



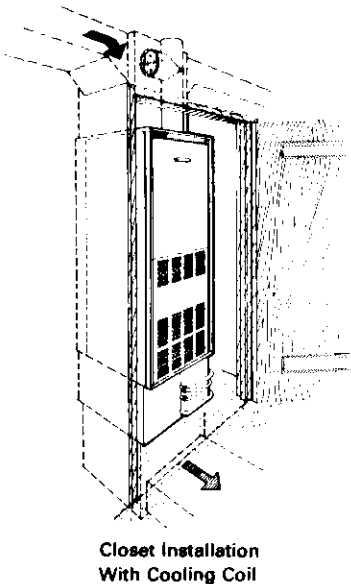
O12R SERIES OIL FURNACES DOWN-FLO — BELT DRIVE BLOWERS 105,000 to 140,000 Btuh Input Add-On Cooling 1-1/2 thru 5 Nominal Tons

ENGINEERING DATA
HEATING UNITS

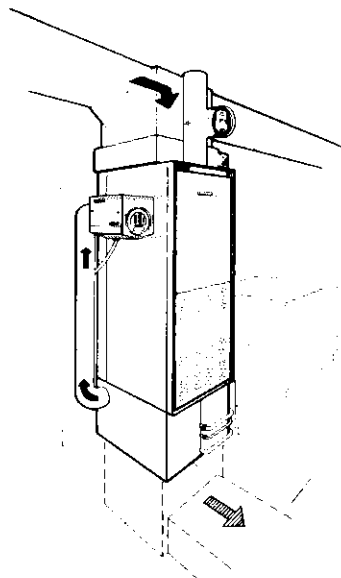
OIL
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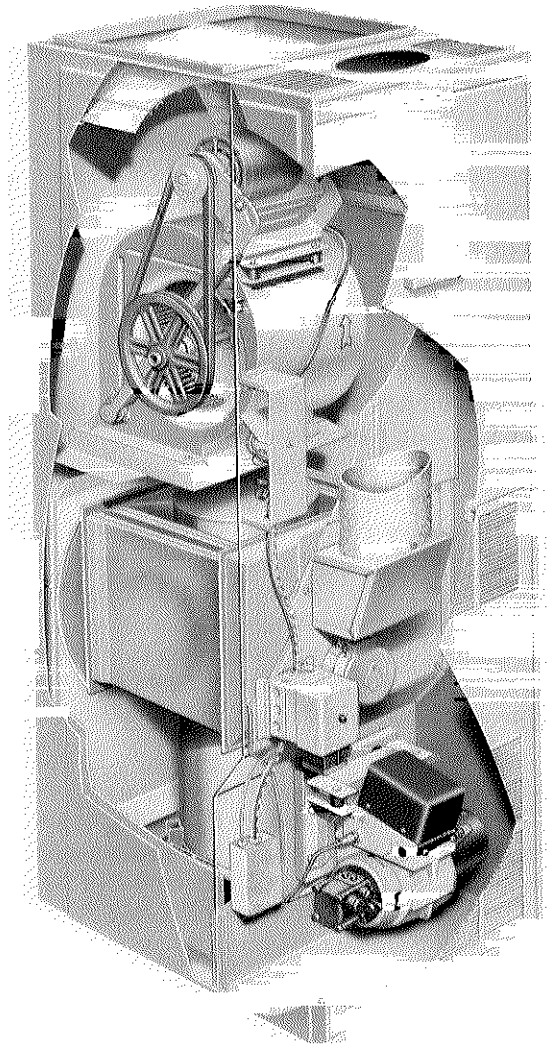
Typical Applications



Closet Installation
With Cooling Coil



Utility Room Installation With Electronic
Air Cleaner, Cooling Coil and Humidifier.



