

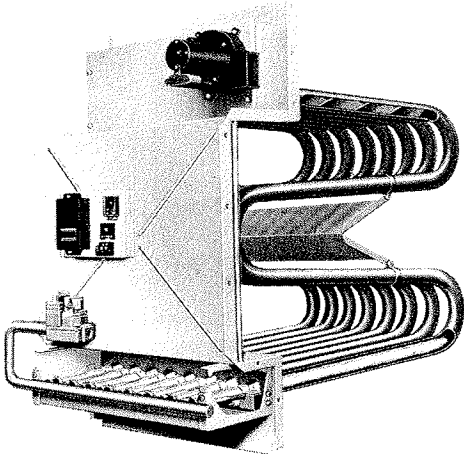


GS16E SERIES
VENTILATION & GAS HEATING UNITS
 26.9 to 110.7 kW – Output Heating Capacity
 – 50 Hz –

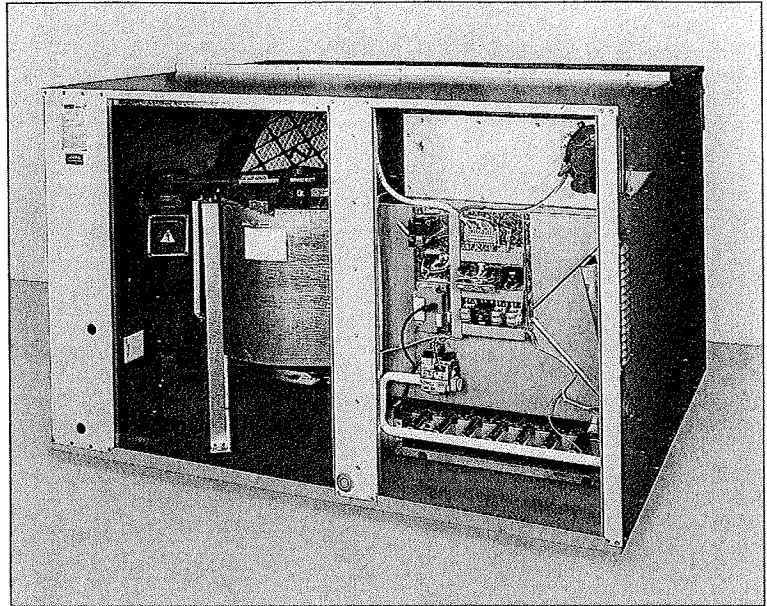
ENGINEERING DATA
HEATING
 Single package – outdoor
 Nov 1991



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 Certificate number FM11572

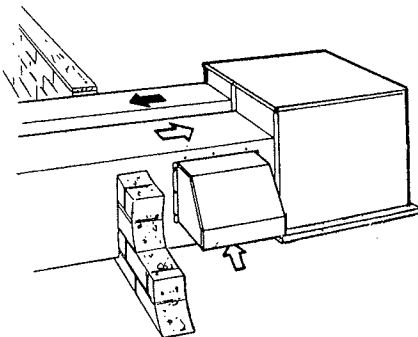


Tubular heat exchanger, inshot gas burners induced draft blower and gas train.

