



TECHNICAL GUIDE

95% AFUE STANDARD ECM SINGLE STAGE RESIDENTIAL GAS FURNACES UPFLOW/HORIZONTAL ULTRA LOW NOx MODELS: TL9E

NATURAL GAS
60 - 100 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 limited warranty on heat exchangers in 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.

See Limited Warranty certificate in User's Information Manual for details.

DESCRIPTION

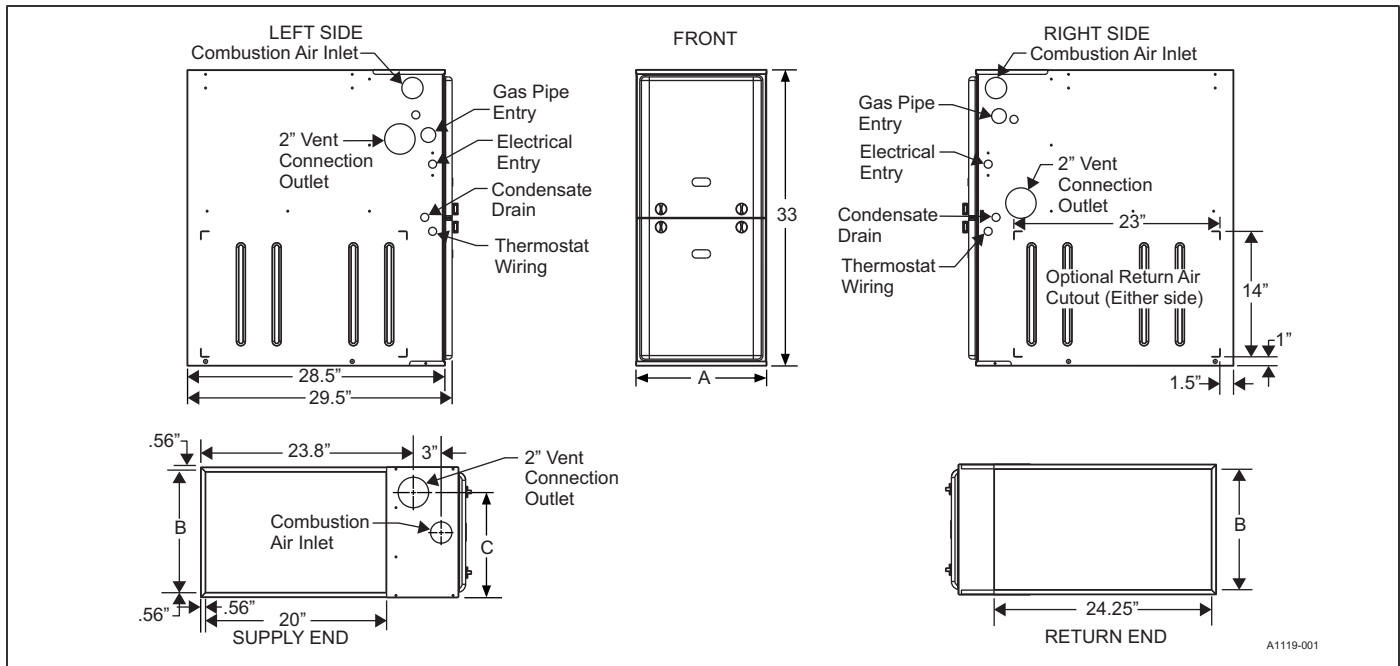
These residential compact units employ induced combustion, reliable hot surface ignition, and high heat transfer stainless steel tubular heat exchangers. The units are factory shipped for installation in upflow or horizontal applications.

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, and Centrotherm Innoflue polypropylene venting systems.

