



GAS FURNACES
ML180UHT (CE)
MERIT® SERIES
Upflow / Horizontal 50HZ

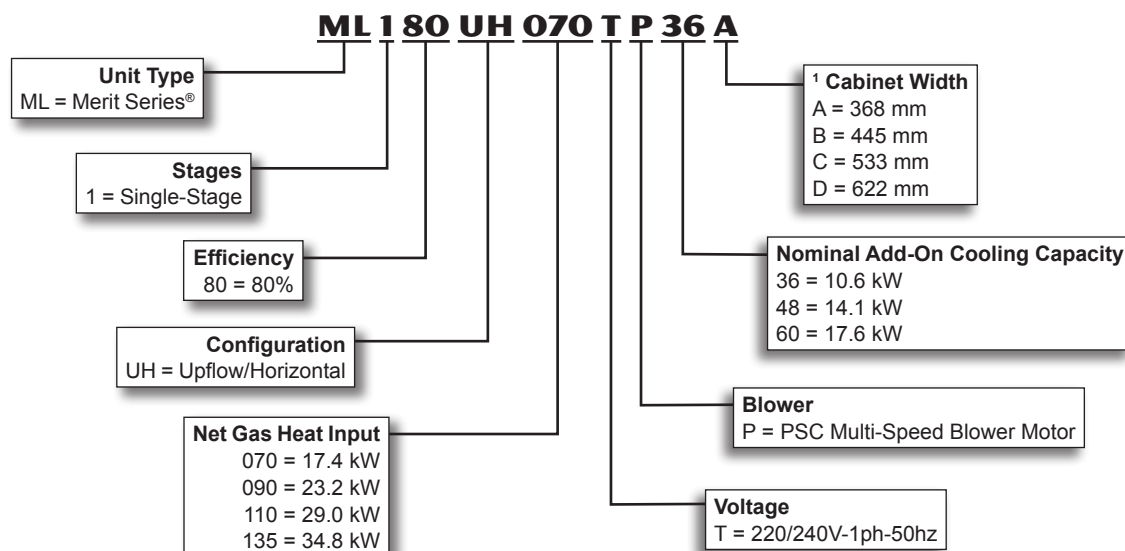
PRODUCT SPECIFICATIONS

Bulletin Number 490160
June 2015
Supersedes June 2013



Net Input - 17.4 to 34.8 kW
Nominal Add-on Cooling - 10.6 to 17.6 kW

MODEL NUMBER IDENTIFICATION



¹ Indoor coils with the same letter designation will physically match the furnace.

FEATURES

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APPROVALS

ISO 9001 Registered Manufacturing Quality System.

Blower data from unit tests conducted in Lennox Laboratory air test chamber.

APPLICATIONS

Gas Requirements

Lennox ML180UHT series units carry the CE marking and are certified for installation in following countries using the gas categories shown below:

- **Natural Gas - G20 (20 millibar)**
I2E and I2H: AT – CH – CZ – DE – DK – EE – ES – FI – GB – GR – HR – IE – IT – LT – LU – LV – NO – PL – PT – RO – SE – SI – SK – TR
- **Propane - G31 (37 or 50 millibar)**
I3P: AT – BE – CH – CZ – DE – ES – FR – GB – GR – HR – HU – IE – IT – LT – NL – PL – RO – SI
- **Natural Gas - G20, and Propane - G31**
II2H3P: AT – CH – CZ – ES – GB – GR – HR – IE – IT – LT – PT – RO – SI – SK

IMPORTANT - Lennox does not recommend using unrefined or “well head” gas on Lennox gas-fired furnaces. The quality of gas is not controlled and may have contaminants which may lead to corrosion, premature heat exchanger failure and may void the equipment warranty. The information provided above is intended for evaluating fuel gases available commercially through gas utilities or propane suppliers.



Input capacities of 17.4, 23.2, 29.0 and 34.8 kW (Net Calorific value).

Compact cabinet for upflow, horizontal-left or horizontal-right applications.

Utility room, alcove, closet, crawl space, basement or attic installation.

Lennox add-on indoor coils, high-efficiency air cleaners and humidifiers can easily be added to furnace.

Shipped factory assembled with all controls installed and wired.

Ready for installation in upflow or horizontal right-hand position without any modifications. Horizontal left-hand position requires repositioning of pressure switch. Removable bottom seal panel shipped in place for side return air is easily removed for bottom/end return air applications.

Each unit factory test operated to ensure proper operation.

FEATURES

HEATING SYSTEM

1 Lennox Heat Exchanger Assembly

Heavy gauge aluminized steel heat exchanger.

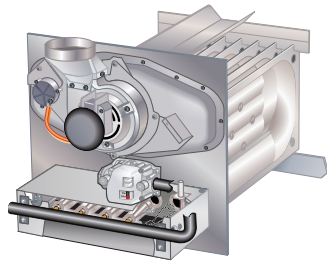
Crimped seam clamshell type design.

Designed for normal expansion and contraction.

Minimum resistance to air flow.

Heat exchanger has been laboratory life cycle tested in excess of industry standards.

Compact size of heat exchanger permits low overall design of furnace cabinet.



2 Inshot Burners

Aluminized steel inshot burners provide efficient, trouble-free operation.