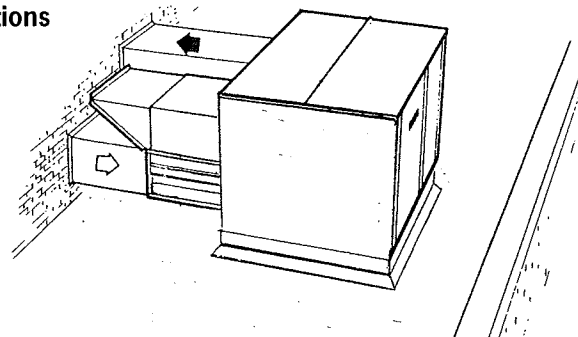


Model
GS16E-70

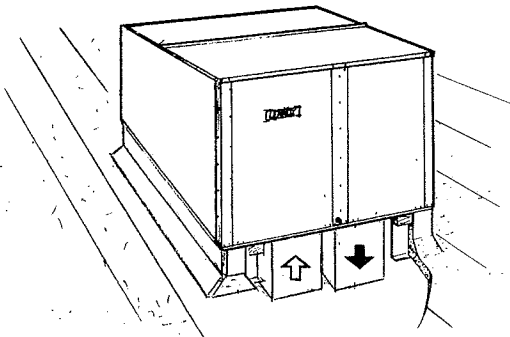
Typical applications



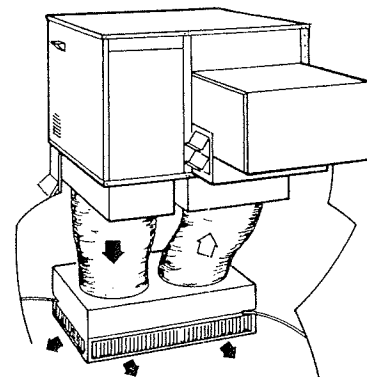
Horizontal (side) supply and return air installation with OAD16 outdoor air dampers.



Horizontal (side) supply and return air installation with RMF16 roof mounting frame and EMDH16M economizer dampers.



Down-flow supply and return air installation with RMF16 roof mounting frame.



Down-flow supply and return air installation with RMF16 roof mounting frame, REMD16M economizer dampers and RTD11 ceiling diffuser.

FEATURES

Application

Lennox GS16E series ventilation and gas-fired heating units are designed for bottom (down-flow) or side (horizontal) handling of supply and return air. A separate roof mounting frame mates to the unit base and when flashed into the roof permits weatherproof duct connections and entry into the area in down-flow applications.

Units can be installed at ground level with horizontal (side) duct connections.

A choice of RTD11 step-down or FD11 flush ceiling diffusers is available for combination ceiling supply and return air distribution systems. Optional economiser dampers provide adjustable fresh air ventilation.

Thermostat and system controls are not supplied and must be ordered as extras.

Units are shipped factory assembled, piped, and wired and each unit is factory test operated.

Unit construction

The unit cabinet is heavy gauge galvanised steel with a weather resistant enamel finish. The interior is lined with thick glass fibre insulation and large removable panels give easy service access.

GS16E units are fitted with accessible and disposable 50mm pleated non-woven cotton fabric filters. The filter rack can accept 25mm cleanable filters. Optional factory fitted differential pressure switches are available for remote status indicators.

Tubular heat exchanger

The sturdy and efficient tubular heat exchanger with internal baffles to prolong flue gas passage and increase heat transfer is constructed of corrosion resistant aluminised steel. Cabinet size is reduced because of the exchanger configuration, while removable panels ensure easy service access. The GS16E-150 model has two separate heat exchangers with independent gas controls.

Heating system

Aluminised steel inshot burners provide efficient trouble free operation unaffected by adverse weather conditions. Units are designed to burn either natural or liquid petroleum gas. If an LPG burning unit is required contact Lennox Applications Department for details.

Direct spark ignition burners are simple to remove for service. Ignition is controlled by electronic flame sensors.

Two stage (four stage optional on GS16E-150 models) operation is achieved with a dual solenoid, combined pressure regulator gas valve(s). An induced draft centrifugal fan when proved allows gas valve operation and a flame roll out switch protects against loss of combustion air.

Bottom power entry kit

A factory installed bottom power entry kit is provided for optional bottom power entry into the unit within the confines of the roof mounting frame.

Optional economiser dampers

Optional REMD16M economiser dampers are used for downflow applications (models GS16E-55/70 only) and for both horizontal and downflow applications (models GS16E-100/150) while optional EMDH16M economiser dampers are used for horizontal applications (models GS16E-55/70 only). 24 volt fully modulating actuators adjust the dampers to give from 0 to 100% outdoor air. Minimum air intake will be used during the heating season and 100% outdoor air for maximum ventilation during the summer months.

Dampers can be adjusted so that the minimum temperature of the air onto the heat exchanger during the heating season is 8°C.

If used in conjunction with two heat/one cool thermostat the dampers can be set to open to full fresh air when the temperature rises above room design setting.

Optional exhaust dampers

If the exhaust of ventilation air is not achieved by natural exfiltration an optional GED16 exhaust damper is available for use with the economiser. The PED16 powered exhaust damper is available for GS16E-100 and 150 models.

Optional outdoor air damper

The second method of providing outdoor air for ventilation is through the optional OAD16 outdoor air damper section. Dampers in the OAD16 allow a fixed amount of outdoor air into the system and can be adjusted for air quantities up to 25%.