Down-Flo Oil Units Offer Installation Ease, Serviceability, Quietness and Top Efficiency

The Lennox O12R series oil furnaces are designed for applications with air distribution under the floor, either in a crawl space or tunneled into a concrete slab. Two models are available with a choice of heating capacities and air volumes. The rugged and attractive cabinet has die formed panels and doors with an Electro-bonded paint finish of baked-on enamel. Large front doors provide complete service access. Heat exchanger is designed for maximum efficiency, long service life and low air resistance. The atomizing oil burner is highly efficient, durable and requires a minimum of service. The quiet operating belt drive blowers have reserve capacity to handle the air volume requirements of add-on cooling. A Lennox direct expansion evaporator unit and remote condensing unit, electronic air cleaner and humidifier can easily be added to the down-flo oil furnace for a complete all season Total Comfort installation. The O12R units are U.L. Listed for

closet or alcove installation on combustible floor (using optional additive base) with one inch clearance to sides and rear. Units and components within are bonded for grounding to meet safety standards for servicing required by U.L. and NEC. In addition, units have been rated and tested according to Department of Energy (DOE) test procedures and according to Federal Trade Commission (FTC) labeling regulations in the Lennox Research Laboratory. Blower data is from actual unit tests conducted in the Lennox Laboratory air test chamber. Each unit is test operated on the assembly line insuring proper operation. Units are shipped factory assembled, including the oil burner, with all controls installed and wired. Blower drives (motor, motor pulley and belt) are shipped in a separate package for field installation. Installer has only to install draft control, mount thermostat, make flue, duct, oil line and electrical connections to complete job.

NOTE — Specifications, Ratings and Dimensions are subject to change without notice.



FEATURES

Compact Heat Exchanger — Streamlined heat exchanger design exposes maximum surface area to the air stream and offers minimum air resistance. Primary and secondary heating surfaces are constructed of combination aluminized and cold rolled steel. Ceramic fiber combustion chamber quickly attains a high temperature resulting in clean, quiet and efficient combustion. Chemical soot removers should not be used for cleaning purposes. Two large cleanout openings are provided into the secondary heating surface. Primary heating surface cleanout access is through the 4 inch diameter inspection tube. Tube is large enough for normal flame inspection mirrors. Long life of heating element is assured by Lennox Laboratory "life cycle" test.

Quiet and Efficient Oil Burner — Precision built pressure atomizing oil burner is the most efficient, trouble free and serviceable burner available. To assure quiet operation burner is mounted on rubber mounts and mounting plate is isolated from cabinet by a gasket. Equipped with a factory installed cadmium sulfide cell flame detector. Burner has a 10,000 volt ignition transformer and ceramic glazed ignition electrodes. Nozzle and electrode assembly is easily removed for service. Flame retention head maintains stable combustion under various draft conditions and operates at high CO² levels with minimum smoke. Heavy duty motor drives the powerful "quick shutoff" fuel pump and quiet operating blower wheel. Two stage pump is standard and has internal circuitry designed so there is a positive sharp oil cut-off on motor shut-down. All burner components may be removed and replaced separately. Burner is factory installed in the unit, wired and fire tested.

Rugged Cabinet — Constructed of heavy gauge cold rolled steel. Interior metal liners and foil covered fiberglass insulation keep outer cabinet surface temperatures low. Complete service access is accomplished by removing furnace and blower compartment front doors and access panels. Blower assembly and filter assembly may be completely removed from unit if required. Oil line supply inlets are provided in both sides of cabinet. Electrical inlets are located in left side panel. Add-on evaporator coil units are available in 1-1/2 thru 5 ton sizes for all season applications.

Cabinet and Blower Paint Process — The cabinet and blower have a special "Electro Deposition" process paint finish. Metal preparation consists of a special 6 station wash metal process. 1 — Spray application of a strong alkaline cleaner. 2 — Spray water rinse. 3 — Spray application of a corrosion resistant, paint bonding iron phosphate compound. 4 — Spray water rinse. 5 — Spray application of a chromic acid. 6 — Spray rinse with "de-ionized" water. After the final rinse the cabinet and blower enter a drying oven and are completely dried before receiving the paint finish. They are then completely submerged in the paint vat where the electroplating paint finish is applied. The paint solution and metal are given opposite electrical charges resulting in positive adhesion and even coverage of the paint to the metal surfaces. This process completely covers the entire surfaces, inside and out, including the edges of assembly holes. Following the paint process the finished components enter a high temperature oven where the bonded finish is baked on.

