TECHNICAL GUIDE

GAS-FIRED RESIDENTIAL TWO STAGE ECM MULTI-POSITION GAS FURNACES STANDARD & Low NOx MODELS

MODELS: TM8V / TMLV

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 for the most up-to-date technical information.

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

WARRANTY

20-year limited warranty on the heat exchanger.
10-year heat exchanger warranty on commercial applications.
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

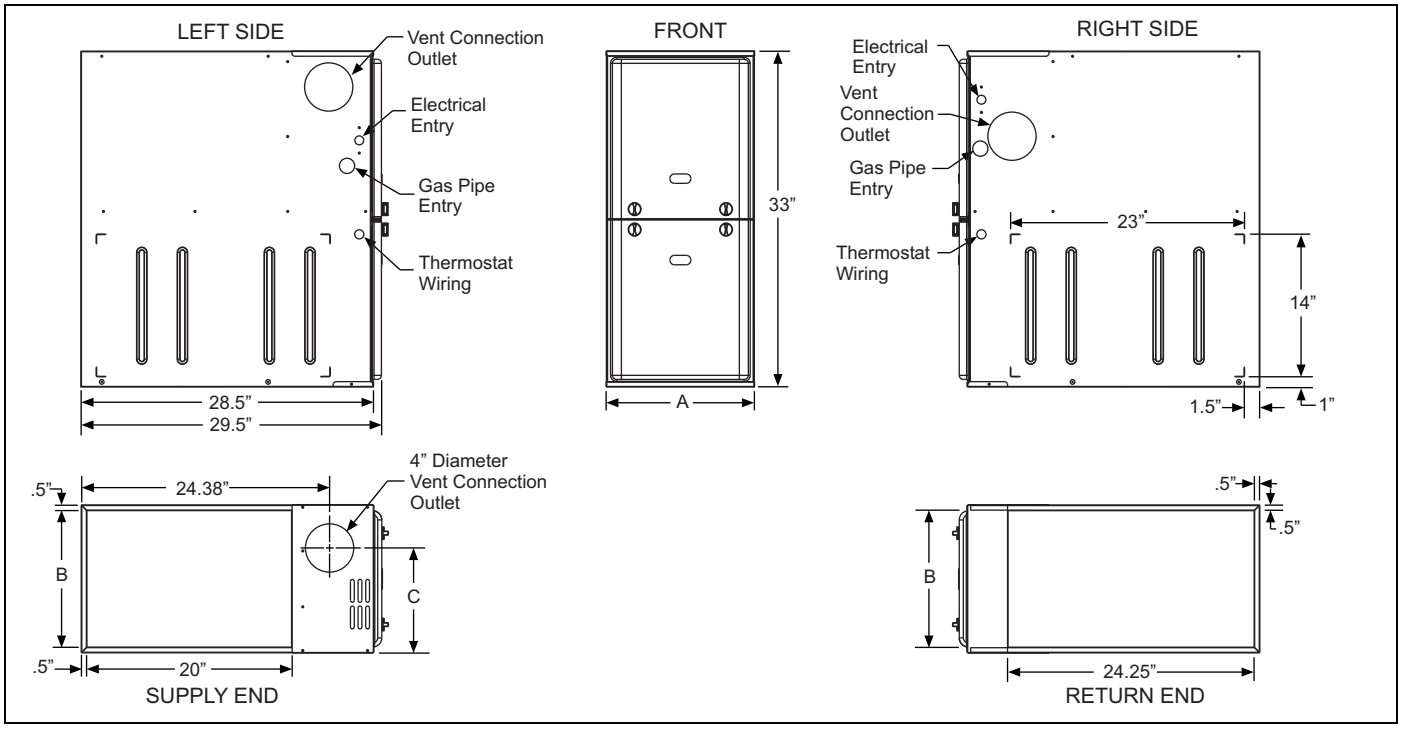
These compact units employ induced combustion, reliable hot surface ignition and high heat transfer aluminized tubular heat exchangers. The units are factory shipped for installation in upflow or horizontal applications and may be converted for downflow applications.