Manually operated dampers may be adjusted and locked in place for the amount of air desired while automatic operation is available with the addition of a spring return damper motor.

Optional RTD11 combination ceiling supply and return diffuser assembly

The step down diffuser extends slightly below ceiling level and discharges conditioned air out through grilles on all four sides. Aluminium grilles are fitted with double deflection louvres. Return air enters through the large centre grille. The diffuser is factory assembled and readily adapts to T-bar ceiling grids and plaster ceilings.

Optional FD11 combination ceiling supply and return diffuser assembly

The combination supply and return diffuser installs almost flush with the ceiling level and discharges conditioned air out through fixed blade louvres on all four sides, ensuring even distribution. Return air enters through a large centre grille. The diffuser is completely factory assembled and readily adapts to T-bar ceiling grids and plaster ceilings. It must be ordered as an extra. See Optional equipment table.

Optional SRT16 supply and return transitions

SRT16 transitions are factory assembled for field installation in the roof mounting frame and provide simple duct connections to supply and return diffuser. Duct from the transitions to the diffuser is not supplied and must be provided by the installer. They must be ordered as an extra. See Optional equipment table.

Optional hot water coils

Copper tubed, aluminium finned coils can be fitted with or without control valves, and pipework as desired for use with low or high pressure hot water as an alternative to gas fired heat exchangers. Contact Lennox Applications Department for details.

Optional cooling

Copper tube with aluminium fin direct expansion chilled water coils can also be fitted where required to make the unit part of a total air treatment system. Contact Lennox Applications Department for details.

CONTROL SYSTEM OPTIONS

Optional electro-mechanical thermostat and controls system

The thermostat and related controls of this system must be ordered as extras for field installation.

Two-stage heat and one-stage cool thermostat 13F04 with dual temperature selector levers uses sub-base (13F17) with manual system switch (Off-Heat-Auto-Cool) and fan switch (Auto-On) or non-switching sub-base (13F16).

The 24 hour model (P-8-65726) can give minimum switching periods of 30 minutes and is normally supplied with 4 pairs of tappets. The 7-day model (P-8-65727) can provide a minimum switching period of 3 hours and is normally supplied with 9 pairs of tappets. Day omission is achieved on 7 day dial by omitting tappets.

Also available is a warm up kit which holds the economiser outdoor air dampers closed during night operation and morning warm up.

All models can be fitted with optional solid state control system (Staefa, Trend, Satchwell or Landis & Gyr) or alternative D.D.C. system for integration with a BMS/EMS control system. Please contact Lennox Applications Department for details.

SPECIFICATIONS

Model number			GS16E-55-1M	GS16E-70-1M	GS16E-100-1M	GS16E-150-1M
Two stage heating capacity (Natural gas)*	Input – Low	kW	34.7	43.3	59.9	85.4
	Output – Low	kW	26.9	34.6	46.7	68.3
	Input – High	kW	55.1	68.6	96.7	137.8
	Output – High	kW	44.1	54.9	75.4	110.2
Centrifugal supply air fan	Fan diameter and width	mm	305 x 305	381 x 381	457 x 457	508 x 457
	Motor power r.p.m. range	kW	1.5 800 – 1150	2.2 835 – 1020	2.2 650 – 850	4.0 600 – 800
Gas connection	Natural	in	3/4			1
Recommended gas supply pressure		mbar	17.5			
Number and size of filters		mm	(4)406x508x50	(4)508x635x50	(4)635x635x50	(4)635x508x50
Net weight		kg	254	342	465	650
Electrical characteristics			380/420 Volts, 50Hz, 3 Phase			
Nominal add-on cooling available		kW	20 to 30	30 to 40	40 to 50	60 to 80

