



## Heating and Air Conditioning

### TECHNICAL GUIDE

#### 96% AFUE TWO STAGE STANDARD ECM RESIDENTIAL GAS FURNACES

#### MULTI-POSITION

#### MODELS: TM9Y

#### NATURAL GAS

#### 40 - 120 MBH INPUT



Due to continuous product improvement, specifications are subject to change without notice.

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Additional rating information can be found at

[www.ahridirectory.org](http://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

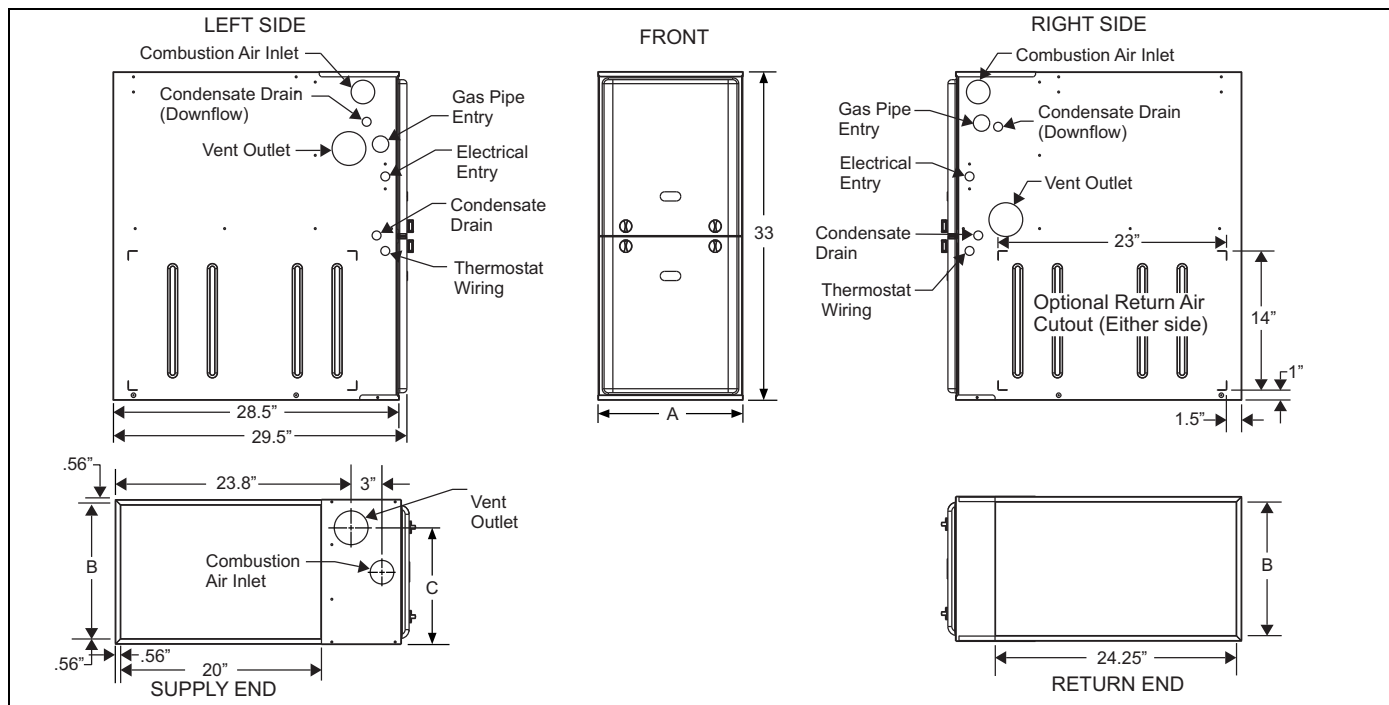
These compact units employ induced combustion, reliable hot surface ignition and high heat transfer aluminized steel tubular primary heat exchangers. The units are factory shipped for installation in upflow or horizontal applications and may be converted for downflow applications.

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 vent piping.