Burner venturi mixes air and gas in correct proportion for proper combustion.

Burner assembly is removable from the unit as a single component for ease of service.

3 Hot Surface Mini-Nitride Ignitor

Unique, non-porous, high-strength proprietary ceramic material provides long life and trouble-free maintenance.

Low mass element provides fast heat-up and consistent ignitor temperature with low power usage.

Cemented to alumina block for positive mounting and protection against current leakage.

High temperature Teflon® insulated ignition lead wires for dependable operation.

4 Gas Control Valve

CE approved.

24 volt redundant combination gas control valve combines manual shut off switch (On-Off), automatic electric valve (dual) and gas pressure regulation into a compact combination control.

5 Combustion Air Inducer

Shaded pole heavy duty blower prepurges heat exchanger and safely vents flue products.

Pressure switch proves blower operation before allowing gas valve to open.

Operates only during heating cycle.

Direct access allows inducer assembly to be rotated 90° clockwise or counterclockwise to facilitate easy vent attachment in horizontal applications.

6 Flame Rollout Switches (2)

Manual reset switches are factory installed inside burner box.

Switches provides protection from abnormal operating conditions.

Limit Controls

Manual reset primary and secondary limits are accurately located.

Primary limit factory installed on vestibule panel on all units, secondary limit factory installed on blower housing.

Optional Accessories

High Altitude Orifice Kit - Natural Gas Only

Required for all natural gas models for proper unit operation at altitudes of 1525 to 1981 feet.

High Altitude Pressure Switch Kit

Required on most units for proper unit operation at altitudes from 611 to 1981 m.

Natural Gas to Propane Kit

Required for field changeover from natural gas to propane.

Propane to Natural Gas Kit

Required for field changeover from propane to natural gas.

7 CONTROLS

Integrated Single-Stage Furnace Control

Contains all necessary controls and relays to operate furnace.

Combustion air inducer is controlled by the furnace control. Prior to ignition, a pre-purge cycle for 15 seconds is initiated. After the main burners are turned off, a post-purge cycle for 5 seconds is run.

Electronic flame sensor assures safe, reliable operation.

Should flame fail to ignite, flame sensor will initiate 4 re-attempts at ignition before locking out unit operation for 60 minutes.

Watchguard type circuit automatically resets ignition controls after one hour of continuous thermostat demand after unit lockout, eliminating nuisance calls for service.

To aid in troubleshooting, the last three fault codes are stored for a maximum of six months. Displays the fault codes through indicator LEDs.

Two accessory terminals furnished for additional power supply requirements for 240 volt (less than 1 amp) power humidifiers and powered air cleaners.

Fan control consists of adjustable blower timed-off delay (60, 90, 120, 180 seconds - factory setting 60 seconds) and fixed blower timed-on delay (30 seconds).

For air-conditioning applications, blower is automatically energized on thermostat demand for cooling.

IEC Receptacle

IEC receptacle provided on right side of furnace cabinet for easy, plug-in electrical connection.

24 Volt Transformer

Furnished and factory installed on blower wrapper. 40VA transformer has fuse wired in series.

Optional Accessories

Thermostat

Thermostat (programmable/non-programmable) is not furnished with unit.

FEATURES

BLOWER

- 8 Multi-speed direct drive blower.
Statically and dynamically balanced.
Resiliently mounted.
Blower assembly easily removed for servicing.
Blower speeds are easily changed on the integrated furnace control. See blower performance tables.

CABINET

- Low-profile, narrow width cabinet allows easy installation.
Heavy-gauge, cold rolled steel construction.
Pre-painted cabinet finish.
Flue outlet on top of cabinet for upflow applications, can be relocated to either side of cabinet for horizontal applications.
Flanges provided on supply air opening for ease of plenum connection or alignment with indoor coil.
- 9 Insulated cabinet with foil faced insulation on sides and back of heating compartment.
Complete service access.
- 10 Safety interlock switch automatically shuts off power to unit when blower compartment access panel is removed.
- 11 Gas piping and electrical inlets are provided in both sides of cabinet.

Return Air Entry

For bottom/end return-air entry for upflow/horizontal applications, remove furnished bottom seal panel from cabinet.

For side return-air entry (upflow applications only), corners are marked on either side of cabinet for return air cut-outs.

See dimension drawings.

NOTE - 60C and 60D size units that require air volumes over 850 L/s must have one of the following:

- Single side return air with transition, to accommodate 508 x 635 x 25 mm cleanable air filter. Required to maintain proper air velocity.
- Single side return air with Optional Return Air Base
- Bottom return air.
- Return air from both sides.
- Bottom and one side return air.

See Blower Performance Tables for additional information.

Coil Match-Up

All furnaces exactly match C33 and CX34 cased upflow indoor coils and CH33 horizontal indoor coils with same letter designation in model number. No adaptor required. Engaging holes furnished on cabinet for alignment.

C33 uncased coils match furnaces without any overhang but require an optional adaptor base or field fabricated transition to match furnace opening. See C33 coil bulletin for additional information.

Optional Accessories

Horizontal Suspension Kit

Provides suspension of unit and indoor coil in horizontal applications.

Allows complete service access.

