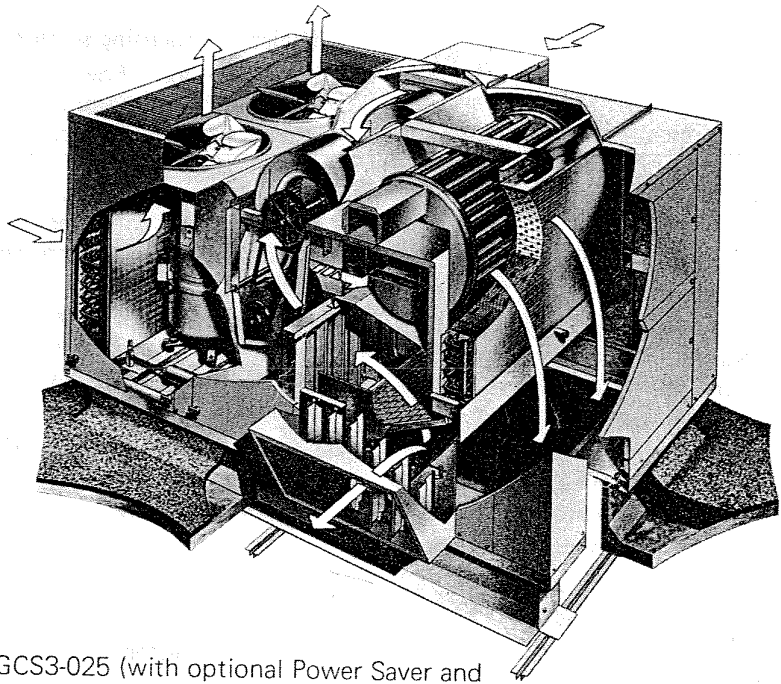


LENNOX

**Single package air
conditioning unit,
GCS3**

Cl/Sfb	57
Date	January 1980
Replaces	Sept. 1979
50 Hz	

Gas heating
DX cooling
Horizontal and downflow
Washable filters
Isolator switch
Indicator lights
Factory assembled and tested



Nominal cooling capacity
26 kW to 90 kW at 25°C
ambient temperature.
Heating capacity 48 kW
to 147 kW.

GCS3-025 (with optional Power Saver and
roof mounting frame)

Lennox single package GCS3 series units are designed for use on commercial installations.

The units are fully weather-proofed and designed for mounting on a rooftop or on a slab at ground level, saving valuable interior floor space.

Optional accessories available for roof installations include a roof mounting frame. The frame mates to the bottom of the GCS3 and when flashed into the roof permits weather-proof duct connections and entry into the conditioned area.

Optional power saver and controls can be factory or field installed within the GCS3 cabinet to reduce cooling operating costs and satisfy any local code fresh air requirements. As an alternative a field installed minimum fresh air damper is available.

A choice of flush or step-down

diffusers are available for a complete ceiling supply and recirculation air distribution system.

The compact single package unit contains all refrigeration components, condenser and evaporator fans, air filters, electrical controls, gas fired indirect heating section all in one complete package.

Supply and recirculation air openings are available at one end or alternatively at the base of the unit.

The units are shipped completely assembled, piped, pre-wired and pre-charged ready to install. In addition units are test operated at the factory to ensure continuity of controls.

An installer has only to locate the unit, connect the duct-work, gas services and power supply connections and then commission the equipment in

accordance with Lennox installation, operating and maintenance instructions.

Features

Weatherproof cabinet

GCS3 units are housed in a weatherproof cabinet made from heavy gauge galvanized hot dipped steel panels. A three station wash metal preparation assures a perfect bonding surface for the finish coating of powder polyester paint. Large removable panels provide complete service access.

Thick interior insulation

All of the interior panels where conditioned air is handled, and the entire base of the unit, are insulated with "sonic liner" fibreglass backed insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of glass fibre.

Dependable Lennox compressor(s)

Lennox compressors are the result of many years research and development. The following lists some of the features incorporated.

- large casing, spring loaded discharge valve, and high suction intake ports for effective 'slugging' protection.
- crankshaft statically and dynamically balanced with patented three-mode oil pumping for positive pressure lubrication.
- contoured piston for increased volumetric efficiency.
- seventeen strategically located discharge mufflers for extremely quiet operation.
- motor located within refrigerant flow pattern resulting in low motor winding temperatures.
- twin, internally mounted motor overloads and discharge temperature limiter for safe operation.
- entire running gear assembly spring mounted within the sealed casing.

Models GCS3-025, -031, and -042 have one compressor in a single refrigeration system giving single stage cooling operation.

Models GCS3-060 and -082 have two compressors in separate refrigeration systems and two-stage operation is controlled by a two-stage cooling thermostat.

Lennox coils

For maximum strength and heat transfer, extra large coils, condenser and evaporator, are fitted. They are constructed of ripple-edged aluminium fins, flat-bonded to seamless copper tubes. Coils are pressure leak tested at 31 bar.

Efficient condensing section

Direct drive axial flow fans, with totally enclosed motors, pull large air volumes through the extra large condenser coil(s) and discharge the air out of the top. Condenser coil(s) have sub-cooling rows for increased efficiency.

The condenser discharge grille is supplied as standard and an optional condenser coil guard is available.

No refrigerant charging on site

The refrigeration system is completely charged. No expensive and time consuming charging procedures are necessary.

Refrigerant system

The complete factory sealed refrigeration system consists of compressor, condenser coil and fans, evaporator coil and twin blowers, refrigerant drier, refrigerant lines connected, and a full charge of refrigerant.

The controls consist of pressure switches, compressor relay, overload protection, and "timed-off" cycle box.

Cleanable air filters

Washable, vacuum cleanable

metal-mesh filters are provided as standard. They are easily accessible for cleaning and are coated with oil for increased efficiency. Standard media is 25mm thick but the filter racks will receive double this thickness if required.

Powerful fans

Twin resiliently mounted fans deliver large air volumes with low power consumption. A rugged fan motor support allows quick belt adjustment and motor change over.