FEATURES

- Easily applied in upflow or horizontal left or right 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.
- Electronic Hot Surface Ignition saves fuel cost with increased dependability and reliability.
- 100% shut off main gas valve for extra safety.
- Five-speed direct-drive standard ECM blower motor.
- 24-V, 40-VA control transformer and blower relay supplied for add-on cooling.
- Hi-tech tubular stainless 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.
- Fully supported blower assembly for easy access and removal of blower.
- External air filters used for maximum flexibility in meeting customers' indoor air quality needs.
- Protection included from air intake, exhaust vent, or condensate blockage.
- Venting applications - may be installed as either 2-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 A/C SEER ratings.
- Insulated blower compartment for thermal and acoustic performance.



Cabinet & Duct Dimensions

Models	Nominal CFM	Cabinet Size	Cabinet Dimensions (in.)			Approximate Operating Weights lb
	m ³ /min		A	B	C	
TL9E060B12UH11	1200	B	17 1/2	16 3/8	13 1/4	122
TL9E080C16UH11	1600	C	21	19 7/8	16 1/2	136
TL9E100C20UH11	2000	C	21	19 7/8	18 1/4	145

Ratings & Physical / Electrical Data

Models	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.
TL9E060B12UH11	60	57	95.0	30 – 60	190	1/2	6.4	11 x 8	15	8.0	1/2
TL9E080C16UH11	80	76	95.0	35 – 65	190	3/4	8.8	11 x 10	15	10.4	1/2
TL9E100C20UH11	100	95	95.0	35 – 65	190	1	11.5	11 x 11	15	13.1	1/2

NOTES:

Nominal external static pressure is 0.50 in. W.C. at furnace outlet ahead of cooling coils.
 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.

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 m ³ /min	Cabinet Size	Side in.	Bottom in.
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

NOTES:

- Air velocity through throwaway type filters may 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 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	Horizontal
	in.	in.
Top	1	0
Vent	0	0
Rear	0	0
Side	0	1
Front*	0	0
Floor	Combustible	Combustible
Closet	Yes	Yes
Line Contact	No	Yes

NOTES:

- * 24 in. clearance in front and 18 in. on side recommended for service access. All furnaces approved for alcove and attic installation.

ACCESSORIES

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 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 S1-1SR0402 Kit accommodates a 1-in. filter only.

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.

S1-1BR0517 or S1-1BR0617 - For 17 1/2-in. cabinets
S1-1BR0521 or S1-1BR0621 - For 21-in. cabinets

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, refer to the *Thermostats & Controllers* section of the *Offering Catalog*.

High Altitude Kit - Required for 95% furnace applications above 5000 ft and up to 7800 ft on 80k and 100k models. No adjustments are needed on 60k models.

Not Required – 60k

S1-32552070000 – 80k

S1-32552071000 – 100k

Blower Performance CFM - Any Position (without filter)

Models	Speed	Airflow Data (SCFM) ^{1,2}							
		Ext. Static Pressure (in. H ₂ O)							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
TL9E060B12UH11	High	1319	1287	1265	1232	1204	1171	1134	1098
	Medium High	1128	1100	1073	1039	997	958	919	871
	Medium	952	918	882	846	801	762	717	681
	Medium Low	771	734	694	643	601	559	513	461
	Low	710	675	632	584	540	491	445	397
TL9E080C16UH11	High	1745	1711	1679	1642	1607	1569	1529	1486
	Medium High	1569	1527	1493	1458	1422	1380	1342	1299
	Medium	1355	1324	1285	1247	1209	1177	1133	1083
	Medium Low	1132	1090	1053	1011	977	923	887	825
	Low	968	925	875	832	790	722	650	607
TL9E100C20UH11	High	2171	2123	2092	2038	1995	1944	1893	1853
	Medium High	1815	1766	1721	1676	1632	1583	1535	1499
	Medium	1596	1555	1501	1453	1412	1384	1335	1288
	Medium Low	1377	1316	1276	1223	1170	1131	1076	1029
	Low	1256	1204	1149	1102	1058	1008	953	856

NOTES:

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