Powerful Belt Drive Blower — Units are equipped with the Lennox designed belt driven "Sulky" blower. All moving parts are mounted on a rigid steel frame secured to the blower housing on highly resilient rubber cushion mounts. Motor mount design allows easy belt adjustment and pulley alignment. Motor is anchored in a hinged cradle. Loosen one bolt and rock the motor to proper belt tension. Motor and blower shaft are always parallel. Blower wheel is statically and dynamically balanced. Bearings are self-aligning, rubber enclosed, solid bronze grooved and graphite filled. Large grease cups are furnished for lubrication. Adjustable motor pulley permits variable blower speed adjustments. Blower drives (Motor, motor pulley and belt) must be ordered extra and are shipped in a separate package for field installation. See drive kit tables for selection.

Large Air Filter — Units are equipped with hammock wrap around type filter. Media is one inch thick oil impregnated fiberglass. Filter mounting rack design provides quick and simple replacement of media for servicing.

Fan and Limit Controls — Factory installed and accurately located. Fan control assures proper blower operation and has adjustable blower off temperature setting. Continuous blower operation may be accomplished by adjusting the fan control to the minimum temperature setting. Primary and secondary limit controls, one located at each end of the heating section, provide protection from abnormal operating conditions and have fixed temperature setting.

Primary Safety Control — Factory installed and wired. Provides complete shut down of unit in case of flame failure. Mounts on wiring junction box in furnace vestibule. 40 VA transformer is an integral part of the primary control.

Cadmium Sulphide Cell Flame Detector — Furnished as standard equipment. Cell is furnished integral with oil burner.

Draft Control — Furnished with unit as standard equipment and field installed in the vent pipe.

Flame Inspection Door — Conveniently located at front of unit and equipped with peep hole cover for flame viewing. Hinged door is spring activated so that it cannot be accidentally left open.

Thermostat (Not Furnished) — Heating thermostat is optional equipment and must be ordered extra. For all season applications heating-cooling thermostat is available with the condensing unit.

Blower Cooling Relay (Optional) — Relay must be ordered extra (P-8-3251) and field installed on wiring junction box. Relay activates blower operation during cooling cycle.

SPECIFICATIONS

Model Number	O12R-105	O12R-140
Input Btuh (maximum)	105,000	140,000
†Output Btuh (maximum)	82,000	109,000
†A.F.U.E.	77.6%	78.8%
Input Btuh (minimum)	91,000	119,000
Input Btuh (nozzle furnished)	91,000	119,000
Nozzle range (gph)	.65 — .75	.85 — 1.00
Nozzle furnished (gph)	.65	.85
Vent size (inches oval)	6	7
Oil burner — (2 stage)	OL1-81-52	OL1-82-42
Blower wheel nom. diam. x width (in.)	10 x 8	12 x 12
Blower motor hp	See Drive	See Drive
Blower drives (shipped separate)	Selection	Selection
Tons of cooling that can be added	1-1/2, 2, 2-1/2, 3	3, 3-1/2, 4, 5
Free filter area (sq. ft.) and cut size (in.)	3.1 — 24 x 26 x 1	4.7 — 24 x 38 x 1
*No. of packages in shipment	2	2
Shipping weight (lbs.)	290	350
Electrical characteristics	120 volts — 60 hertz — 1 phase	

†Annual Fuel Utilization Efficiency based on D O E test procedures and F T C labeling regulations.

*Package 1 consists of furnace and driven pulley. Package 2 consists of blower motor, motor pulley and belt.