Isolator switch

An external, waterproof isolator switch is provided as standard. The switch is designed to prevent entry into the electrical inlet compartment except when the switch is in the OFF position.

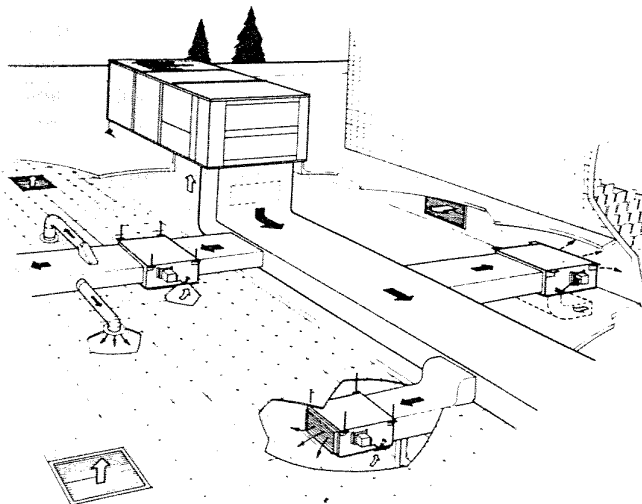
Failure mode indicator panel

GCS3 units are fitted with a failure mode panel so that operation of a unit can be checked at a glance.

Four signal lights identify failure in the following functions:

- Heating
- Cooling
- Air flow
- Filters dirty

To assist building supervisors in quickly identifying malfunctions the unit is wired to allow connection of a single warning light mounted in the conditioned area. The light will illuminate if any of the above failures occur.



Rooftop installation with optional ZDB1 fan powered mixing damper boxes.

Duratube heat exchanger

The heat exchanger is constructed of aluminized steel. Cylindrical tube and drum construction permits normal heat element expansion and contraction without metal fatigue. This design also results in high input to heat surface ratio, low resistance to air travel, and cleanability.

A flame observation port is located at rear of heat exchanger. Complete access is accomplished through removable rear breeching.

GCS3-025 and 031, have a dual stainless steel burner with two separate combustion heads. One head operates on low fire, with both heads operating on high fire requirements.

The pilot is lit by intermittent spark ignition with the spark de-energised when burner operation has been established.

A flame rod sensor, with electronic controls, assures safe and reliable operation.

GCS3-042, 060, and 082 have a stainless steel burner with a single combustion head. First stage and second stage operators feed the gas supply to the single combustion head.

The pilot flame is lit by an intermittent spark which is de-energised after establishing main burner operation.

Electronic flame sensing controls are standard. All controls are tested and listed for operation down to minus 18°C outdoor air temperature.

Limit controls and electronic flame proving controls protect the heating system from abnormal operating conditions.

Room thermostat

A deluxe wall mounted 24 volt combination heating-cooling thermostat is supplied as standard equipment.

Power Saver (optional)

The Lennox Power Saver is available either factory or field fitted with plug-in electrical connections. The system consists of mechanically linked outdoor air, recirculated air, and exhaust air dampers.

Positioning of these dampers is accomplished by a 24-volt modulating spring return damper motor, which is controlled by the room thermostat, adjustable mixed-air temperature controller, compressor motor, and enthalpy control.

The enthalpy control senses the total heat content of the outdoor air. This unique control prevents excessive moisture-laden outdoor air, which would add to the cooling load, from entering the unit — and yet permits cool dry air capable of cooling to enter, therefore taking full advantage of free outdoor air for cooling.

The two damper sections slide into the space provided within the GCS3 cabinet. A cleanable air filter is supplied on the fresh air intake.

See ordering information for full details of part numbers.

Minimum fresh air damper (optional)

An externally mounted fresh air damper section, complete with cleanable air filters, is available with all GCS3 models. See the dimensional drawing for location.

It can be either manually controlled or, by the addition of a damper motor, control can be automatic.

Order no. OAD3 for damper section and BM-5563 for motor kit. See ordering information for full details of part numbers.

Note: if a power saver is to be fitted the OAD3 kit is not necessary.

Roof mounting frame (optional)

A frame is available for mounting the GCS3 unit, the frame is designed to be set on the roof support members and provides an automatic weather-sealed rooftop installation. See ordering information for part numbers.

Low ambient kit (optional)

The system will operate satisfactorily down to 2°C, outdoor temperature, without additional controls. If the cooling operation is required at outdoor air temperatures below this, a factory fitted low ambient kit is required. See ordering information for part numbers.

Note: A low ambient kit is not required when a Power Saver is fitted.

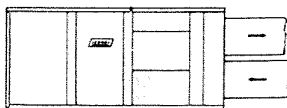
Hot gas by-pass kit (optional)

To enable additional capacity control the GCS3-025 and 031 are fitted with additional valves and fittings for adding hot-gas by-pass to the refrigeration system. Order kit number BM-4310.

Combination supply and recirculation diffuser (optional)

Two different styles of air

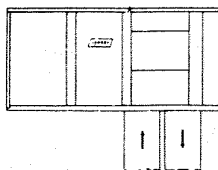
Three air patterns possible



Horizontal

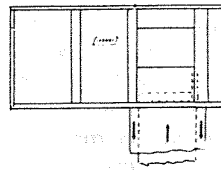
(End panels at bottom openings to give air pattern choice.)

End panels fit bottom openings to give air pattern choice. Separate adapter



Down-flow

required for combination ceiling supply and return applications.



Combination supply and recirculation
(Order separate combination supply & recirculation adapter.)

diffuser are available. The RTD step-down model extends below ceiling level when installed and the FD model is almost flush with the ceiling when installed. Supply air is discharged through the outside grilles and return air enters through the centre grille on both models.

Adjustable vanes are available. Note: if the top of the RTD is to finish below the ceiling, additional sealing pieces may be required.

Combination ceiling supply and recirculation kit (optional)

For connecting a supply and recirculation diffuser to the GCS3, a duct connector assembly is available, factory fitted.

See ordering information for part numbers.

