



TECHNICAL GUIDE

95.0% AFUE STANDARD ECM SINGLE STAGE MULTI-POSITION RESIDENTIAL GAS FURNACES

MODELS: TM9E

NATURAL GAS
40-120 MBH INPUT



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

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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

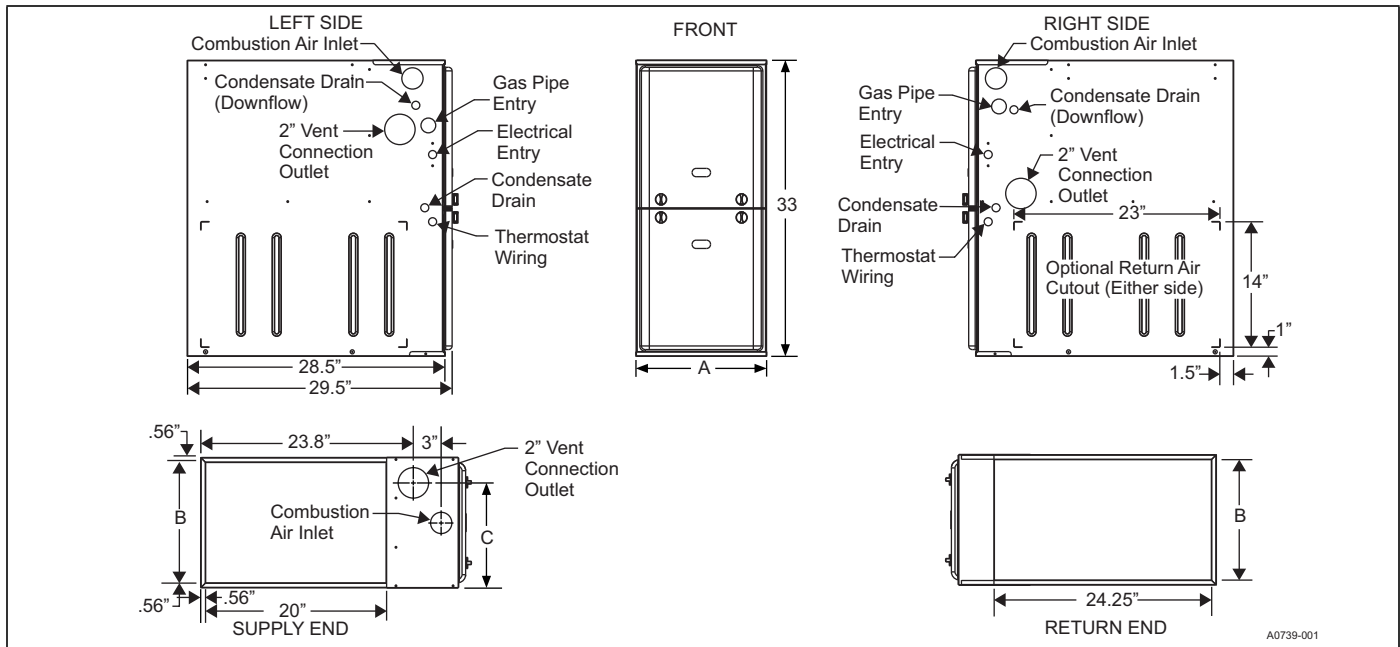
These compact units employ induced combustion, reliable hot surface ignition, and high heat transfer aluminized tubular heat exchangers. The units are factory shipped for installation in upflow or horizontal applications and can be converted for downflow applications.

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 ensure safe, dependable, and economical installation and operation.

These units are Category IV, National Fuel Gas Code and can 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, and Centrotherm Innoflue polypropylene venting systems.

FEATURES

- Easily applied in upflow, horizontal left or right, or downflow installation with minimal conversion necessary.
- Compact, easy to install, ideal height 33 in. tall cabinet.
- Blower-off delay for cooling SEER improvement.
- Easy access to controls to connect power/control wiring.
- Built-in, high level self diagnostics with fault code displays standard on integrated control module for reliable operation.
- Low unit current 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.
- 5 speed, direct drive standard ECM high efficiency motor.
- 24 V, 40 VA control transformer and blower relay supplied for add-on cooling.
- Hi-tech tubular aluminized steel primary heat exchanger.
- Secondary heat exchanger made of corrosion resistant stainless steel materials.
- Timed on, adjustable off blower capability for maximum comfort.
- Blower door safety switch.
- Solid removable bottom panel allows easy conversion.
- Airflow leakage less than 1% of nominal airflow at duct performance testing conditions.
- No knockouts to deal with, making installation easier.
- Movable duct connector flanges for application flexibility.
- Quiet inducer 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.
- Protection included from air intake, exhaust vent, or condensate blockage.
- Patented self priming internal condensate trap design for easy installation.
- Venting applications - can be installed as a two-pipe (sealed combustion) or single-pipe vent (using indoor combustion air).
- No special vent termination required.
- 1/4 turn knobs provided for easy door removal.
- High-efficiency blower motor for lower electrical power usage and improved AC SEER ratings.
- Insulated blower compartment for terminal and acoustic performance.