Consists of corner mounted hanging brackets with vibration isolators, return air end support rail and hardware for assembly.

Metal hanging straps must be field provided.

Return Air Base

A field fabricated transition or Return Air Base is required when using an IAQ product higher than 360 mm installed next to the unit and serviced from the front. IAQ products higher than 508 mm require a field fabricated transition.

Base must be used for 60C and 60D models with air volumes over 850 L/s in upflow applications when only one side return is required.

Cabinet is shipped flat for easy field assembly and is pre-painted steel to match the furnace.

See Dimension Drawing.

FILTER (not furnished)

Filter and provisions for external mounting must be field provided.

Optional Accessories

Air Filter and Rack Kit for Horizontal Return Air (End) Applications

Washable or vacuum cleanable polyurethane frame type filter and external end return air rack available for field installation.

Rack has filter door for easy filter servicing.

Flanges on rack allow easy duct connection.

See dimension drawing.

Air Filter and Rack Kit for Upflow Side Return Air Applications - Not for use with Return Air Base.

Washable or vacuum cleanable polyurethane frame type filter and external side return air rack available for field installation.

Available in single and ten pack kits.

Rack has filter door for easy filter servicing.

Flanges on rack allow easy duct connection.

Field installs on either side of unit cabinet. See dimension drawing.

SPECIFICATIONS

Gas	Model Number	ML180UH070TP36A	ML180UH090TP48B	ML180UH110TP36C
Heating	Gas Category	I2E, I2H, I3P, I12H3P		
Performance	Input (Gross) - kW	19.3	25.8	32.2
	Input (Net) - kW	17.4	23.2	29.0
	Output - kW	16.3	21.7	27.1
	Maximum altitude - m	610	610	610
	Temperature rise range - °C	14 - 31	14 - 31	19 - 36
	Gas manifold pressure (kPa/millibar) G20 (Natural gas)	0.87 / 8.7	0.87 / 8.7	0.87 / 8.7
	Natural gas orifice diameter - mm	1.6	1.6	1.6
	Number of gas orifice	6	8	10
	Net burner rating (each) - kW	2.9	2.9	2.9
	Maximum equivalent resistance - Pa	14	20	23
High Static - Pa		125	125	125
Connections	Flue connection - mm round	102	102	102
	Gas pipe size IPS	1/2 in.	1/2 in.	1/2 in.
Indoor Blower	Wheel nom. diameter x width - mm	254 x 203	254 x 254	254 x 254
	Motor output - W	248	373	373
	Add-on cooling - kW	7 - 10.6	7 - 14.1	7 - 14.1
	Air volume range - L/s	282 - 716	229 - 890	239 - 827
Electrical Data		Voltage 230 volts - 50 hertz - 1 phase (less than 10 amps)		
Shipping Data		kg - 1 package 54	63	70

NOTE - Filters and provisions for mounting are not furnished and must be field provided.

SPECIFICATIONS

Gas	Model Number	ML180UH110TP60C	ML180UH135TP60D
Heating	Gas Category	I2E, I2H, I3P, I12H3P	
Performance	Input (Gross) - kW	32.2	38.7
	Input (Net) - kW	29.0	34.8
	Output - kW	27.1	32.6
	Maximum altitude - m	610	610
	Temperature rise range - °C	17 - 33	17 - 33
	Gas manifold pressure (kPa/millibar) G20 (Natural gas)	0.87 / 8.7	0.87 / 8.7
	Natural gas orifice diameter (mm)	1.6	1.6
	Number of gas orifice	10	12
	Net burner rating (each) - kW	2.9	2.9
	Maximum equivalent resistance - Pa	23	10
High Static - Pa		125	125
Connections	Flue connection - mm round	102	102
	Gas pipe size IPS	1/2 in.	1/2 in.
Indoor Blower	Wheel nom. diameter x width - mm	292 x 254	279 x 279
	Motor output - W	746	746
	Add-on cooling - kW	14.1 - 17.6	14.1 - 17.6
	Air volume range - L/s	665 - 1165	627 - 1153
Electrical Data		Voltage 230 volts - 50 hertz - 1 phase (less than 10 amps)	
Shipping Data		kg - 1 package 71	79

NOTE - Filters and provisions for mounting are not furnished and must be field provided.

OPTIONAL ACCESSORIES - ORDER SEPARATELY

		"A" Width Models	"B" Width Models	"C" Width Models	"D" Width Models
CABINET ACCESSORIES					
Horizontal Suspension Kit - Horizontal only		51W10	51W10	51W10	51W10
Return Air Base - Upflow only		65W75	50W98	50W99	51W00
FILTERS					
1 Air Filter and Rack Kit	Horizontal (end)	87L95	87L96	87L97	87L98
	Size of filter - mm	356 x 635 x 25	457 x 635 x 25	508 x 635 x 25	635 x 635 x 25
	Side Return	44J22	44J22	44J22	44J22
	Ten Pack	66K63	66K63	66K63	66K63
	Size of filter - mm	406 x 635 x 25	406 x 635 x 25	406 x 635 x 25	406 x 635 x 25

¹ Cleanable polyurethane, frame-type filter.