End supply and recirculation connections (optional)

Supply and recirculation ductwork can be connected to the end of the GCS3 units by relocating internal divider panels. Models 060 and 082 require an additional kit.

See ordering information for part numbers.

Night setback controls (optional)

Room conditions can be maintained at a lower temperature overnight by fitting an additional room thermostat (normally set at 10°C to 12°C). Order no. P-8-8894 or P-8-9022 thermostat plus P-8-8889 sub-base.

A manually set 12-hour timer unit complete with stainless

steel mounting plate is also available. The 12-hour timer can be set to over-ride the night thermostat, returning automatically to the night thermostat control when the duration of the timer has run out. Order kit no. BM-4761. Note: A system control time clock with changeover contacts is also required if kit no. BM-4761 is to be fitted. Order clock no. P-8-9608.

Room thermostat guard (optional)

To protect thermostats against unauthorised tampering and damage a clear perspex lockable cover can be provided. Order no. P-8-9533.

Condenser coil guard (optional)

To protect the condenser coil against damage, a painted

Specifications

Model number	GCS3-025	GCS3-031	GCS3-042	GCS3-060	GCS3-082
Heating capacity input kW					
Low stage	37	37	52	81	81
High stage	73	73	103	147	147
Heating capacity output kW					
Low stage	28	28	39	61	61
High stage	55	55	77	110	110
Gas consumption — m³/h					
Natural gas 1027 c.v.	6.87	6.87	9.70	13.84	13.84
Gas connection — in					
	¾	¾	1	1¼	1¼
Required manifold pressure (operating) mm—wg					
	152	152	152	152	152
Nominal cooling capacity kW (see performance charts for actual capacities)					
	25	31	42	60	82
Refrigerant (R-22) charge kg					
	8.6	8.6	11.1	18.2	20
Evaporator coil					
Net face area m ²	0.69	0.69	0.87	1.43	1.64
Tube diameter mm	10	10	10	12	12
Number of rows of tubes	4	4	4	4	4
Fin spacing per 25mm	10	10	13	10	13
Evaporator fans (2)					
Wheel nominal diameter mm × width mm	305 × 152	305 × 152	381 × 229	381 × 280	381 × 381
Motor horsepower	See drive selection table for outputs.				
Condenser coil					
Net face area m ²	0.95	0.95	1.34	2.0	2.27
Tube diameter mm	10	10	10	12	12
Number of rows of tubes	4	4	4	4	6
Fin spacing per 25mm	13	13	13	13	13
Condenser fans (2)					
Dia. (mm) and number of blades	559 — 4	559 — 4	559 — 4	660 — 4	660 — 4
Air volume (factory setting) litres/s	2360	2360	3200	5700	5680
Motor horsepower watts	450	450	450	750	750
Condensate drain size mpt in					
	¾	¾	¾	1¼	1¼
Number and size of filter 25mm thick					
	(1) 508 × 635 (2) 406 × 635	(1) 508 × 635 (2) 406 × 635	(6) 406 × 508	(4) 508 × 508 (4) 406 × 508	(8) 508 × 508
Approx.net weight (1 package) kg					
	800	800	1140	1600	1800

mesh guard is available.
See ordering information for part numbers.

Supply air fan guard (optional)

An unpainted mesh guard is available which encases the entire fan belt and drive pulley section.

See ordering information for part numbers.

Fan powered mixing damper boxes (optional)

ZDB 1 series mixing air boxes, with an air volume range of 110 to 650 litres/s are available for zone control system applications. The mixing boxes are installed in the duct system, within the structure.

See separate publication for full product details.

Ordering information for accessories

Model number	GCS3-025	GCS3-031	GCS3-042	GCS3-060	GCS3-082
Evaporator fan drive kits	See drive selection table for kit numbers, outputs and weights				
Power Saver					
Model number	RD3-95	RD3-95	RD3-135	RD3-185	RD3-275
Weight kg	125	125	164	232	276
Number and size of filters mm	(2) 508 × 635	(2) 508 × 635	(4) 406 × 635	(3) 508 × 915	
Minimum fresh air damper					
Model number	OAD3-95	OAD3-95	OAD3-135	OAD3-185	OAD3-275
Weight kg	17	17	27	46	49
Number and size of filters mm	(1) 406 × 508	(1) 406 × 508	(1) 508 × 508	(1) 635 × 686	(1) 660 × 787
Automatic kit for OAD3 damper					
Model number	BM-5563	BM-5563	BM-5563	BM-5563	BM-5563
Weight kg	4	4	4	4	4
Roof mounting frame					
Model number	RMF3-95	RMF3-95	RMF3-135	RMF3-185/275	RMF3-185/275
Weight kg	45	45	64	91	91
Low ambient kit					
Model number	LB-80249BB	LB-80249BB	LB-80249BB	LB-80249BA	LB-80249BA
Weight kg	4	4	4	4	4
Hot gas bypass kit					
Model number	BM-4310	BM-4310	Not available	Not available	Not available
Weight kg	5	5			
Combination ceiling supply and recirculation step down diffuser					
Model number	RTD-95	RTD-95	RTD-135	RTD-185/275	RTD-185/275
Weight kg	27	27	54	78	78
Combination ceiling supply and recirculation flush diffuser					
Model number	FD-95-D	FD-95-D	FD-135-D	FD-185-D	FD-275-D
Weight kg	23	23	27	29	31
Combination ceiling supply and return kit for use with RTD or FD					
Model number	BM-3564	BM-3564	BM-3565	BM-3566	BM-3567
Weight kg	9	9	13	18	20
End supply and recirculation kit					
Model number	No extra kit required			LB-44878CA	LB-44877CA
Weight kg				9	11
Room thermostats and sub-bases					
	Room thermostat and controls supplied with unit as a package.				
Night setback thermostat & sub-base					
Heating and cooling	P-8-8894 or P-8-9022 and P-8-8889				
Tamperproof thermostat guard					
	P-8-9533				
12 hour override timer unit					
Heating and cooling	BM-4761 must be used with P-8-9608.				
7 day system control time clock					
Heating and cooling	P-8-9608				
Condenser coil guard					
	SN 10290	SN 10290	SN 10291	SN 10292	SN 10293
Supply fan guard					
	BE-8074	BE-8074	BE-8075	BE-8192	BE-8192
Fan powered mixing boxes					
Weights kg	Select combinations of: ZDB1-400 ZDB1-800 ZDB1-1200 ZDB1-1600				
	22 32 45 50				
ZDB1 damper motor kits					
Weights kg	BM-7376 bimetal actuator or BM-7375 non-spring return.				
	5 5				