### FEATURES

- Two stage heating operation includes two stage gas valve, two stage inducer operation and constant torque standard 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.
- Standard ECM constant torque 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 current draw requirement for easy replacement application.
- All models are convertible to use propane (LP) gas.
- Electronic Hot Surface Ignition saves fuel use with increased dependability and reliability.
- 100% shut off main gas valve for extra safety.
- 24V, 40 VA control transformer and integrated furnace control 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 blaster 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.



### Cabinet & Duct Dimensions

Model	Nominal CFM (m <sup>3</sup> /min)	Cabinet Size	Cabinet Dimensions (Inches)			Approximate Operating Weights
			A	B	C	Lbs
TM9Y040A10MP11	1000	A	14-1/2	13-3/8	11-3/4	113
TM9Y060B12MP11	1200	B	17-1/2	16-3/8	13-1/4	119
TM9Y080B12MP11	1200	B	17-1/2	16-3/8	14-3/4	123
TM9Y080C16MP11	1600	C	21	19-7/8	16-1/2	130
TM9Y100C16MP11	1600	C	21	19-7/8	18-1/4	136
TM9Y100C20MP11	2000	C	21	19-7/8	18-1/4	143
TM9Y120D20MP11	2000	D	24-1/2	23-3/8	21-3/4	154

### 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
TM9Y040A10MP11	40/26	38/25	9.5	96	25-55	25-55
TM9Y060B12MP11	60/39	58/37	9.5	95.5	35-65	35-65
TM9Y080B12MP11	80/52	77/50	9.5	96	45-75	35-65
TM9Y080C16MP11	80/52	77/50	9.5	96	40-70	25-55
TM9Y100C16MP11	100/65	96/62	9.5	96	50-80	30-60
TM9Y100C20MP11	100/65	96/62	10.9	96	45-75	30-60
TM9Y120D20MP11	120/78	115/75	10.9	96	50-80	45-75
Model	Max. Outlet Air Temp.	Blower	Blower Size		Max. Over-current Protect	Min. Wire Size (awg) @ 75 ft. One Way
	°F	HP	Amps	In.		
TM9Y040A10MP11	190	1/2	6.8	11 X 8	15	14
TM9Y060B12MP11	190	1/2	6.8	11 x 8	15	14
TM9Y080B12MP11	190	1/2	6.8	11 x 8	15	14
TM9Y080C16MP11	190	1/2	6.8	11 x 10	15	14
TM9Y100C16MP11	190	1/2	6.8	11 x 10	15	14
TM9Y100C20MP11	190	3/4	8.4	11 x 11	15	14
TM9Y120D20MP11	190	3/4	8.4	11 x 11	15	14

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

- 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.
- 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 <sup>1</sup>	Combustible
Closet	Yes	Yes	Yes
Line Contact	No	No	Yes

- 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 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 also available from the Source 1 Parts (P/N S1-02630228000).

S1-1NK0301

### 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.

S1-1BR0514 or 1BR0614 - For 14-1/2" cabinets

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.