DIMENSIONS (inches)

INSTALLATION CLEARANCES (inches)

Model No.	O12R-105	O12R-140
Top, sides & rear of cabinet	1	1
Front of cabinet	9	9
Top of plenum	1	1
Sides of plenum	1	1
Horizontal warm air duct within 6 ft. of furnace	1	1
Below or opposite flue pipe	9	9
Above flue pipe	9	10
Floor	*Combustible	*Combustible

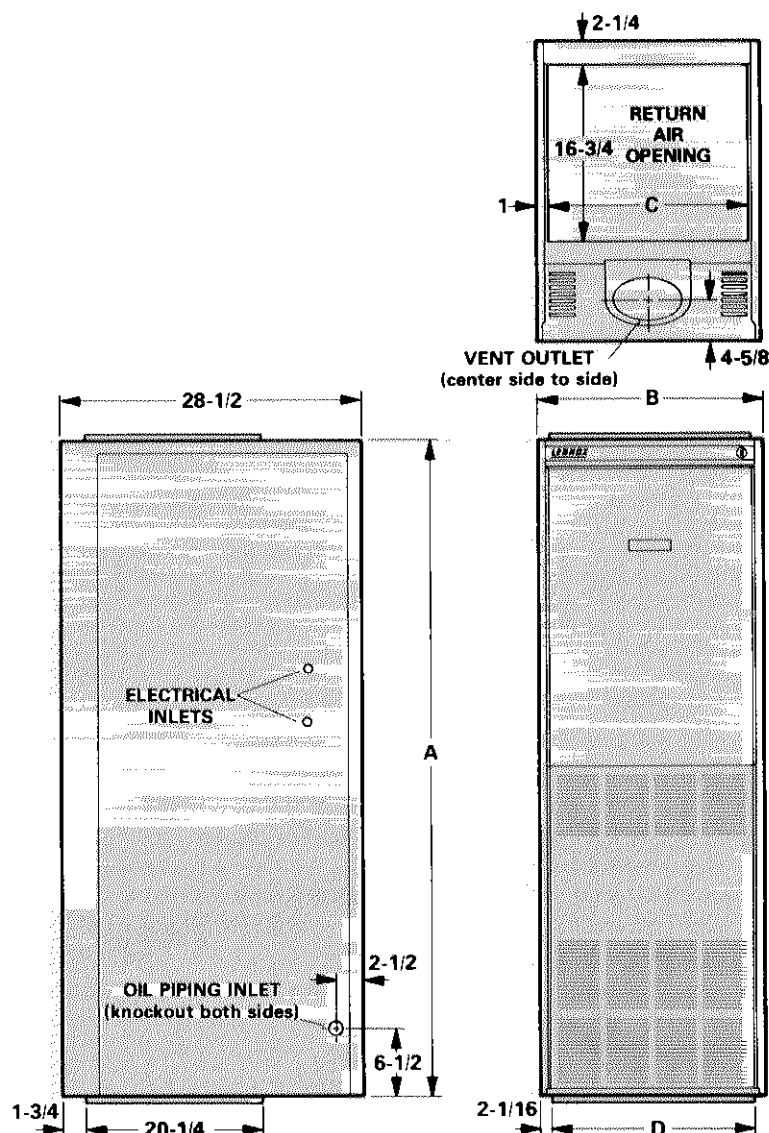
Approved for closet or alcove installation. When installing in a closet two ventilation openings must be provided in the closet door; one 6 inches from the top and one 6 inches from the bottom. Each opening should be at least 2 sq. inches per 1000 Btuh input for O12R-105 and 2-1/2 sq. inches per 1000 Btuh input for O12R-140.

*When unit is installed on combustible floor the optional additive base is required. When additive base is not used flooring must be noncombustible and clearances from sides of plenum not less than 6 inches.

Model No.	A	B	C	D
O12R-105	62	21	19	16-7/8
O12R-140	68	26	24	21-7/8

NOTE — When installing unit on a combustible floor an additive base is required. This base is optional equipment and must be ordered extra. Base number BM-4269 for O12R-105 and BM-4270 for O12R-140.

When using the additive base make opening in the floor 19-5/8 x 22-7/8 for O12R-105 and 24-5/8 x 22-7/8 for O12R-140.



DRIVE SELECTION

Heating Drive Kits

Furnace Model No.	Drive Kit Model No.	Motor hp	Motor Pulley (in.) & Groove	**Blower Pulley (in.) & Groove	*Rpm Range	Belt
O12R-105	DK-2001 (BM-7453)	1/4	1/2 x 2-7/8 — O	3/4 x 6 — O	518 — 776	3L400
O12R-140	DK-2003 (BM-7455)	1/4	1/2 x 3-1/4 — A	1 x 8 — A	410 — 625	4L450

*At 1725 rpm motor speed.