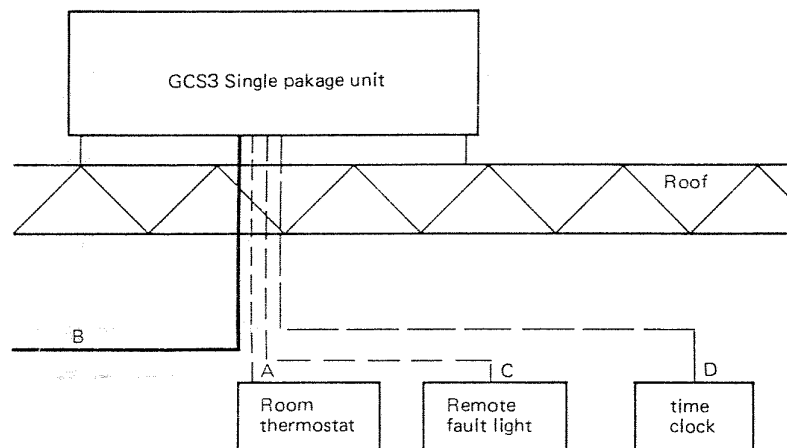
(See separate specification sheet on ZDB1 for full details.)

Electrical data

Model number		GCS3-025	GCS3-031	GCS3-042	GCS3-060	GCS3-082
Line voltage 50Hz 3 phase		380/420 – Operating range 342V min to 462V max				
Compressors	No1 Running amps	14	19	28	19	28
	Starting amps	80	105	169	105	169
	No2 Running amps	—	—	—	19	28
	Starting amps	—	—	—	105	169
Condenser fans (2 per unit)	Motor watts	450	450	450	750	750
	Running amps	2.8	2.8	2.8	5.0	5.0
	Starting amps	12.6	12.6	12.6	18.6	18.6
Supply air fan	Motor kw	1.5 2.2 3.0	1.5 2.2 3.0	2.2 4.0	2.2 4.0 5.5	4.0 5.5 7.5
	Running amps	3.5 4.7 6.2	3.5 4.7 6.2	4.7 8.0	4.7 8.0 11	8.0 11 16
	Starting amps	21 28 37	21 28 37	28 53	28 53 22	53 22 33
Maximum unit amps per phase		21 22 23	26 27 28	36 39	48 51 54	69 72 77
H.R.C. fuse amps		30	35	40 50	60	80

Note: Supply air fan motors of 5.5kW and above are star-delta start.

Field wiring – GCS3 with basic controls



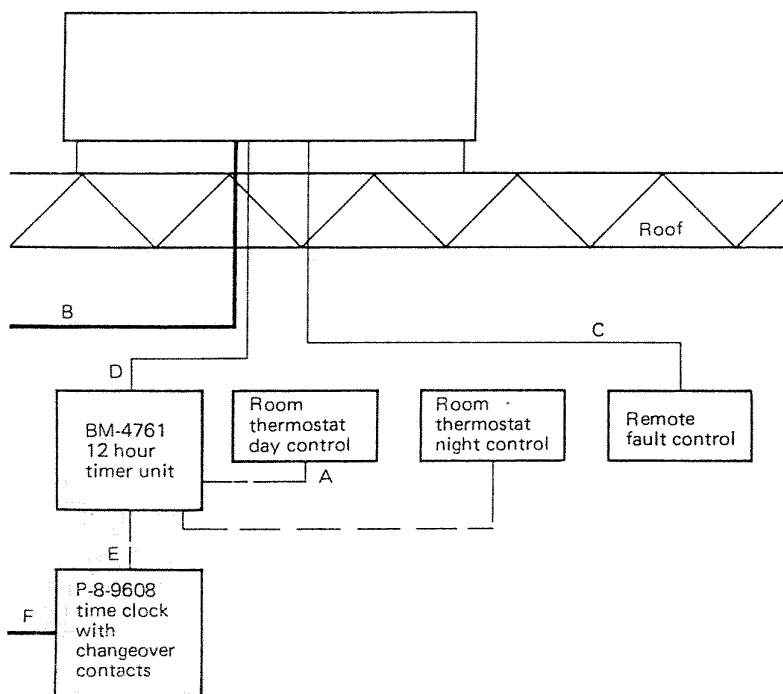
A- Four wire low voltage on GCS3-025/031/042 and Five wire on GCS3-060/082.

B- Five wire power – three phase, neutral and earth.

C- Two wire low voltage.

Note : All fuses, isolators and wiring must conform to national and local requirements. This diagram is intended as a guide for estimators. Detailed wiring diagrams are available on request.

Field wiring – GCS3 with basic and night setback controls



A- Four wire low voltage on GCS3-025/031/042 and Five wire on GCS3-060/082.

B- Five wire power – three phase, neutral and earth.

C- Two wire low voltage.

D- Five wire low voltage on GCS3-025/031/042 and Six wire on GCS3-060/082.

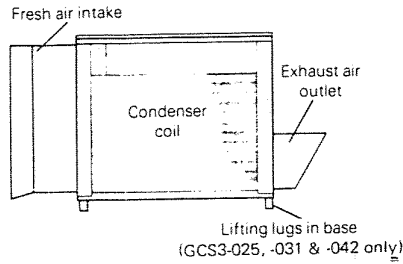
E- Three wire low voltage.

F- Three wire power – live, neutral and earth 240 volt.