INSTALLATION CLEARANCES - MM

UPFLOW POSITION

Vent Type	Type B1	Type C
Sides	0	¹ 0
Rear	0	0
Top	25	25
Front	57	57
Front (service/alcove)	610	610
Floor	Combustible	Combustible
Flue	25	152

NOTE - Air for combustion and supply air ventilation must conform to local codes.

¹ Left side requires 76 mm clearance if single wall vent is used on 368 mm height cabinets, 51 mm clearance on 445 mm height cabinets.

HORIZONTAL POSITION

Vent Type	Type B1	Type C
End	¹ 51	¹ 51
Rear	0	0
Top	¹ 0	¹ 0
Front	57	57
Front (service)	610	610
Floor	Combustible	Combustible
Flue	25	152

NOTE - Air for combustion and supply air ventilation must conform to local codes.

¹ Line contact installation permissible between jacket top or sides and building joists.

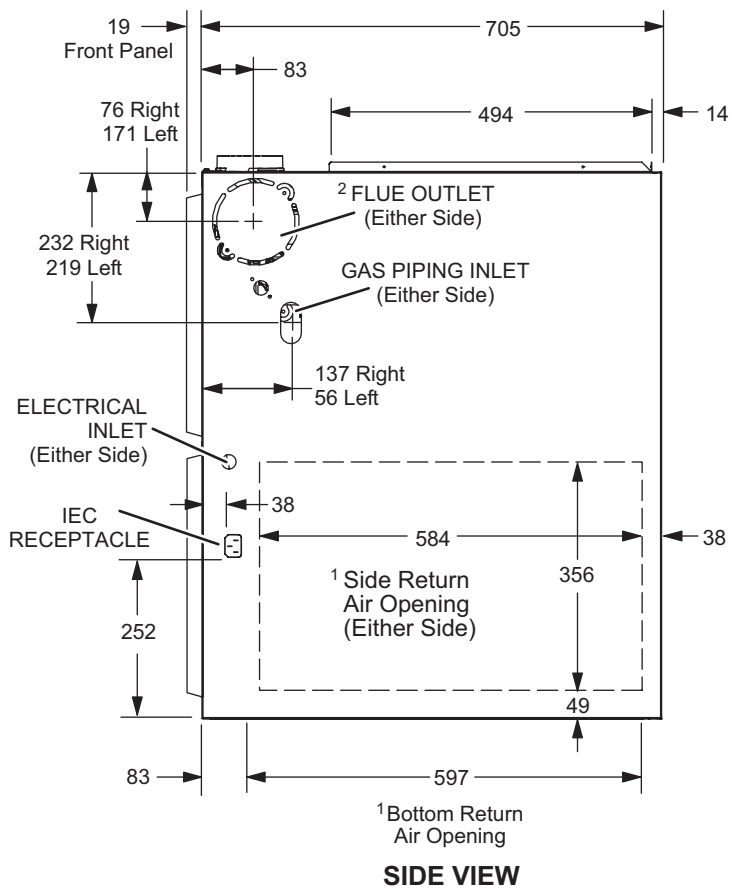
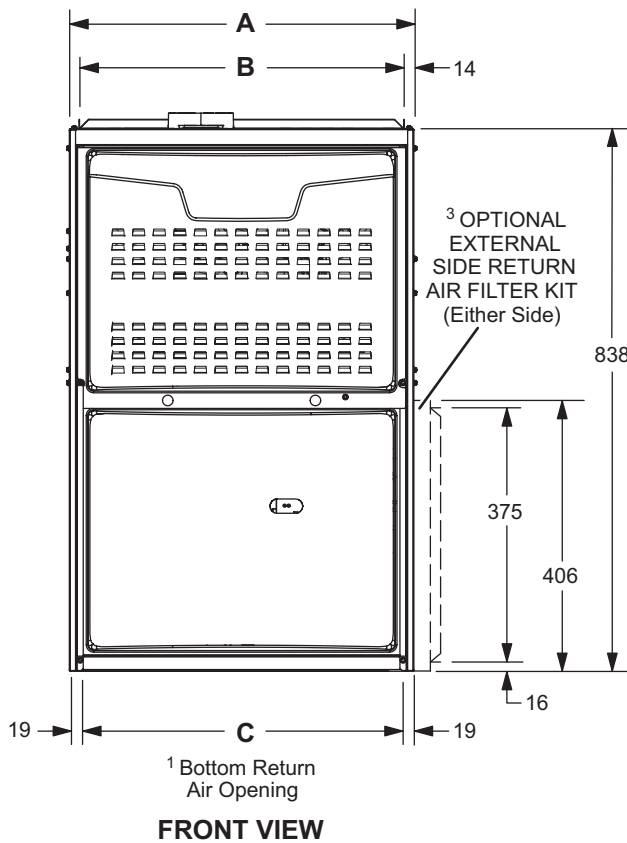
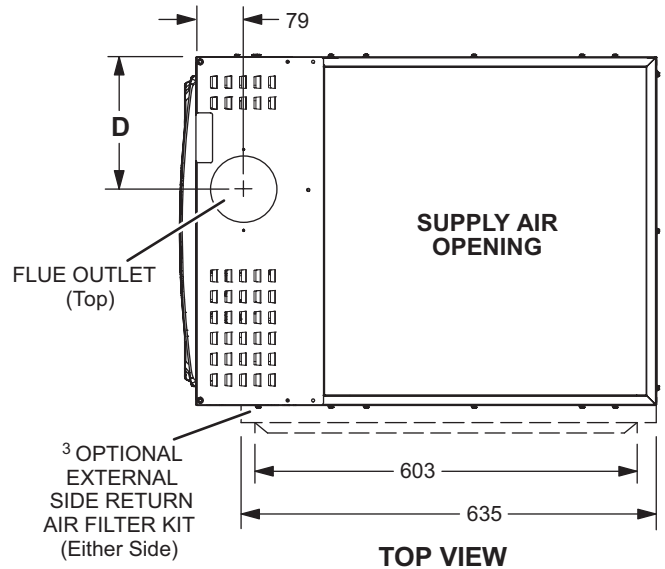
DIMENSIONS - MM - UPFLOW POSITION