* Capacities on L.P.Gas contact Lennox Applications Department

Optional equipment

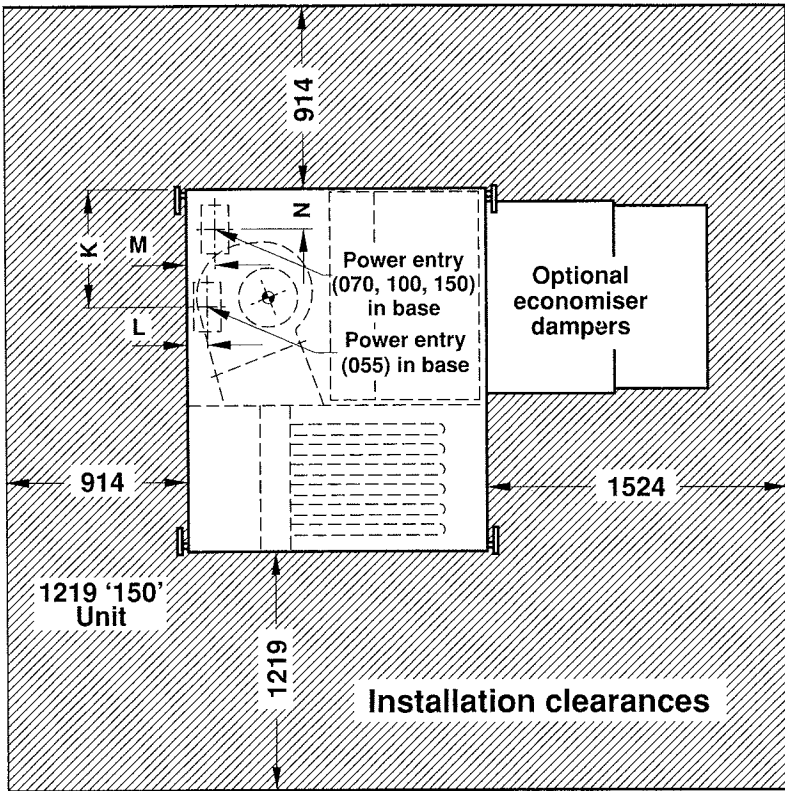
Model number		GS16E-55-1M	GS16E-70-1M	GS16E-100-1M	GS16E-150-1M
Roof mounting frame and weight	kg	RMF16E-55 (38)	RMF16E-70 (42)	RMF16E-100 (43)	RMF16E-150 (53)
Economiser dampers	kg	REMD16M-95 (53.6)	REMD16M-160 (63.6)	REMD16M-185 (73.0)	REMD16M-300 (95.4)
Number and size of filters	mm	(2) 406 x 635 x 25	(2) 508 x 635 x 25	(2) 635 x 635 x 25	(3) 508 x 635 x 25
Exhaust dampers	kg	GED16-95 (2.3) use with REMD16M		PED16-185 (27.0)	PED16-300 (41.3)
Horizontal economiser dampers	kg	EMDH16M-95 (54.5)	EMDH16M-160 (66.8)	-	
Number and size of filters	mm	(2) 406 x 635 x 25	(2) 508 x 635 x 25	-	
Horizontal exhaust dampers	kg	GEDH16-95 (3.1) use with EMDH16M		Included as part of REMD section	
Horizontal supply and return air kit	kg	LB.55756BA (13.6)	LB.55756BC (19)	LB.55756BD (24.0)	LB.55756BE (28.0)
Ceiling supply and return air diffusers	Step down	kg	RTD11-95 (40)	RTD11-185 (178.2)	
	Flush	kg	FD11-95 (34)	FD11-185 (131.3)	
	Transitions	kg	SRT16-95 (13)	SRT16-160 (31.8)	
Outdoor air dampers	kg	OAD16-95 (18.6)	OAD16-160 (20.4)	OAD16-185 (54.0)	OAD16-300 (36.8)
Number and size of filters	mm	(1) 406 x 508 x 25	(1) 406 x 508 x 25	(1) 635 x 686 x 25	(1) 524 x 765 x 25
Automatic OAD16 damper kit	kg	35G21 (3.2)	35G21 (3.2)	35G21 (3.2)	35G21 (3.2)

