TECHNICAL GUIDE

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

MODELS: TM9V*C

NATURAL GAS

40 - 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 SUMMARY

A 20-year limited warranty on heat exchangers in residential applications.

A 10-year warranty on the heat exchanger in commercial applications.

Standard 5-year limited Parts warranty.

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

See Limited Warranty certificate in Users Information Manual for details.

DESCRIPTION

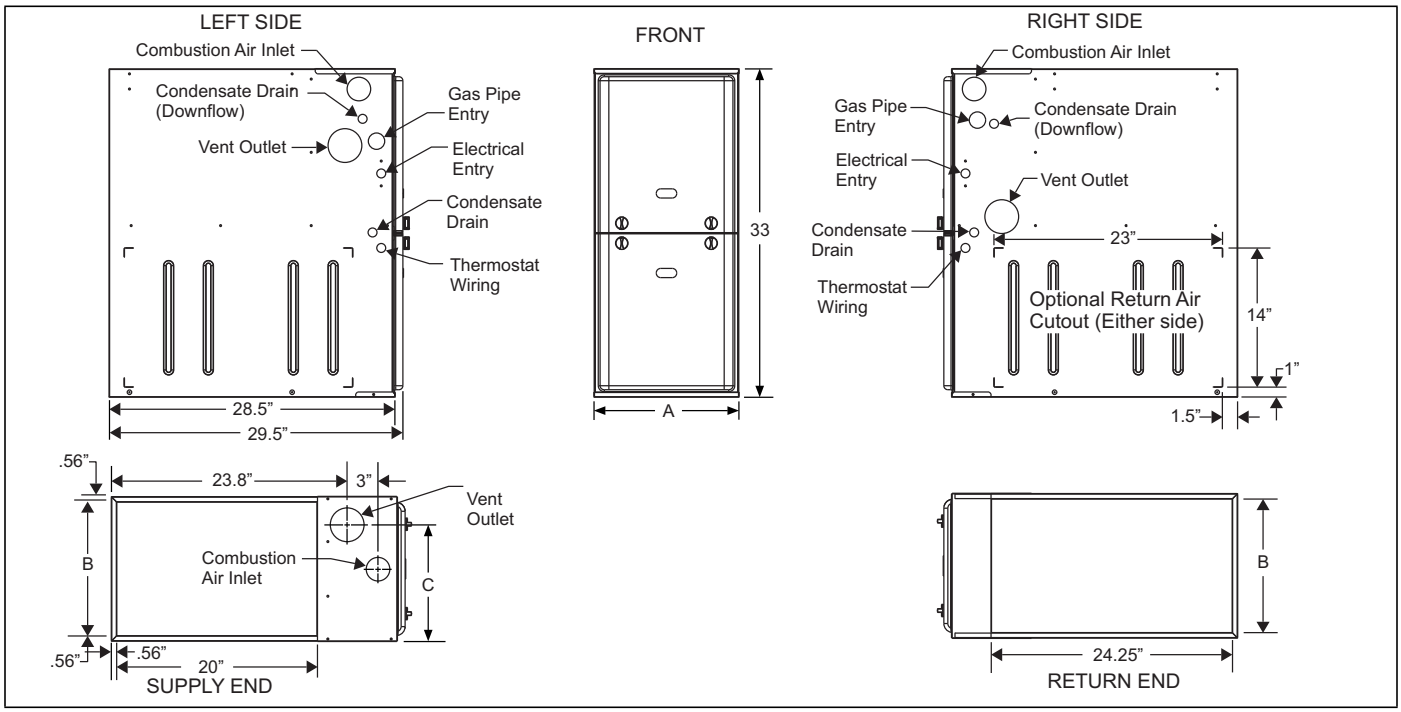
These compact units employ induced combustion, reliable hot surface ignition and high heat transfer aluminized tubular heat exchangers. The units are factory shipped for installation in upflow or horizontal applications and may be converted for downflow applications.

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, National Fuel Gas Code and may be vented either through side wall or roof applications using approved plastic combustion air and vent piping. Approved plastic combustion air and vent piping include Selkirk Polyflue, Duravent Polypro, & Centrotherm Innoflue polypropylene venting systems.