¹ NOTE - 60C and 60D size units that require second stage air volumes over 850 L/s must have one of the following:

1. Single side return air with transition, to accommodate 508 x 635 x 25 mm cleanable air filter. Required to maintain proper air velocity.
 2. Single side return air with optional Return Air Base
 3. Bottom return air.
 4. Return air from both sides.
 5. Bottom and one side return air.
- See Blower Performance Tables for additional information.

² Flue outlet may be horizontal but furnace must be vented vertically

³ Optional External Side Return Air Filter Kit is not for use with the optional Return Air Base.

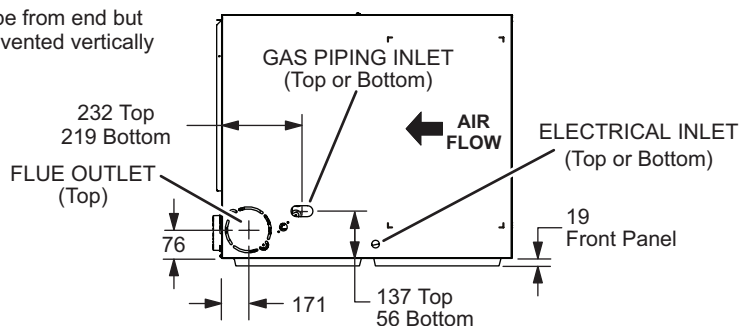


Model Number	A	B	C	D
ML180UH070TP36A	368	340	330	121
ML180UH090TP48B	445	416	406	159
ML180UH110TP36C	533	504	495	203
ML180UH110TP60C				
ML180UH135TP60D	622	594	584	248

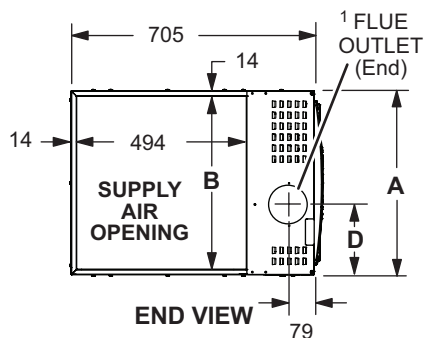
DIMENSIONS - MM - HORIZONTAL POSITION

LEFT-HAND AIR DISCHARGE

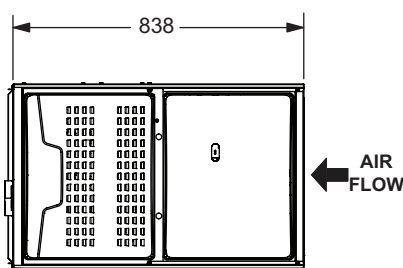
¹ Flue outlet may be from end but furnace must be vented vertically



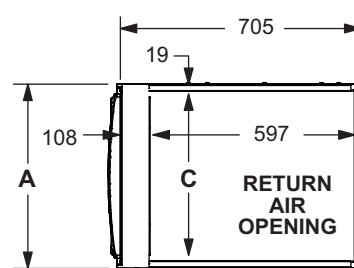
TOP VIEW



END VIEW



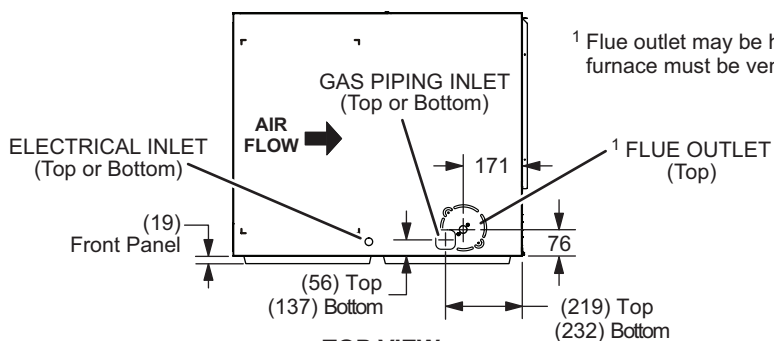
FRONT VIEW



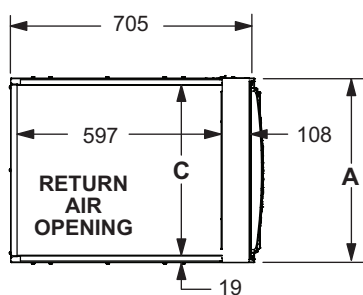
END VIEW

RIGHT-HAND AIR DISCHARGE

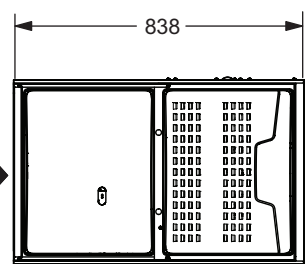
¹ Flue outlet may be horizontal but furnace must be vented vertically