Electrical data

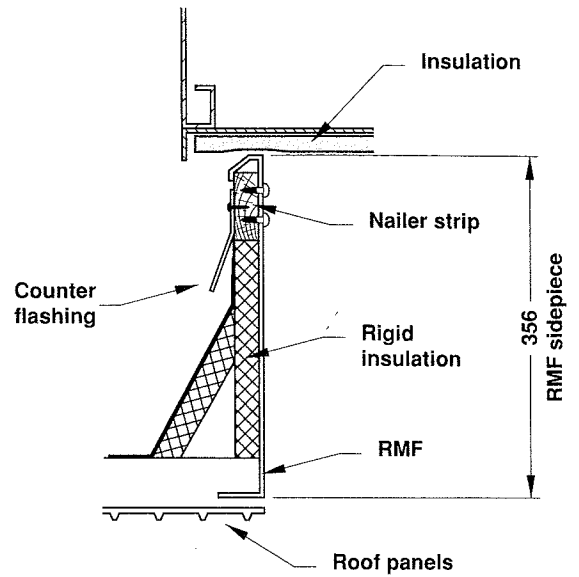
Model number		GS16E-55-1M	GS16E-70-1M	GS16E-100-1M	GS16E-150-1M	
Line Voltage – 50 Hz, 3 phase	V	380/420	380/420	380/420	380/420	
Voltage range (min/max)	V	342/462	342/462	342/462	342/462	
Fan	Output	kW/hp	1.5 (2)	2.2 (3)	2.2 (3)	4 (5.5)
	Full load current	A	3.3	4.6	5.4	8.5
	Locked rotor current	A*	20.4	31.0	32.4	55.2

* Direct-on-Line starting

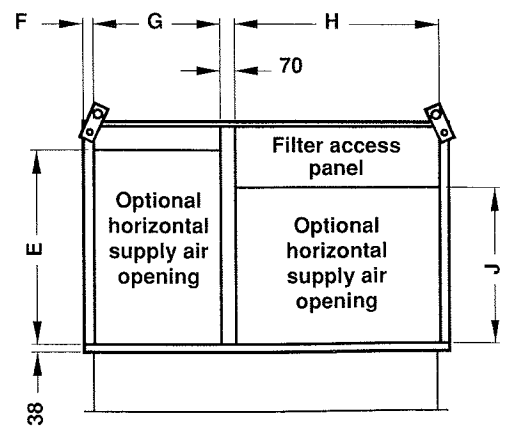
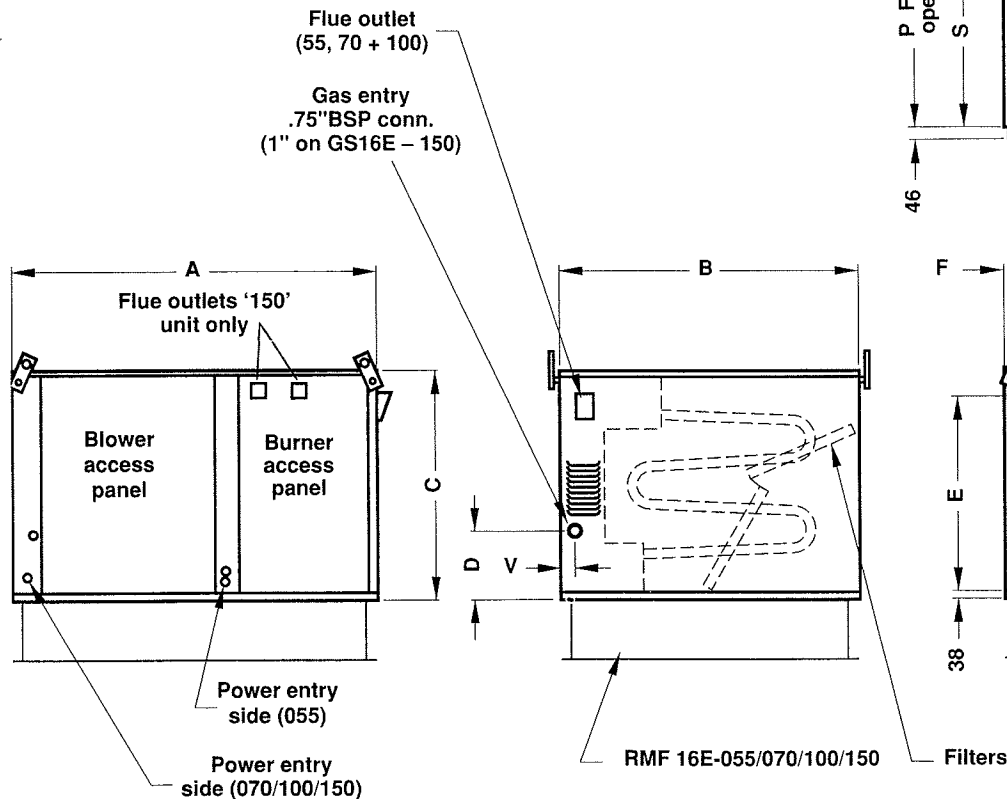
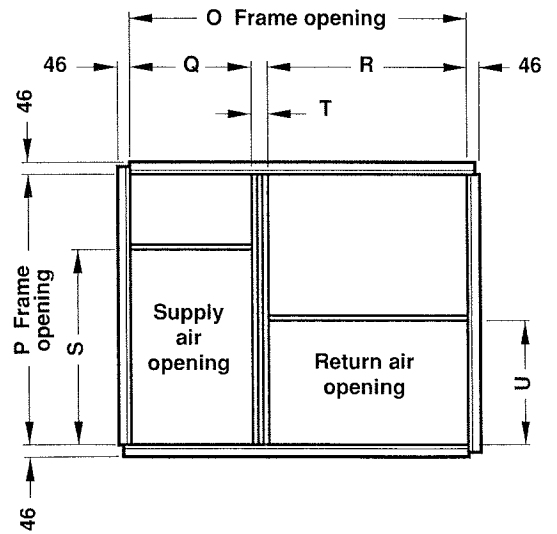
DIMENSIONS (mm)