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 convertible 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 duct performance testing 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 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.
- These models may be connected as part of a communicating control system using a 4-wire connection bus.



Cabinet & Duct Dimensions

Model	Nominal CFM (m^3/min)	Cabinet Size	Cabinet Dimensions (Inches)			Approximate Operating Weights
			A	B	C	Lbs
TM9V040A10MP11C	1000	A	14-1/2	13-3/8	11-3/4	113
TM9V060B12MP11C	1200	B	17-1/2	16-3/8	13-1/4	122
TM9V080B12MP11C	1200	B	17-1/2	16-3/8	13-1/4	126
TM9V080C16MP11C	1600	C	21	19-7/8	16-1/2	136
TM9V100C16MP11C	1600	C	21	19-7/8	18-1/4	142
TM9V100C20MP11C	2000	C	21	19-7/8	18-1/4	145
TM9V120D20MP11C	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
TM9V040A10MP11C	40/26	38/25	9	96	30 - 60	20 - 50
TM9V060B12MP11C	60/39	58/37	9	96	35 - 65	35 - 65
TM9V080B12MP11C	80/52	77/50	9	96	40 - 70	35 - 65
TM9V080C16MP11C	80/52	77/50	12	96	35 - 65	35 - 65
TM9V100C16MP11C	100/65	96/62	12	96	35 - 65	30 - 65
TM9V100C20MP11C	100/65	96/62	14	96	35 - 65	35 - 65
TM9V120D20MP11C	120/78	115/75	14	96	35 - 65	35 - 65

Model	Max. Outlet Air Temp.	Blower		Blower Size	Max. Over-current Protect	Min. Wire Size (awg) @ 75 ft. One Way
	°F	HP	Amps	In.		
TM9V040A10MP11C	190	1/2	7	11 X 8	15	14
TM9V060B12MP11C	190	1/2	7	11 x 8	15	14
TM9V080B12MP11C	190	1/2	7	11 x 8	15	14
TM9V080C16MP11C	190	3/4	10.2	11 x 10	15	14
TM9V100C16MP11C	190	3/4	10.2	11 x 10	15	14
TM9V100C20MP11C	190	1	12.7	11 x 11	20	12
TM9V120D20MP11C	190	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)
1000	A	16 x 25	14 x 25
1200	B	16 x 25	16 x 25
1600	C	16 x 25	20 x 25
2000	C	(2) 16 x 25	20 x 25
2000	D	(2) 16 x 25	22 x 25

1. 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
Top	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 units for LP operation.

S1-1NP0347 - All Models

LP Stainless Steel Burner Kit - This accessory conversion kit may be used to convert existing burners to stainless steel burners for LP use only.

S1-32926889000 - All LP Models

Natural (NAT) Gas Stainless Steel Burner Kit - This accessory kit may be used to replace existing burners with stainless steel burners for NAT gas use only.

S1-32924441000 - All NAT gas Models

Concentric Vent Termination - For use through rooftop, sidewall. Allows combustion air to enter and exhaust to exit through single common hole. Eliminates unsightly 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 visible 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 available from the Source 1 Parts (P/N 026-30228-000).

S1-1NK0301

Side Return Filter Racks - The S1-1SR0200 Kit accommodates a 1”, 2” or 4” filter. The S1-1SR0402 Kit accommodates a 1” filter only.

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

Bottom Return Filter Racks - The S1-1BR05* series are galvanized steel filter racks. The S1-1BR06* series are pre-painted steel filter racks to match the appearance of the furnace cabinet. The S1-1BR05* and S1-1BR06* series filter racks accommodate a 1”, 2” or 4” filter.

S1-1BR0514 or S1-1BR0614 - For 14-1/2” cabinets
S1-1BR0517 or S1-1BR0617 - For 17-1/2” cabinets
S1-1BR0521 or S1-1BR0621 - For 21” cabinets
S1-1BR0524 or S1-1BR0624 - For 24-1/2” cabinets

Combustible Floor Base Kit - These kits are required to prevent potential overheating situations when the furnaces are installed in downflow applications directly onto combustible flooring material. These kits are also required in any applications where the furnace is installed in a downflow configuration without an indoor coil and where the combustible floor base kit provides access for combustible airflow.