S1-1CB0514 - For 14-1/2" cabinets

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

S1-1CB0521 - For 21" cabinets

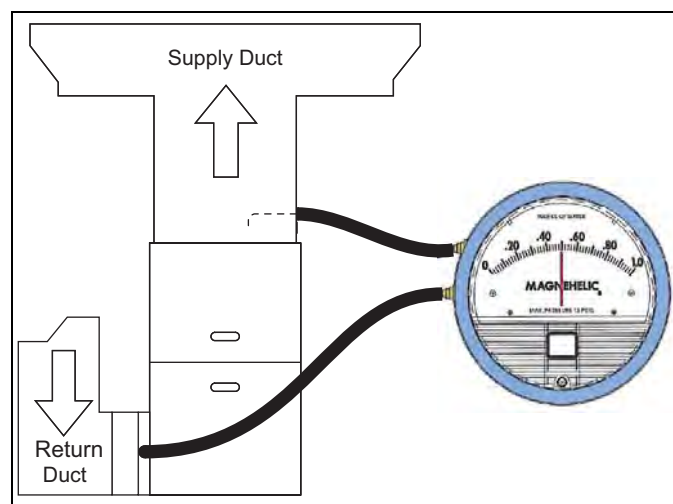
S1-1CB0524 - For 24-1/2" cabinets

**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.

S1-1PS3308 - All Models

**Thermostats** - Compatible thermostat controls are available through accessory sourcing.

## EXTERNAL STATIC PRESSURE SETUP



Set appropriate airflow per temperature rise for gas heating. Set appropriate airflow per "Blower Performance Table" for cooling/heat pump heating operating based on outdoor unit size.

### To measure external static pressure:

- Measure the supply air static pressure
- Record this positive number
- Measure the return air static pressure
- Record this negative number
- Treat the negative number as a positive and add the two numbers together
- This is total system static

# Blower Performance CFM - Any Position (without filter)

Models	Speed	Bottom Airflow Data (SCFM)									
		Ext. Static Pressure (in. H <sub>2</sub> O)									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
40A	High	1290	1260	1220	1160	1100	1040	960	840	750	660
	Medium High	1170	1140	1110	1070	1040	990	930	820	730	650
	Medium	990	980	940	900	860	830	790	730	680	630
	Medium Low	900	880	850	810	770	730	670	630	600	560
	Low	730	710	690	650	620	590	540	510	480	450
60B	High	1402	1374	1354	1328	1299	1262	1222	1167	1107	1036
	Medium High	1252	1233	1203	1182	1150	1125	1095	1064	1031	980
	Medium	1076	1059	1029	1007	973	946	908	883	843	800
	Medium Low	988	967	936	903	875	838	806	765	737	685
	Low	798	769	727	695	650	619	574	517	485	443
80B	High	1445	1423	1397	1365	1339	1311	1283	1250	1204	1140
	Medium High	1282	1266	1232	1211	1182	1157	1128	1097	1069	1013
	Medium	1098	1084	1059	1027	998	967	939	910	879	822
	Medium Low	1012	993	953	930	894	851	828	773	752	692
	Low	865	810	763	730	689	628	594	520	496	448
80C	High	1713	1682	1643	1600	1558	1519	1480	1436	1385	1333
	Medium High	1554	1519	1485	1439	1404	1368	1327	1280	1176	1130
	Medium	1380	1351	1302	1263	1224	1171	1128	1085	1030	943
	Medium Low	1177	1142	1083	1050	988	922	890	819	798	687
	Low	951	841	650	588	457	418	355	227	203	N / A
100C	High	1734	1694	1650	1611	1570	1536	1485	1438	1392	1335
	Medium High	1568	1537	1492	1453	1414	1373	1327	1279	1230	1118
	Medium	1420	1380	1332	1294	1249	1196	1152	1100	981	938
	Medium	1218	1169	1124	1067	1015	965	894	845	754	679
	Low	979	846	647	580	464	427	345	220	195	N / A
100C	High	2143	2102	2065	2028	1989	1944	1892	1825	1733	1625
	Medium High	1788	1749	1718	1672	1629	1587	1541	1500	1447	1355
	Medium	1575	1539	1500	1456	1410	1363	1305	1246	1095	1030
	Medium Low	1372	1325	1276	1225	1170	1111	1044	972	884	812
	Low	1031	921	810	728	660	615	518	474	391	355
120D	High	2214	2173	2132	2086	2036	1994	1952	1907	1849	1777
	Medium High	1841	1799	1749	1699	1659	1611	1567	1520	1471	1372
	Medium	1605	1562	1514	1470	1416	1361	1310	1180	1119	1045
	Medium Low	1405	1362	1303	1244	1189	1125	1054	986	876	826
	Low	1135	1020	844	758	671	557	511	464	387	N / A

## NOTES:

1. Airflow expressed in standard cubic feet per minute (SCFM).
2. Motor voltage at 115 V.