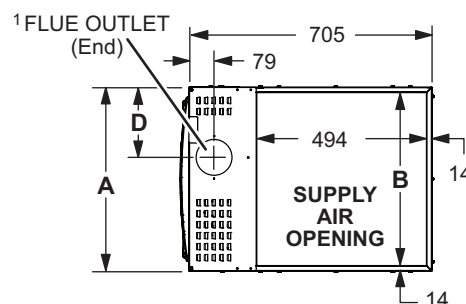
TOP VIEW



END VIEW



FRONT VIEW

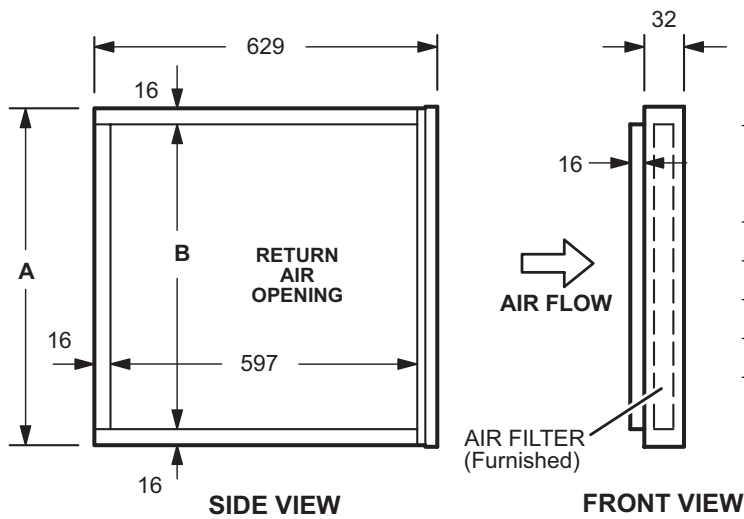


END VIEW

Model Number	A	B	C	D
ML180UH070TP36A	368	340	330	121
ML180UH090TP48B	445	416	406	159
ML180UH110TP36C	533	504	495	203
ML180UH110TP60C				
ML180UH135TP60D	622	594	584	248

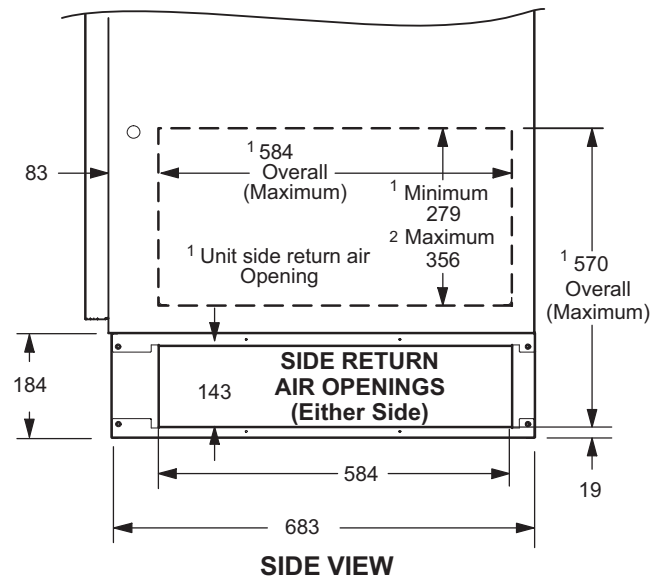
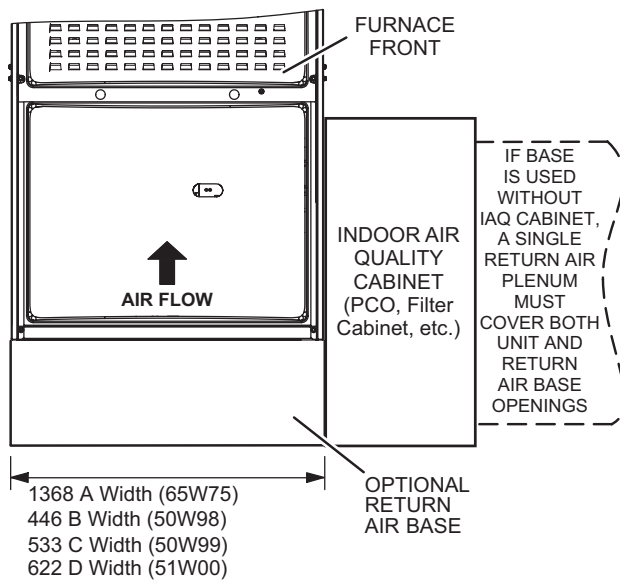
OPTIONAL ACCESSORY DIMENSIONS - MM

HORIZONTAL (END) FILTER KIT



Furnace Cabinet Width	Catalog Number	A	B
A	87L95	356	324
B	87L96	457	425
C	87L97	533	476
D	87L98	635	603

Optional Return Air Base (Upflow Applications Only - For use with A, B, C and D cabinets)



NOTE- Optional Side Return Air Filter Kits are not for use with Optional Return Air Base.