S1-1CB0514 - For 14-1/2” cabinets
S1-1CB0517 - For 17-1/2” cabinets
S1-1CB0521 - For 21” cabinets
S1-1CB0524 - For 24-1/2” cabinets

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.

S1-1PS3306 - 060
S1-1PS3307 - 040, 080
S1-1PS3302 - 100, 120

Thermostats - Compatible thermostat controls are available through accessory sourcing. For optimum performance, these outdoor units are fully compatible with our residential touch screen thermostat with proprietary (patent-pending) hexagon interface. For more information, see the thermostat section of the Product Equipment Catalog.

S1-THXU280 - All Models

Air Flow Data

HIGH / LOW SPEED COOLING AND HEAT PUMP CFM							
040A10		060B12		080B12		Jumper Settings	
High	Low	High	Low	High	Low	COOL Tap	ADJ Tap
1073	704	1320	858	1320	858	A	B
957	622	1100	715	1100	715	B	B
975	640	1200	780	1200	780	A	A
870	565	1000	650	1000	650	B	A
878	576	1080	702	1080	702	A	C
770	501	880	572	880	572	C	B
783	509	900	585	900	585	B	C
649	440	660	440	660	440	D	B
700	455	800	520	800	520	C	A
590	400	600	400	600	400	D	A
630	410	720	468	720	468	C	C
531	400	540	400	540	400	D	C
080C16		100C16		100C20		Jumper Settings	
High	Low	High	Low	High	Low	COOL Tap	ADJ Tap
1760	1144	1760	1144	2200	1430	A	B
1540	1001	1540	1001	1760	1144	B	B
1600	1040	1600	1040	2000	1300	A	A
1400	910	1400	910	1600	1040	B	A
1440	936	1440	936	1800	1170	A	C
1320	858	1320	858	1540	1001	C	B
1260	819	1260	819	1440	936	B	C
1100	715	1100	715	1320	858	D	B
1200	780	1200	780	1400	910	C	A
1000	650	1000	650	1200	780	D	A
1080	702	1080	702	1260	819	C	C
900	585	900	585	1080	702	D	C
				120D20		Jumper Settings	
				High	Low	COOL Tap	ADJ Tap
				2200	1430	A	B
				1760	1144	B	B
				2000	1300	A	A
				1600	1040	B	A
				1800	1170	A	C
				1540	1001	C	B
				1440	936	B	C
				1320	858	D	B
				1400	910	C	A
				1200	780	D	A
				1260	819	C	C
				1080	702	D	C
HIGH/LOW HEAT CFM							
040A10		060B12		080B12		Jumper Settings	
High	Low	High	Low	High	Low	HEAT Tap	ADJ Tap
890	770	1200	870	1366	1156	A	Any
790	660	1070	770	1293	1022	B	Any
711	578	970	693	1185	924	C	Any
646	514	890	630	1094	840	D	Any
080C16		100C16		100C20		Jumper Settings	
High	Low	High	Low	High	Low	HEAT Tap	ADJ Tap
1580	1156	1975	1444	1975	1284	A	Any
1422	1027	1778	1284	1778	1156	B	Any
1293	924	1616	1156	1616	1050	C	Any
1185	840	1481	1050	1481	963	D	Any
				120D20		Jumper Settings	
				High	Low	HEAT Tap	ADJ Tap
				2250	1539	A	Any
				2133	1385	B	Any
				1939	1259	C	Any
				1778	1154	D	Any

All CFM's are shown at 0.5" w.c. external static pressure.These units have variable speed motors that automatically adjust to provide constant CFM from 0.0" to 0.6" w.c. 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 cleaners. Consult the instructions for the electronic air cleaner for further details.

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

700709-BTG-I-1016
Supersedes: 700709-BTG-H-0616

York International Corp.
5005 York Drive
Norman, OK 73069