Recommended flashing for roof mounting frame



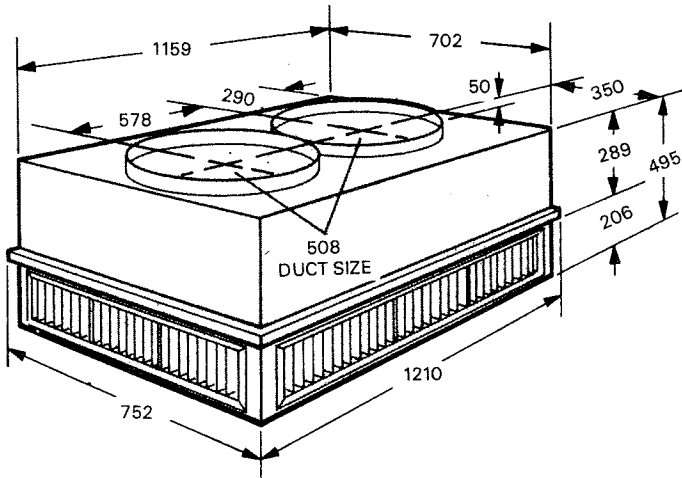
Plan view of roof mounting frames



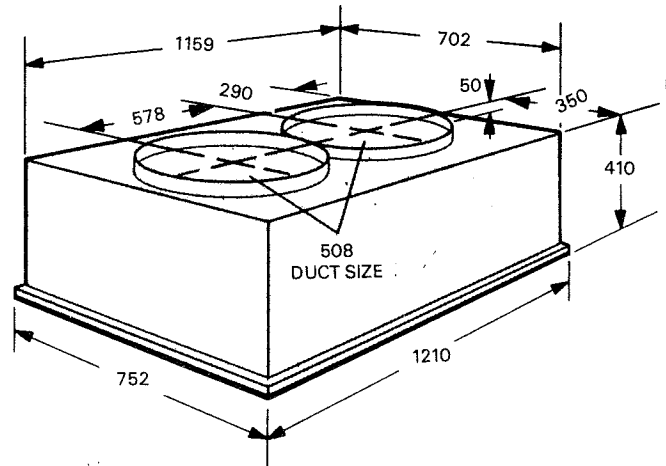
Model number	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V
GS16E-055	1498	1220	989	248	816	41	494	838	625	725	148			1358	1092	456	800	800	102	456	73
GS16E-070	1850	1524	1168	356	994	51	641	1041	803			148	209	1722	1394	641	1003	1003	78	641	73
GS16E-100	2190	1730	1260	440	1054	51	654	1273	832			187	185	1927	1530	660	1156	1156	111	660	100
GS16E-150	2784	2160	1260	440	1054	51	920	1645	832			187	185	2540	1962	914	1168	1168	458	914	100

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS DIMENSIONS (mm)