Cabinet and Duct Dimensions

Model	Nominal CFM (m ³ /min)	Cabinet Size	Cabinet Dimensions (in.)			Approximate Operating Weights (lb)
			A	B	C	
TM9E040A10MP12	1000	A	14-1/2	13-3/8	11-3/4	113
TM9E060A10MP12	1200	A	14-1/2	13-3/8	11-3/4	118
TM9E060B12MP12	1200	B	17-1/2	16-3/8	13-1/4	122
TM9E080B12MP12	1200	B	17-1/2	16-3/8	14-3/4	126
TM9E080C16MP12	1600	C	21	19-7/8	16-1/2	136
TM9E080C20MP12	2000	C	21	19-7/8	18-1/4	139
TM9E100C16MP12	1600	C	21	19-7/8	18-1/4	142
TM9E100C20MP12	2000	C	21	19-7/8	18-1/4	145
TM9E120D20MP12	2000	D	24-1/2	23-3/8	21-3/4	156

Ratings and Physical/Electrical Data

Model	Input	Output	AFUE	Air Temperature Rise	Maximum Outlet Air Temperature	Blower		Blower Size	Recommended Fuse or Circuit Breaker	Total Unit	Gas Pipe Connection, NPT
	MBH	MBH	%	°F	°F	HP	A	in.	A	A	in.
TM9E040A10MP12	40	38	95.0	30-60	190	1/2	6.8	11 x 8	15	10.4	1/2
TM9E060A10MP12	60	57	95.0	35-65	190	1/2	6.8	11 x 8	15	10.4	1/2
TM9E060B12MP12	60	57	95.0	30-60	190	1/2	6.8	11 x 8	15	10.4	1/2
TM9E080B12MP12	80	76	95.0	40-70	190	1/2	6.8	11 x 8	15	10.4	1/2
TM9E080C16MP12	80	76	95.0	40-70	190	5/8	8.0	11 x 10	15	11.6	1/2
TM9E080C20MP12	80	76	95.0	30-60	190	1	10.9	11 x 11	20	14.5	1/2
TM9E100C16MP12	100	95	95.0	40-70	190	5/8	8.0	11 x 10	15	11.6	1/2
TM9E100C20MP12	100	95	95.0	35-65	190	1	10.9	11 x 11	20	14.5	1/2
TM9E120D20MP12	120	114	95.0	45-75	190	1	10.9	11 x 11	20	14.5	1/2

Notes:

Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE Test procedures.
 Wire size and overcurrent protection must comply with the National Electrical Code (NFPA-70-latest edition) and all local codes.
 The furnace must be installed so the electrical components are protected from water.

FILTER PERFORMANCE

The airflow capacity data in the Blower Performance CFM - Any Position (Without Filters) table 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.

Note: 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 of a 20 x 25 filter.

Recommended Filter Sizes (High velocity 600 FPM)

CFM (m ³ /min)	Cabinet Size	Side (in.)	Bottom (in.)
800 (22.6)	A	16 x 25	14 x 25
1000 (28.3)	A	16 x 25	14 x 25
1200 (34.0)	A	16 x 25	14 x 25
1200 (34.0)	B	16 x 25	16 x 25
1600 (45.3)	C	16 x 25	20 x 25
2000 (56.6)	C	(2) 16 x 25	20 x 25
2000 (56.6)	D	(2) 16 x 25	22 x 25

Notes:

Air velocity through throwaway filters must not exceed 300 ft/min (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 16 x 25 filter. For CFM greater than 1800, you can use two side returns, or one side and the bottom, or one return with a transition to allow use of a 20 x 25 filter.

Unit Clearances to Combustibles

Application	Upflow	Downflow	Horizontal
Top	1 in.	0 in.	0 in.
Vent	0 in.	0 in.	0 in.
Rear	0 in.	0 in.	0 in.
Side	0 in.	0 in.	1 in.
Front ¹	0 in.	0 in.	0 in.
Floor	Combustible	Combustible ²	Combustible
Closet	Yes	Yes	Yes
Line Contact	No	No	Yes

1. 24 in. clearance in front and 18 in. on side is recommended for service access.

2. A special sub-base is required for downflow applications on combustible floors.

Note: All furnaces are approved for alcove and attic installation.

ACCESSORIES

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

S1-1NP0347 - All models

S1-1NP0820 - Same as S1-1NP0347 except includes stainless steel LP burners

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

S1-32926889000 - All LP models

Twinning Kit Accessory - For installation with two identical model furnaces with a common duct system and properly sized heating and cooling equipment.