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 I listed and may be common vented with another gas appliance as allowed by the National Fuel Gas Code.

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.
- 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.
- Low NOx models have been designed to meet specific code requirements.
- Venting applications - may be installed as a common vent with other gas-fired appliances or use a masonry chimney.
- 1/4 turn knobs provided for easy independent door removal.



Cabinet and Duct Dimensions

Models	Nominal CFM	Cabinet Size	Cabinet Dimensions (Inches)		
			A	B	C
TM(8,L)V060A12MP11	1200	A	14 1/2	13 3/8	10.3
TM(8,L)V080B12MP11	1200	B	17 1/2	16 3/8	11.8
TM(8,L)V080C16MP11	1600	C	21	19 7/8	13.6
TM(8,L)V100C16MP11	1600	C	21	19 7/8	13.6
TM(8,L)V100C20MP11	2000	C	21	19 7/8	13.6
TM(8,L)V120C20MP11	2000	C	21	19 7/8	13.6

Table 1: Ratings & Physical / Electrical Data

Models	High Fire Input	Low Fire Input	High Fire Output	Low Fire Output	Nominal Airflow	Total Unit Amps	Max. Over-current Protect	Max. Outlet Air Temp
	MBH	MBH	MBH	MBH	CFM			°F
TM(8,L)V060A12MP11	60	39	47	31	1200	9.0	10	160
TM(8,L)V080B12MP11	80	52	63	42	1200	9.0	10	160
TM(8,L)V080C16MP11	80	52	63	42	1600	12.0	15	160
TM(8,L)V100C16MP11	100	65	80	52	1600	12.0	15	160
TM(8,L)V100C20MP11	100	65	80	52	2000	14.0	20	160
TM(8,L)V120C20MP11	120	78	96	62	2000	14.0	20	160

Models	High Fire Air Temp. Rise	Low Fire Air Temp. Rise	Blower		Blower Size	AFUE	Min. wire Size (awg) @ 75 ft one way	Operating weight
	°F	°F	HP	Amps	In.	%		Lbs.
TM(8,L)V060A12MP11	30-60	15-45	1/2	7.7	11 x 8	80.0	14	94
TM(8,L)V080B12MP11	30-60	20-50	1/2	7.7	11 x 8	80.0	14	103
TM(8,L)V080C16MP11	30-60	20-50	3/4	9.6	11 x 10	80.0	14	114
TM(8,L)V100C16MP11	30-60	20-50	3/4	9.6	11 x 10	80.0	14	118
TM(8,L)V100C20MP11	30-60	20-50	1	12.8	11 x 11	80.0	12	122
TM(8,L)V120C20MP11	30-60	20-50	1	12.8	11 x 11	80.0	12	129

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.

HORIZONTAL SIDEWALL VENTING

For applications where vertical venting is not possible, the only approved method of horizontal venting is the use of an auxiliary power vent. Auxilary power venters must be approved by CSA, UL, or other recognized safety agencies. Follow all application and installation details provided by the manufacturer of the power vent.

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

CFM	Cabinet Size	Side (in)	Bottom (in)
1200	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

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 (All dimensions in inches, and all surfaces identified with the unit in an upflow configuration)

Application	Top	Front	Rear	Left Side	Right Side	Flue	Floor/ Bottom	Closet	Alcove	Attic	Line Contact
Upflow	1	1	0	0	0	6	Combustible	Yes	Yes	Yes	No
Upflow B-Vent	1	1	0	0	0	1	Combustible	Yes	Yes	Yes	No
Downflow	1	1	0	0	0	6	1[1]	Yes	Yes	Yes	No
Downflow B-Vent	1	1	0	0	0	1	1[1]	Yes	Yes	Yes	No
Horizontal	1	1	0	0	0	6	Combustible	No	Yes	Yes	Yes[2]
Horizontal B-Vent	1	1	0	0	0	1	Combustible	No	Yes	Yes	Yes[2]

1. Special floor base or air conditioning coil required for use on combustible floor.
2. Line contact only permitted between lines formed by the intersection of the rear panel and side panel (top in horizontal position) of the furnace jacket and building joists, studs or framing.