¹ Both the unit return air opening and the base return air opening must be covered by a single plenum or IAQ cabinet. Minimum unit side return air opening dimensions for units requiring 850 L/s or more of air (W x H): 584 x 279 mm.

The opening can be cut as needed to accommodate plenum or IAQ cabinet while maintaining dimensions shown.

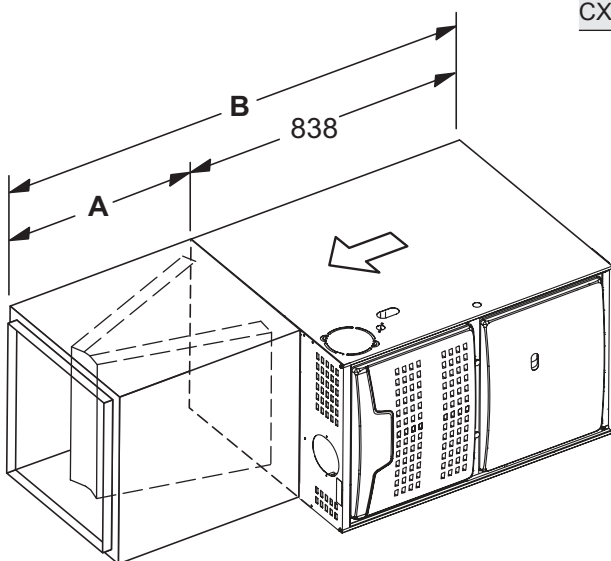
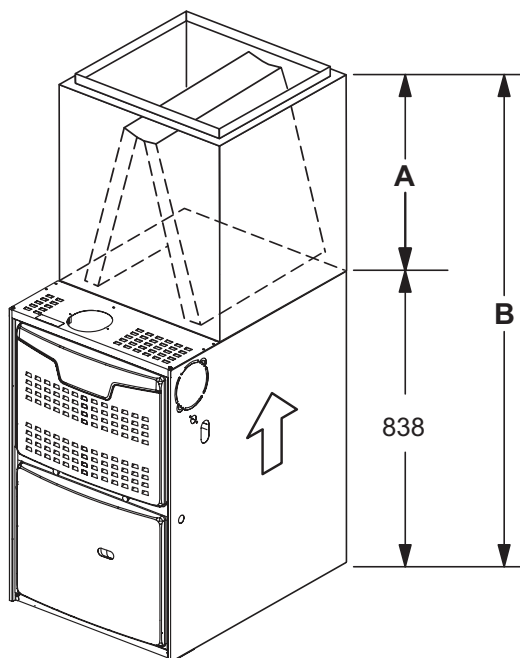
Side return air openings must be cut in the field. There are cutting guides stenciled on the cabinet for the side return air opening. The size of the opening must not extend beyond the markings on the furnace cabinet.

² To minimize pressure drop, the largest opening height possible, up to 356 mm, is preferred.

DIMENSIONS - MM - FURNACE/COIL COMBINED DIMENSIONS

UPFLOW POSITION

Model Number		Cased		Uncased (CX34 - cased only)	
CX34	C33	A	B	A	B
---	C33-18A	318	1156	248	1086
CX34-19A-6F	C33-19A	419	1257	248	1086
---	C33-24A	419	1257	356	1194
CX34-18/24A-6F CX34-18/24B-6F CX34-18/24C-6F	C33-24B C33-24C	419	1257	352	1191
CX34-25A-6F	C33-25A	470	1308	413	1251
CX34-25B-6F	C33-25B	470	1308	403	1241
CX34-30B-6F CX34-30C-6F	C33-30B C33-30C	521	1359	451	1289
CX34-30A-6F	C33-30A	521	1359	457	1295
CX34-31A-6F	C33-31A	572	1410	540	1378
CX34-31B-6F	C33-31B	572	1410	514	1353
CX34-36A-6F	C33-36A	622	1461	562	1400
CX34-36B-6F	C33-36B	622	1461	556	1394
CX34-36C-6F	C33-36C	622	1461	540	1378
CX34-38A-6F	C33-38A	622	1461	565	1403
CX34-38B-6F	C33-38B	622	1461	559	1397
CX34-42B-6F	C33-42B	622	1461	556	1394
CX34-43B-6F	C33-43B	699	1537	667	1505
CX34-43C-6F	C33-43C	699	1537	654	1492
---	C33-44C	622	1461	546	1384
CX34-44/48B-6F	C33-48B	622	1461	562	1400
CX34-44/48C-6F	C33-48C	622	1461	546	1384
CX34-49C-6F	C33-49C	749	1588	724	1562
CX34-50/60C-6F	C33-50/60C	699	1537	629	1467
CX34-60D-6F	C33-60D	648	1486	629	1467
CX34-62C-6F	C33-62C	800	1638	778	1616
CX34-62D-6F	C33-62D	749	1588	730	1568