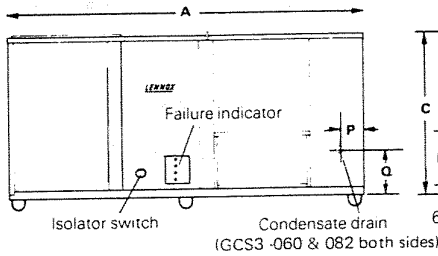
Note: All fuses isolators and wiring must conform to national and local requirements. This diagram is intended as a guide for estimators. Detailed wiring diagrams are available on request.

Dimensions (mm)

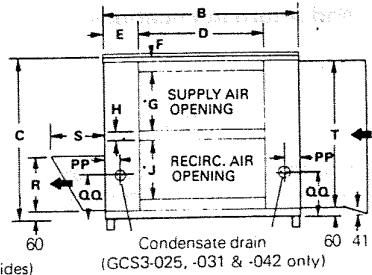
Left side view



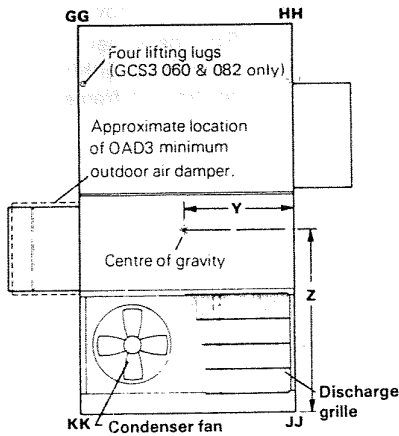
Front view



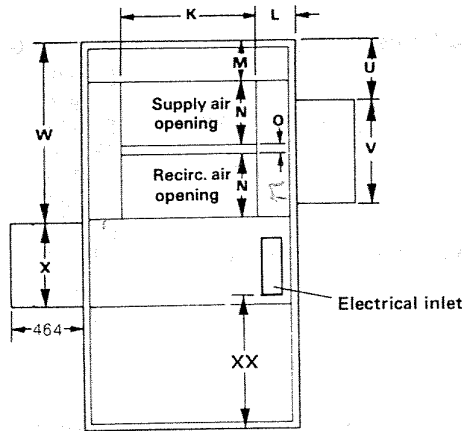
Right side view



Top view



Bottom view (looking down)



Model number	A	B	C	D	E	F	G	H	J	K	L	M	N
GCS3-025 & 031	2464	1384	1133	879	252	140	400	54	400	865	251	254	406
GCS3-042 + 035	2972	1613	1286	1032	291	117	495	51	495	1018	289	321	510
GCS3-060 + 051	3480	2108	1337	1305	403	38	594	25	594	1295	406	321	610
GCS3-082 + 068	3480	2108	1591	1305	403	60	619	162	619	1295	406	321	610

Model number	O	P	PP	Q	QQ	R	S	T	U	V	W	X	XX
GCS3-025 & 031	54	—	95	—	448	378	371	1035	384	657	1143	533	840
GCS3-042	51	—	84	—	452	378	371	1187	467	927	1410	800	890
GCS3-060	76	394	—	432	—	400	389	1238	724	902	1632	952	1040
GCS3-082	76	411	—	567	—	613	511	1492	724	902	1632	952	1040

Corner weights — kg

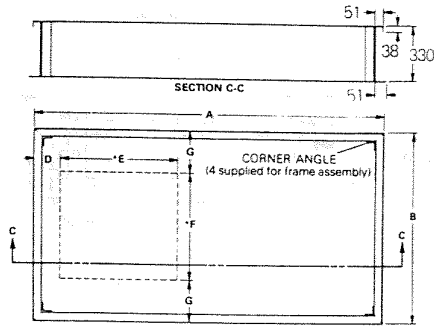
Model number	GG	HH	KK	JJ
GCS3-025 & 031				
With Power Saver	169	200	222	262
Without Power Saver	132	180	176	241
GCS3-042				
With Power Saver	221	247	306	342
Without Power Saver	172	232	234	316
GCS3-060				
With Power Saver	341	333	508	495
Without Power Saver	270	305	409	462
GCS3-082				
With Power Saver	410	373	621	564
Without Power Saver	322	346	494	531

Centre of gravity — mm

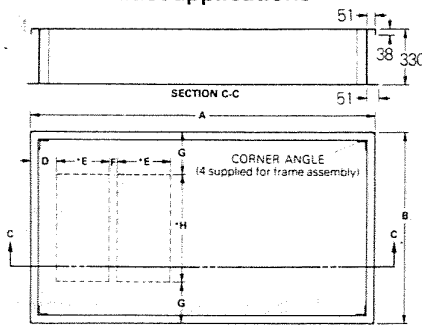
Model number	Y	Z
GCS3-025 & 031		
With Power Saver	635	1062
Without Power Saver	584	1054
GCS3-042		
With Power Saver	762	1245
Without Power Saver	686	1257
GCS3-060		
With Power Saver	1067	1397
Without Power Saver	991	1384
GCS3-082		
With Power Saver	1105	1384
Without Power Saver	1016	1372

Dimensions – mm (continued)

Combination ceiling supply and return applications



Double duct applications



Model number	Mounting frame	A	B	Diff.	D	E	F	G
GCS3-025 & 031	RMF3-95	2203	1213	RTD	124	978	978	117
				FD	156	914	914	149
GCS3-042	RMF3-135	2699	1441	RTD	190	1181	1181	130
				FD	222	1118	1067	187
GCS3-060	RMF3-185/275	3213	1949	RTD	178	1435	1435	257
GCS3-082	RMF3-185/275			FD	219	1346	1346	302

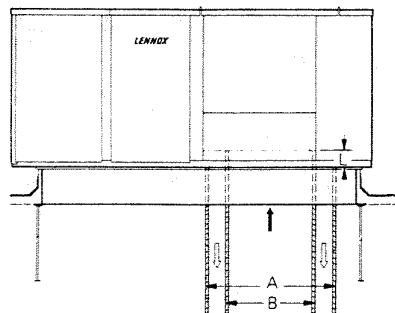
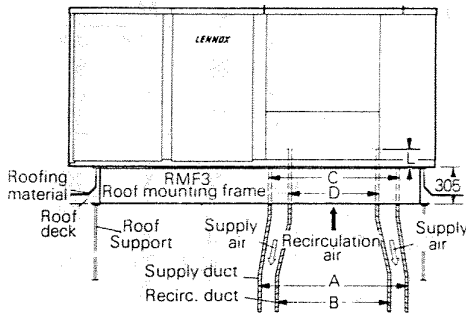
Notes * Duct size shown
Roof deck may be omitted within confines of frame.

