282 | A | А |
| 1630 | 1068 | 1552 | 1050 | В | А |
| 1649 | 1082 | 1694 | 1157 | A | С |
| 1269 | 848 | 1502 | 1011 | С | В |
| 1432 | 956 | 1400 | 944 | В | С |
| 1078 | 704 | 1365 | 922 | D | B |
| 1169 | 770 | 1364 | 931 | C | A |
| 986 | 638 | 1232 | 808 | D | A |
| | | | | | |
| 1062 | 685 570 | 1225 | 808 | С | С |
| 866 | 576 | 1117 | 718 | D | С |
| | | HIGH / LOW | | | |
| 060B1 | 12 | 80E | 312 | Jumper | Settings |
| High | Low | High | Low | HEAT Tap | ADJ Tap |
| 1364 | 843 | 1433 | 945 | A | Any |
| 1253 | 745 | 1320 | 887 | В | Any |
| 1102 | 660 | 1223 | 840 | C | Any |
| 1014 | 607 | 1134 | 768 | D | Any |
| | | | | _ | , |
| 80C1 | | 100 | | Jumper | - |
| High | Low | High | Low | HEAT Tap | ADJ Tap |
| 1684 | 1095 | 1795 | 1171 | A | Any |
| 1542 | 1011 | 1585 | 1047 | В | Any |
| 1426 | 927 | 1420 | 929 | С | Any |
| 1289 | 832 | 1201 | 785 | D | Any |
| | | 1201 | | Jumper | , |
| 100C20 | | | | - | - |
| High | Low | High | Low | HEAT Tap | ADJ Tap |
| | 1417 | 1937 | 1323 | A | Any |
| 2194 | 1290 | 1757 | 1199 | В | Any |
| 2194 1999 | | | | | ,, |
| 2194 | 1182 | 1594 | 1062 | С | Any |

static pressure. From 0.6" to 1.0" static pressure, CFM is reduced by 2% per 0.1" increase in static. Operation on duct systems with greater than 1.0" w.c. external static pressure is not recommended. NOTE: At some settings, LOW COOL and/or LOW HEAT airflow may be lower that what is required to operate an airflow switch on certain models of electronic air cleaner for further details.

* The ADJ "D" tap should not be used.

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