



TECHNICAL GUIDE

80% SINGLE STAGE ECM RESIDENTIAL GAS FURNACES UPFLOW/HORIZONTAL ULTRA LOW NOx MODELS: TL8E

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

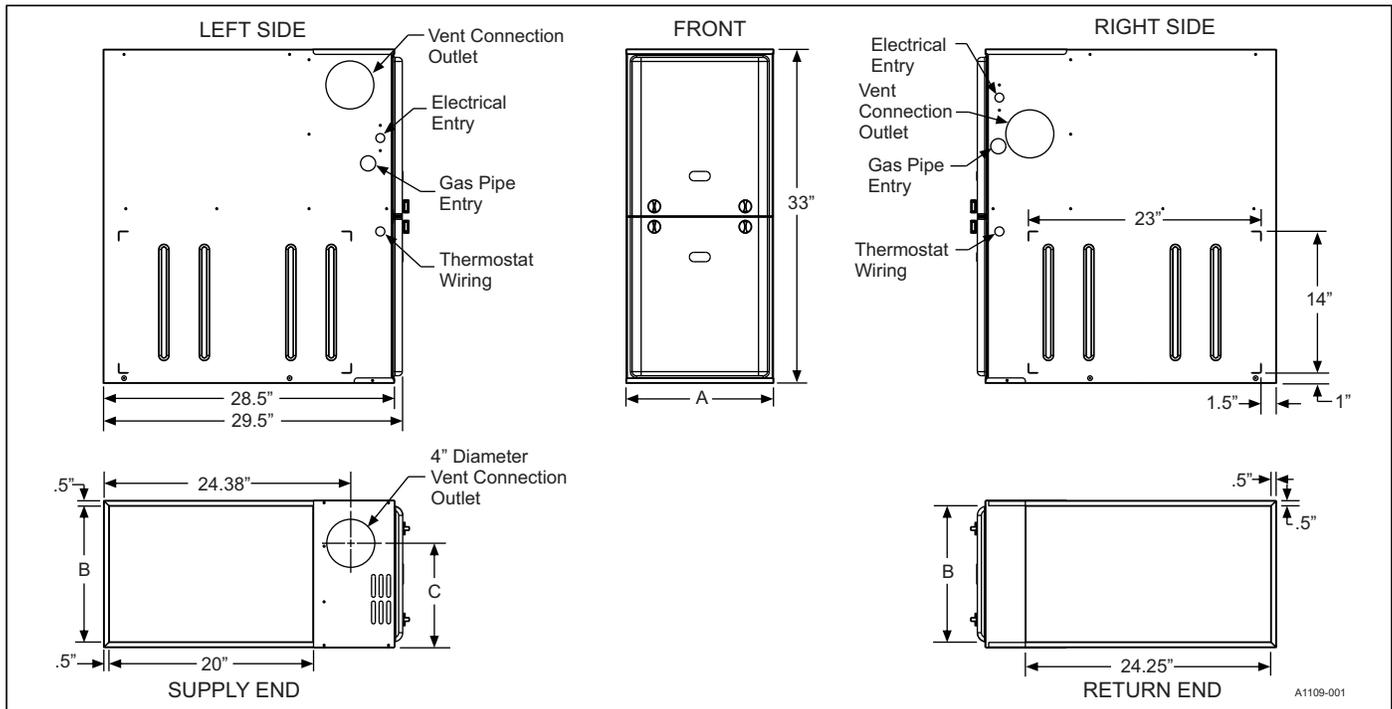
These residential compact units employ induced combustion, reliable hot surface ignition, and high heat transfer stainless steel tubular heat exchangers. The units are factory shipped for installation in upflow applications and may be converted for horizontal applications.

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

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 amp 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 heat exchanger.
- Timed on, adjustable off blower capability for maximum comfort.
- Blower door safety switch.
- Solid removable bottom panel allows easy conversion.
- Designed to meet new 14 ng/J NOx emissions requirements.
- Airflow leakage less than 1% of total 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' IAQ needs.
- 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 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
			A	B	C	lb
TL8E060A12UH11	1200	A	14 1/2	13 3/8	10.3	94
TL8E080C16UH11	1600	C	21	19 7/8	13.6	114
TL8E100C20UH11	2000	C	21	19 7/8	13.6	122

Ratings & Physical / Electrical Data

Models	Input	Output	AFUE	Air Temp. Rise	Max. Outlet Air Temp	Blower		Blower Size	Recommended Fuse or Circuit Breaker	Total Unit	Gas Pipe Connection, NPT
	MBH	MBH	%	°F	°F	HP	A	in.	A	A	in.
TL8E060A12UH11	60	48	80.0	35 – 65	190	1/2	6.4	11 x 8	15	9.0	1/2
TL8E080C16UH11	80	64	80.0	35 – 65	190	1/2	6.4	11 x 10	15	9.0	1/2
TL8E100C20UH11	100	80	80.0	35 – 65	190	3/4	8.8	11 x 11	15	11.4	1/2

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

CFM	Cabinet Size	Side (in.)	Bottom (in.)
1200 (34.0)	A	16 x 25	14 x 25
1600 (45.3)	C	16 x 25	20 x 25
2000 (56.6)	C	(2) 16 x 25	20 x 25

1. 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.
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 in. (cm), 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 (2.5)	1 (2.5)	0 (0.0)	0 (0.0)	0 (0.0)	6 (15.2)	Combustible	Yes	Yes	Yes	No
Upflow B-Vent	1 (2.5)	1 (2.5)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.5)	Combustible	Yes	Yes	Yes	No
Horizontal	1 (2.5)	1 (2.5)	0 (0.0)	0 (0.0)	0 (0.0)	6 (15.2)	Combustible	No	Yes	Yes	Yes ¹
Horizontal B-Vent	1 (2.5)	1 (2.5)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.5)	Combustible	No	Yes	Yes	Yes ¹

1. 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

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.

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

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

Masonry Chimney Kit - This accessory kit allows upflow 80% models to be vented into a tile-lined masonry chimney.

S1-1CK0604 - All 80% Non-modulating Models

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 Source1. For more information, refer to the *Thermostats & Controllers* section of the *Offering Catalog*.

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
TL8E060A12UH11	High	1363	1328	1282	1257	1211	1180	1145	1100
	Medium High	1161	1128	1083	1045	999	959	916	876
	Medium	974	941	898	859	811	762	720	667
	Medium Low	796	758	714	664	612	562	516	464
	Low	720	685	636	589	529	473	431	375
TL8E080C16UH11	High	1780	1730	1690	1650	1604	1574	1534	1501
	Medium High	1576	1540	1504	1455	1408	1359	1316	1268
	Medium	1443	1401	1357	1312	1258	1216	1163	1114
	Medium Low	1259	1211	1164	1114	1065	1011	950	894
	Low	1080	1030	978	927	872	816	757	680
TL8E100C20UH11	High	2197	2138	2096	2052	2007	1958	1904	1869
	Medium High	1767	1736	1696	1659	1611	1560	1516	1468
	Medium	1581	1521	1476	1442	1400	1344	1295	1250
	Medium Low	1406	1358	1316	1269	1222	1177	1131	1087
	Low	1205	1146	1098	1039	993	939	890	820

NOTES:

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