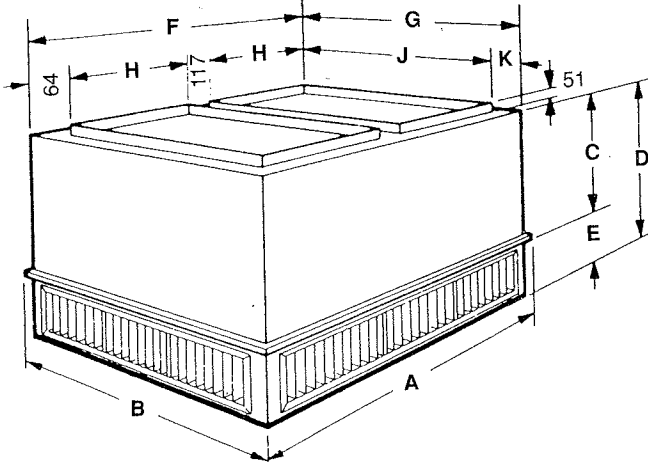
RTD11-95 STEP-DOWN CEILING DIFFUSER



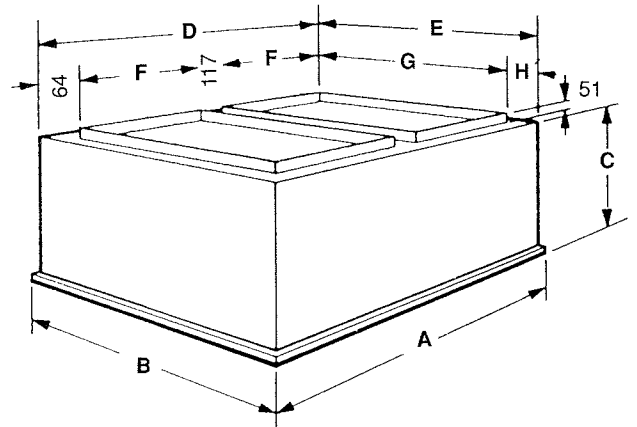
FD11-95 FLUSH CEILING DIFFUSER



**RTD 11-135, RTD11-185 & RTD11-275
STEP-DOWN CEILING DIFFUSERS**



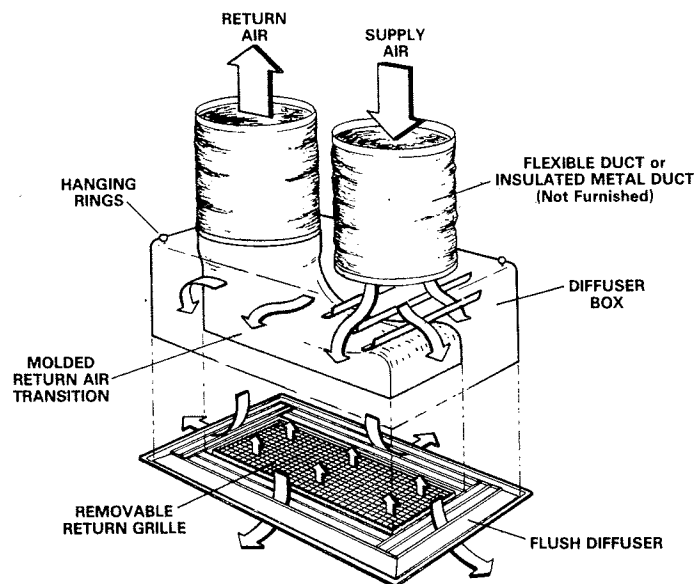
**FD11-135, FD11-185 & FD11-275
FLUSH CEILING DIFFUSERS**



Model No	A	B	C	D	E	F	G	H	J	K
RTD11-135	1210	905	479	711	232	1159	854	457	711	71
RTD11-185	1210	1210	606	864	257	1159	1159	457	914	122
RTD11-275	1514	1514	918	1464	284	1464	1464	610	1219	122

Model No	A	B	C	D	E	F	G	H
FD11-135	1210	905	613	1159	854	457	711	71
FD11-185	1210	1210	765	1159	1159	457	914	122
FD11-275	1514	1514	918	1464	1464	610	1219	122

DIFFUSER AIR PATTERN



LENNOX Industries Limited

P.O. Box 43, Lister Road
Basingstoke, Hampshire
RG22 4AR, England

Tel: 0256 461261
Fax: 0256 840487

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Printed in England 3/92/TGL