HORIZONTAL POSITION

Model Number		A	B
CH33-18A-2F		546	1384
CH33-24/30A-2F CH33-36A-2F CH33-36B-2F CH33-36C-2F	CH33-42B-2F CH33-48C-2F CH33-60D-2F	673	1511
CH33-44/48B-2F CH33-50/60C-2F	CH33-62D-2F	800	1638

BLOWER DATA

ML180UH070TP36A PERFORMANCE (Less Filter)

External Static Pressure Pa	Air Volume at Various Blower Speeds					
	High		Medium		Low	
	L/s	Watts	L/s	Watts	L/s	Watts
0	716	771	589	615	469	468
25	687	752	564	597	435	448
50	675	724	554	583	430	441
75	662	708	547	569	421	430
100	649	691	530	554	408	417
125	633	672	517	541	393	405
150	616	650	503	524	372	387
175	595	624	488	514	359	375
200	573	608	472	494	324	363
225	551	590	447	477	307	346
250	523	561	424	454	282	331

ML180UH090TP48B PERFORMANCE (Less Filter)

External Static Pressure Pa	Air Volume at Various Blower Speeds							
	High		Medium-High		Medium-Low		Low	
	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts
0	890	1085	715	892	497	598	423	493
25	849	1050	679	855	463	577	386	481
50	849	1016	679	831	460	565	384	464
75	831	967	676	807	456	546	369	447
100	827	937	667	773	452	526	364	434
125	816	906	660	747	439	509	349	421
150	799	872	647	718	426	494	331	408
175	784	845	629	691	411	477	308	394
200	754	808	601	642	394	460	290	383
225	722	765	577	622	359	435	256	363
250	674	713	555	593	332	421	229	348

ML180UH110TP36C PERFORMANCE (Less Filter)

External Static Pressure Pa	Air Volume at Various Blower Speeds							
	High		Medium-High		Medium-Low		Low	
	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts
0	827	1106	660	884	460	574	404	478
25	800	1063	630	850	434	558	378	463
50	801	1043	631	819	432	541	369	451
75	779	984	631	807	434	527	359	438
100	773	962	624	777	422	512	352	422
125	773	938	620	758	408	490	335	411
150	761	907	609	725	382	472	331	396
175	741	854	593	695	383	460	319	386
200	722	832	580	659	366	441	299	372
225	699	777	554	638	351	432	263	354
250	677	741	527	600	331	411	239	340

BLOWER DATA

ML180UH110TP60C PERFORMANCE (Less Filter)

External Static Pressure Pa	Air Volume at Different Blower Speeds											
	Bottom Return Air, Side Return Air with Optional Return Air Base, Return Air from Both Sides or Return Air from Bottom and One Side.						Single Side Return Air – Air volumes in bold require field fabricated transition to accommodate 508 x 635 x 25 mm air filter in order to maintain proper air velocity.					
	High		Medium		Low		High		Medium		Low	
	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts
0	1165	1447	964	1173	826	987	1126	1452	934	1172	794	984
25	1144	1408	938	1149	803	966	1104	1427	910	1150	772	964
50	1115	1389	932	1121	797	943	1085	1391	902	1126	768	943
75	1104	1358	922	1104	787	926	1071	1356	896	1110	756	925
100	1084	1333	908	1082	773	902	1059	1340	881	1079	750	907
125	1063	1303	905	1079	756	877	1037	1310	869	1064	741	890
150	1043	1274	888	1050	748	865	1020	1282	860	1041	731	872
175	1027	1249	871	1024	738	845	1005	1248	839	1022	717	852
200	1005	1224	849	994	723	815	987	1224	821	997	699	831
225	980	1179	835	974	696	800	956	1192	801	966	678	808
250	947	1140	807	943	677	775	939	1158	789	955	665	786

ML180UH135TP60D PERFORMANCE (Less Filter)

External Static Pressure Pa	Air Volume at Different Blower Speeds											
	Bottom Return Air, Side Return Air with Optional Return Air Base, Return Air from Both Sides or Return Air from Bottom and One Side.						Single Side Return Air – Air volumes in bold require field fabricated transition to accommodate 508 x 635 x 25 mm air filter in order to maintain proper air velocity.					
	High		Medium		Low		High		Medium		Low	
	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts	L/s	Watts
0	1153	1460	958	1167	810	967	1114	1469	941	1219	786	992
25	1126	1425	931	1139	788	945	1091	1440	917	1196	759	967
50	1118	1411	923	1125	773	928	1079	1411	913	1173	751	950
75	1087	1374	915	1113	765	914	1064	1402	893	1149	743	933
100	1083	1344	891	1079	752	900	1048	1375	887	1130	734	920
125	1067	1325	890	1066	741	884	1032	1345	866	1101	720	899
150	1038	1284	862	1036	731	869	1012	1322	852	1072	708	881
175	1034	1269	844	1016	712	849	994	1291	834	1053	690	860
200	1005	1239	832	995	697	824	987	1271	820	1029	663	834
225	977	1204	804	975	677	813	956	1238	797	1010	650	815
250	952	1173	789	953	640	781	936	1220	783	988	627	795



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NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability. Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury. Installation and service must be performed by a qualified installer and servicing agency.

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