Model number	Mounting frame	A	B	D	E	F	G	H
GCS3-025 & 031	RMF3-95	2203	1213	178	406	54	175	864
GCS3-042	RMF3-135	2699	1441	244	508	51	213	1016
GCS3-060								
GCS3-082	RMF3-185/275	3213	1949	244	610	76	327	1295

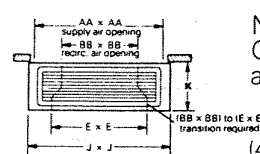
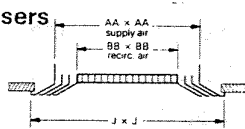
Combination ceiling supply and recirculation air distribution system

Roof top unit with optional fiberglass duct for flush diffuser applications

Roof top unit with optional fiberglass duct for step-down diffuser applications



Ceiling diffusers



FD flush supply and recirculation grille

RTD step-down supply and recirculation grille

Note GCS3-060 ducts are straight and do not transition.

(4) F x G supply air grilles supplied
(1) E x E return air grille supplied

Unit model number	Supply and recirc. air grille model no.	A	AA	B	BB	C	D	E	F	G	J	K	L
GCS3-025	RTD-95	978	927	581	584	—	—	743	914	152	1054	254	181
GCS3-031	2) FD-95-D	1121	1067	762	762	914	581	—	—	—	1213	—	181
GCS3-042	RTD-135	1181	1130	733	740	—	—	914	914	203	1219	305	181
	2) FD-135-D	1273	1219	911	914	1) 1118	733	—	—	—	1314	—	181
GCS3-060	RTD-185/275	1435	1435	911	914	—	—	1067	1219	305	1524	381	167
	2) FD-185-D	1346	1295	911	914	1346	911	—	—	—	1441	—	167
GCS3-082	RTD-185/275	1435	1435	911	914	—	—	1067	1219	305	1524	381	167
	2) FD-275-D	1654	1600	1143	1143	1346	911	—	—	—	1746	—	243

17 The 1118 mm dimension is parallel to A dimension on side elevation drawing.
2) Equipped with adjustable baffle blades.

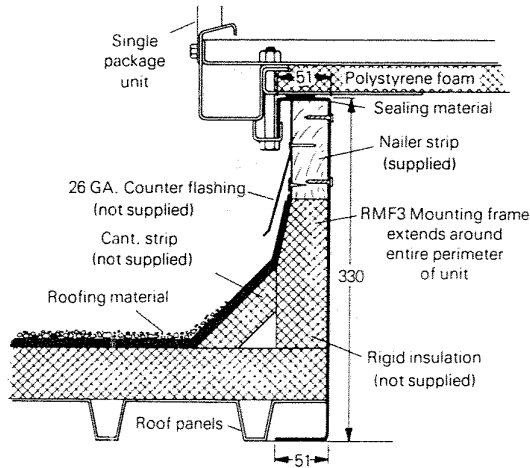
Dimensions (mm) (continued)

RMF3 Roof mounting frame— frame specifications

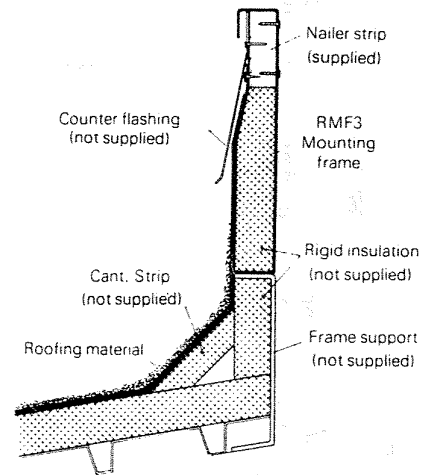
Roof mounting frame is rigid enough to be spanned over its entire length or cantilevered if supported on either side of the centre of gravity. The side joint plate must be welded to the RMF3-185/275 frame if it is spanned more than 2032 mm or cantilevered more than 1016 mm.

Mounting frame height	330 mm
Frame moment of inertia (I)	$2.91 \times 10^7 \text{ mm}^4$
Frame section modulus ($\frac{I}{c}$)	$1.77 \times 10^5 \text{ mm}^3$
Mounting frame weight	7.9 kg/m
Mounting frame design strength	138 MPa

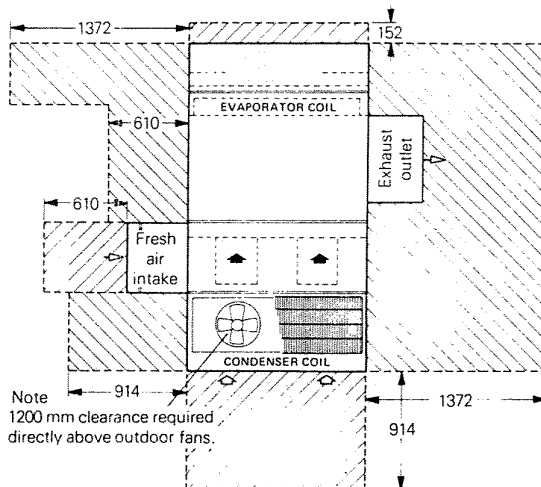
RMF3 Roof mounting frame— recommended flashing