ACCESSORIES

Propane (LP) Conversion Kit -

1NP0347 - All Models

This accessory conversion kit may be used to convert natural gas units for propane (LP) operation.

Side Return Filter Racks -

1SR0200 - All Models
1SR0302 - All Models
1SF0101 - All Models

Bottom Return Filter Racks -

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

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

Masonry Chimney Kits -

1CK0603
1CK0604

For installations where these furnaces are vented using existing or new lined masonry chimneys.

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. These kits are also required in any applications where the furnace in installed in a downflow configuration without an evaporator coil, where the combustible floor base kit provides access for combustible airflow.

1CB0514 - For 14-1/2” cabinets
1CB0517 - For 17-1/2” cabinets
1CB0521 - For 21” 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.

1PS3309

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

HIGH / LOW SPEED COOLING AND HEAT PUMP CFM					
TM(8,L)V060A12MP11		**TM(8,L)V080B12MP11**		**Jumper Settings**	
High	Low	High	Low	COOL Tap	ADJ Tap*
1309	851	1331	865	A	B
1108	720	1090	708	B	B
1190	774	1210	786	A	A
1007	655	991	644	B	A
1071	696	1089	708	A	C
901	586	891	579	C	B
906	589	892	580	B	C
686	446	636	413	D	B
819	532	810	526	C	A
624	406	578	410	D	A
737	479	729	474	C	C
553	403	520	410	D	C
TM(8,L)V080C16MP11		**TM(8,L)V100C16MP11**		**Jumper Settings**	
High	Low	High	Low	COOL Tap	ADJ Tap*
1794	1166	1765	1147	A	B
1570	1020	1568	1019	B	B
1631	1060	1605	1043	A	A
1427	928	1425	926	B	A
1468	954	1444	939	A	C
1351	878	1331	865	C	B
1284	835	1282	833	B	C
1115	725	1086	706	D	B
1228	798	1210	786	C	A
1014	659	987	642	D	A
1105	718	1089	708	C	C
913	593	888	577	D	C
TM(8,L)V100C20MP11		**TM(8,L)V120C20MP11**		**Jumper Settings**	
High	Low	High	Low	COOL Tap	ADJ Tap*
2230	1450	2200	1430	A	B
1792	1165	1826	1187	B	B
2030	1320	2065	1342	A	A
1629	1059	1660	1079	B	A
1827	1188	1858	1208	A	C
1584	1030	1642	1067	C	B
1466	953	1494	971	B	C
1382	898	1401	911	D	B
1440	936	1493	970	C	A
1256	816	1274	828	D	A
1296	842	1344	874	C	C
1130	734	1147	746	D	C
HIGH / LOW HEAT CFM					
TM(8,L)V060A12MP11		**TM(8,L)V080B12MP11**		**Jumper Settings**	
High	Low	High	Low	HEAT Tap	ADJ Tap*
1111	963	1480	1284	A	Any
988	825	1317	1100	B	Any
889	722	1185	963	C	Any
808	642	1077	856	D	Any
TM(8,L)V080C16MP11		**TM(8,L)V100C16MP11**		**Jumper Settings**	
High	Low	High	Low	HEAT Tap	ADJ Tap*
1480	1289	1851	1604	A	Any
1317	1100	1646	1375	B	Any
1185	960	1481	1204	C	Any
1077	855	1347	1070	D	Any
TM(8,L)V100C20MP11		**TM(8,L)V120C20MP11**		**Jumper Settings**	
High	Low	High	Low	HEAT Tap	ADJ Tap*
1851	1604	2220	1925	A	Any
1646	1375	1975	1651	B	Any
1481	1204	1778	1444	C	Any
1347	1070	1616	1284	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.

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