S1-33103764000

Natural (NAT) Gas Stainless Steel Burner Kit - This accessory kit can 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, side-wall. Allows combustion air to enter and exhaust to exit through single common hole. Eliminates unsightly elbows for a cleaner installation.

S1-1CT0302 (2 in.) and S1-1CT0302-636 (2 in.)

S1-1CT0303 (3 in.) and S1-1CT0303-636 (3 in.)

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

S1-1HT0901 (3 in.)

S1-1HT0902 (2 in.)

Condensate Neutralizer Kit - Neutralizer cartridge has 1/2 in. 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).

S1-1NK0301

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

S1-1BR0514 or S1-1BR0614 - For 14-1/2 in. cabinets

S1-1BR0517 or S1-1BR0617 - For 17-1/2 in. cabinets

S1-1BR0521 or S1-1BR0621 - For 21 in. cabinets

S1-1BR0524 or S1-1BR0624 - For 24-1/2 in. 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 in. cabinets

S1-1CB0517 - For 17-1/2 in. cabinets

S1-1CB0521 - For 21 in. cabinets

S1-1CB0524 - For 24-1/2 in. cabinets

High Altitude Pressure Switches - For installation where the altitude is less than 5,000 ft, it is not required to change the pressure switch. For altitudes above 5,000 ft, see the 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 Hx™ Touch Screen Thermostats available through Source 1. For more information, see the thermostat section of the Product Equipment Catalog.

Blower Performance CFM - Any Position (Without Filter)

Models	Speed	Airflow Data (SCFM) ^{1,2}							
		External Static Pressure (in. H ₂ O)							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
TM9E040A10MP12	High	1172	1147	1116	1083	1035	984	933	870
	Medium High	952	919	896	865	839	809	780	765
	Medium	882	861	824	802	771	746	709	685
	Medium Low	754	716	688	650	610	588	551	523
	Low	688	648	619	584	541	518	481	446
TM9E060A10MP12	High	1239	1209	1175	1143	1124	1095	1066	1019
	Medium High	1142	1102	1080	1050	1019	989	960	924
	Medium	971	935	909	869	839	805	761	731
	Medium Low	915	891	848	818	776	744	708	691
	Low	773	739	687	655	604	572	527	496
TM9E060B12MP12	High	1342	1316	1290	1268	1243	1219	1172	1116
	Medium High	1297	1267	1247	1217	1189	1159	1129	1087
	Medium	1165	1139	1108	1080	1051	1020	983	948
	Medium Low	1027	995	965	936	894	862	825	778
	Low	822	775	740	687	649	605	566	512
TM9E080B12MP12	High	1418	1390	1364	1333	1304	1281	1246	1205
	Medium High	1305	1281	1244	1217	1182	1149	1109	1066
	Medium	1139	1112	1071	1035	992	951	908	874
	Medium Low	1017	986	948	901	859	819	765	727
	Low	885	821	763	711	651	611	560	518
TM9E080C16MP12	High	1706	1678	1649	1621	1602	1560	1505	1437
	Medium High	1390	1344	1313	1267	1235	1194	1150	1109
	Medium	1212	1167	1125	1086	1041	996	951	902
	Medium Low	1016	964	914	861	803	734	653	594
	Low	920	791	733	666	568	506	448	388
TM9E080C20MP12	High	2130	2086	2065	2016	2001	1932	1863	1775
	Medium High	1922	1894	1835	1810	1771	1727	1688	1627
	Medium	1684	1648	1616	1559	1516	1471	1429	1382
	Medium Low	1563	1528	1474	1435	1392	1329	1291	1244
	Low	1371	1321	1281	1222	1173	1131	1076	1017
TM9E100C16MP12	High	1762	1733	1688	1659	1625	1594	1565	1512
	Medium High	1428	1386	1337	1291	1245	1205	1161	1114
	Medium	1225	1178	1127	1083	1034	988	918	886
	Medium Low	1108	1059	1001	948	889	821	764	702
	Low	1022	867	799	732	660	579	521	496
TM9E100C20MP12	High	2140	2100	2070	2038	2006	1932	1871	1786
	Medium High	1883	1854	1818	1777	1720	1676	1649	1590
	Medium	1671	1624	1595	1557	1498	1450	1407	1351
	Medium Low	1581	1525	1493	1443	1394	1346	1292	1253
	Low	1350	1311	1244	1202	1138	1098	1053	978
TM9E120D20MP12	High	2159	2118	2089	2050	2005	1939	1856	1756
	Medium High	1941	1907	1864	1824	1779	1736	1688	1645
	Medium	1789	1749	1714	1677	1629	1586	1540	1494
	Medium Low	1643	1607	1555	1515	1468	1420	1380	1332
	Low	1396	1343	1302	1250	1190	1152	1095	1034

1. Airflow expressed in standard cubic feet per minute (SCFM).

2. Motor voltage at 115 V.

Note: Shaded conditions are not recommended for use as heating speeds.