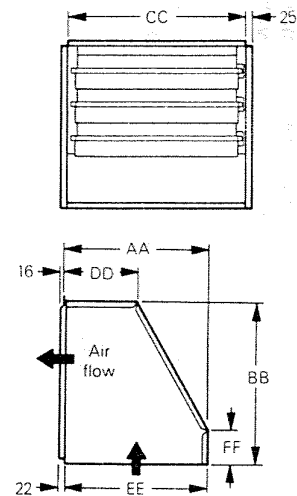
RMF3 Roof mounting frame— installation on pitched roof



Installation clearances



OAD3 series damper assembly (optional)



Unit	AA	BB	CC	DD	EE	FF
OAD3-95	435	451	533	257	429	292
OAD3-135	518	568	635	257	511	117
OAD3-185	565	698	759	308	559	273
OAD3-275	616	845	759	308	610	311

Cooling capacities

Model GCS3-025

Outdoor air temperature entering condenser																		
		25°C				30°C				35°C				40°C				
Indoor coil dry bulb temp.	Entering wet bulb	Air volume m ³ /s	Air volume l/s	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts
27°C	17°C	1.4	1400	26.35	.97	6111	25.29	.99	7102	24.10	1.00	7554	23.08	1.00	8110	23.86	1.00	8260
		1.6	1600	26.95	1.00	6784	25.96	1.00	7203	24.95	1.00	7694	23.86	1.00	8260			
		1.8	1800	27.74	1.00	6874	26.77	1.00	7299	25.70	1.00	7799	24.48	1.00	8381			
19°C	19°C	1.4	1400	27.71	.80	6875	26.57	.82	7281	25.34	.84	7755	24.00	.86	8303	24.43	.91	8374
		1.6	1600	28.30	.84	6934	27.12	.86	7343	25.84	.88	7823	24.43	.91	8374			
		1.8	1800	28.79	.88	6992	27.55	.90	7410	26.22	.93	7895	24.80	.96	8446			
21°C	21°C	1.4	1400	29.66	.64	7080	28.37	.65	7506	26.94	.67	7997	25.38	.69	8559	25.71	.72	8624
		1.6	1600	30.19	.67	7143	28.81	.68	7573	27.31	.70	8066	25.71	.72	8624			
		1.8	1800	30.63	.70	7184	29.20	.71	7613	27.65	.73	8109	25.98	.76	8674			
24°C	15°C	1.4	1400	24.69	.97	6512	23.68	.99	6881	22.57	1.00	7320	21.61	1.00	7840	22.32	1.00	7966
		1.6	1600	25.27	1.00	6579	24.35	1.00	6972	23.37	1.00	7433	22.32	1.00	7966			
		1.8	1800	26.01	1.00	6673	25.04	1.00	7076	23.99	1.00	7542	22.91	1.00	8073			
17°C	17°C	1.4	1400	26.01	.79	6676	24.92	.81	7057	23.75	.83	7495	22.52	.85	8004	22.92	.90	8078
		1.6	1600	26.52	.83	6734	25.37	.85	7121	24.16	.87	7567	22.92	.90	8078			
		1.8	1800	26.95	.87	6779	25.77	.89	7167	24.52	.92	7616	23.28	.94	8148			
19°C	19°C	1.4	1400	27.69	.63	6871	26.51	.64	7274	25.27	.66	7744	23.93	.67	8274	24.27	.70	8343
		1.6	1600	28.22	.66	6924	27.02	.67	7331	25.70	.68	7802	24.27	.70	8343			
		1.8	1800	28.63	.68	6976	27.37	.70	7386	26.00	.71	7860	24.54	.73	8397			
21°C	13°C	1.4	1400	23.16	.97	6308	22.17	.99	6667	21.11	1.00	7087	20.16	1.00	7573	20.81	1.00	7689
		1.6	1600	23.68	1.00	6384	22.76	1.00	6761	21.79	1.00	7195	20.81	1.00	7689			
		1.8	1800	24.35	1.00	6462	23.39	1.00	6840	22.40	1.00	7279	21.37	1.00	7791			
15°C	15°C	1.4	1400	24.43	.79	6478	23.33	.80	6842	22.21	.82	7260	21.07	.84	7744	21.46	.88	7812
		1.6	1600	24.89	.82	6530	23.78	.84	6894	22.66	.86	7320	21.46	.88	7812			
		1.8	1800	25.24	.86	6579	24.13	.86	6952	22.97	.90	7382	21.78	.92	7871			
17°C	17°C	1.4	1400	26.03	.62	6670	24.91	.63	7049	23.71	.64	7489	22.48	.65	7993	22.81	.67	8055
		1.6	1600	26.48	.64	6729	25.31	.65	7112	24.07	.66	7554	22.81	.67	8055			
		1.8	1800	26.86	.66	6769	25.67	.67	7151	24.39	.68	7594	23.09	.70	8110			

Cooling capacities (continued)