**Factory installed in furnace package and not included in drive kit.

Cooling Drive Kits

Furnace Model No.	Drive Kit Model No.	Motor hp	Motor Pulley (in.) & Groove	**Blower Pulley (in.) & Groove	*Rpm Range	Belt	
O12R-105	2 tons	DK-2001 (BM-7453)	1/4	1/2 x 2-7/8 — O	3/4 x 6 — O	518 — 776	3L400
	2-1/2 & 3 tons	DK-2002 (BM-7454)	1/3	1/2 x 4-1/8 — O	3/4 x 6 — O	775 — 1000	3L410
O12R-140	3 tons	DK-2004 (BM-7456)	1/3	1/2 x 4-1/8 — A	1 x 8 — A	605 — 820	4L460
	3-1/2 & 4 tons	DK-2005 (BM-7457)	1/2	5/8 x 4-1/8 — A	1 x 8 — A	605 — 820	4L460
	5 tons	DK-2006 (BM-7458)	3/4	5/8 x 4-3/4 — A	1 x 8 — A	735 — 950	4L470

*At 1725 rpm motor speed.

**Factory installed in furnace package and not included in drive kit.

BLOWER DATA

O12R-105 BLOWER PERFORMANCE

Air Volume (Cfm)	STATIC PRESSURE EXTERNAL TO UNIT (Inches Water Gauge)										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP
600	345 .07	455 .08	555 .09	645 .10	725 .12	790 .13	850 .15	910 .17	910 .19	1015 .21	1070 .24
700	395 .08	500 .10	595 .12	670 .13	745 .14	810 .16	885 .18	935 .20	990 .22	1040 .26	1090 .28
800	460 .10	545 .12	615 .13	700 .14	770 .16	840 .19	900 .22	950 .24	1005 .26	1055 .29	1105 .33
900	505 .13	600 .14	670 .15	745 .17	800 .19	860 .22	920 .25	970 .38	1025 .31	1075 .33	1125 .37
1000	575 .15	645 .17	705 .18	785 .21	845 .24	900 .27	950 .29	1000 .32	1050 .36	1100 .39	1150 .43
1200	690 .21	750 .25	800 .27	855 .30	905 .33	960 .36	1010 .40	1060 .43	----	----	----
1400	795 .32	850 .35	900 .39	950 .43	1000 .46	----	----	----	----	----	----

NOTE — All cfm is measured external to the furnace with the air filter in place.

O12R-140 BLOWER PERFORMANCE

Air Volume (Cfm)	STATIC PRESSURE EXTERNAL TO UNIT (Inches Water Gauge)										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP	RPM BHP
800	300 .04	400 .08	493 .14	565 .21	630 .26	685 .33	735 .38	780 .42	820 .46	860 .50	897 .53
1000	345 .06	445 .11	535 .19	600 .24	653 .30	712 .36	765 .42	805 .46	850 .50	890 .55	935 .61
1200	395 .10	500 .18	575 .24	635 .29	690 .36	746 .41	795 .45	845 .50	888 .57	930 .64	970 .80
1400	465 .17	552 .24	615 .30	670 .36	730 .41	788 .47	840 .52	885 .60	930 .68	970 .74	1008 .82
1600	535 .24	604 .31	660 .36	720 .43	780 .49	835 .55	885 .64	930 .72	975 .80	1015 .87	1050 .94
1800	596 .32	652 .38	715 .45	775 .52	835 .59	890 .69	940 .78	980 .87	1025 .95	----	----
2000	650 .40	715 .48	778 .56	835 .64	895 .75	950 .86	990 .94	----	----	----	----
2200	720 .52	780 .61	835 .70	903 .83	960 .94	----	----	----	----	----	----
2400	780 .67	840 .78	915 .93	----	----	----	----	----	----	----	----

NOTE — All cfm is measured external to the furnace with the air filter in place.