Model GCS3-031

Outdoor air temperature entering condenser															
Indoor coil dry bulb temp.	Entering wet bulb	Air volume m ³ /s	Air volume l/s	25°C			30°C			35°C			40°C		
				Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts
27°C	17°C	1.4	1400	31.42	.88	9440	30.09	.90	9896	28.68	.92	10452	27.38	.95	11150
		1.6	1600	32.19	.92	9572	30.74	.94	10036	29.39	.97	10623	28.19	.99	11307
		1.8	1800	32.85	.96	9676	31.44	.99	10155	29.96	1.00	10732	29.79	1.00	11474
19°C	17°C	1.4	1400	33.21	.74	9748	31.74	.75	10230	30.32	.77	10816	28.94	.78	11515
		1.6	1600	33.89	.77	9861	32.40	.78	10341	30.97	.80	10926	29.52	.82	11632
		1.8	1800	34.42	.80	9961	32.89	.82	10449	31.42	.84	11039	29.98	.86	11745
21°C	17°C	1.4	1400	35.22	.60	10089	33.73	.61	10588	32.30	.62	11198	30.81	.63	11934
		1.6	1600	35.86	.62	10207	34.41	.63	10714	32.91	.65	11328	31.33	.66	12061
		1.8	1800	36.49	.64	10292	35.05	.66	10796	33.44	.67	11409	31.74	.68	12157
24°C	15°C	1.4	1400	29.48	.89	9103	28.23	.91	9557	26.97	.93	10105	25.70	.95	10757
		1.6	1600	30.26	.93	9232	28.96	.95	9684	27.64	.97	10233	26.10	1.00	10881
		1.8	1800	30.89	.97	9354	29.58	.99	9802	28.11	1.00	10354	26.92	1.00	11044
17°C	17°C	1.4	1400	31.29	.74	9416	29.90	.75	9864	28.47	.76	10410	27.09	.78	11083
		1.6	1600	31.92	.76	9532	30.44	.78	9985	29.01	.80	10541	27.65	.82	11214
		1.8	1800	32.47	.79	9615	30.97	.81	10066	29.52	.83	10634	28.12	.85	11318
19°C	17°C	1.4	1400	33.19	.60	9750	31.73	.60	10230	30.31	.61	10814	28.94	.62	11506
		1.6	1600	33.88	.61	9859	32.37	.62	10338	30.90	.63	10921	29.46	.65	11620
		1.8	1800	34.38	.63	9955	32.83	.64	10438	31.33	.64	10438	29.89	.67	11718
21°C	13°C	1.4	1400	27.56	.90	8744	26.46	.91	9183	25.31	.93	9719	24.14	.95	10363
		1.6	1600	28.30	.93	8887	27.12	.95	9334	25.92	.97	9874	24.81	.99	10504
		1.8	1800	28.96	.96	8999	27.74	.98	9446	26.41	1.00	9976	25.28	1.00	10651
15°C	15°C	1.4	1400	29.36	.74	9082	28.09	.75	9528	26.79	.76	10065	25.48	.77	10705
		1.6	1600	30.04	.76	9194	28.70	.77	9634	27.33	.79	10168	25.95	.81	10812
		1.8	1800	30.54	.79	9292	29.15	.80	9734	27.73	.82	10269	26.31	.84	10906
17°C	17°C	1.4	1400	31.20	.59	9415	29.90	.60	9864	28.47	.60	10410	27.08	.61	11081
		1.6	1600	31.93	.60	9531	30.44	.61	9982	29.01	.62	10535	27.62	.63	11207
		1.8	1800	32.46	.62	9612	30.93	.63	10060	29.47	.64	10623	28.04	.65	11302

Outdoor air temperature entering condenser

Indoor coil dry bulb temp.	Entering wet bulb	Air volume m ³ /s	Air volume l/s	25°C			30°C			35°C			40°C		
				Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts
27°C	17°C	2.10	2100	43.88	.90	15093	42.12	.92	16180	40.28	.94	17233	38.41	.97	18229
		2.35	2400	44.72	.94	15269	42.88	.96	16387	41.08	.98	17445	39.01	1.00	18424
		2.60	2600	45.49	.97	15421	43.27	1.00	16509	41.69	1.00	17628	39.97	1.00	18675
19°C	19°C	2.10	2100	46.18	.75	15600	44.23	.77	16737	42.25	.78	17805	40.26	.80	18775
		2.35	2400	46.92	.78	15753	44.94	.80	16883	42.93	.82	17949	40.83	.84	18925
		2.60	2600	47.48	.81	15915	45.44	.83	17047	43.38	.85	18111	41.32	.87	19064
21°C	21°C	2.10	2100	48.82	.61	16214	46.77	.62	17352	44.68	.63	18433	42.56	.65	19439
		2.35	2400	49.46	.63	16393	47.35	.64	17531	45.24	.66	18617	43.11	.67	19601
		2.60	2600	50.03	.65	16503	47.93	.66	17644	45.68	.68	18730	43.55	.69	19725
24°C	15°C	2.10	2100	41.29	.91	14521	39.62	.93	15602	37.90	.95	16628	36.16	.97	17570
		2.35	2400	42.15	.94	14693	40.44	.96	15780	38.69	.98	16808	36.75	1.00	17754
		2.60	2600	42.86	.97	14870	40.79	1.00	15915	39.26	1.00	16997	37.61	1.00	17990
17°C	17°C	2.10	2100	43.64	.75	15026	41.81	.76	16104	39.91	.78	17137	37.95	.80	18094
		2.35	2400	44.30	.77	15193	42.42	.79	16281	40.45	.81	17312	38.51	.83	18264
		2.60	2600	44.92	.80	15304	42.99	.82	16387	41.00	.84	17432	39.01	.86	18400
19°C	19°C	2.10	2100	46.18	.61	15599	44.24	.61	16733	42.22	.62	17798	40.20	.64	18758
		2.35	2400	46.89	.62	15747	44.89	.63	16872	42.84	.64	17933	40.73	.66	18899
		2.60	2600	47.42	.64	15900	45.39	.65	17025	43.26	.66	18078	41.13	.68	19024
21°C	13°C	2.10	2100	38.72	.91	13951	37.19	.93	14969	35.60	.95	15962	33.96	.97	16898
		2.35	2400	39.53	.94	14130	37.93	.96	15179	36.35	.98	16170	34.52	1.00	17084
		2.60	2600	40.27	.97	14281	38.75	.99	15334	36.91	1.00	16333	35.33	1.00	17315
15°C	15°C	2.10	2100	41.08	.75	14480	39.34	.76	15535	37.57	.77	16536	35.77	.79	17458
		2.35	2400	41.78	.77	14619	40.02	.78	15668	38.19	.80	16675	36.30	.82	17608
		2.60	2600	42.36	.79	14761	40.52	.81	15822	38.64	.82	16826	36.73	.84	17744
17°C	17°C	2.10	2100	43.63	.60	15026	41.83	.60	16102	39.90	.61	17134	37.95	.62	18086
		2.35	2400	44.33	.61	15190	42.40	.62	16276	40.42	.63	17302	38.45	.64	18247
		2.60	2600	44.90	.62	15300	42.95	.63	16378	40.94	.64	17413	38.90	.65	18372

Outdoor air temperature entering condenser															
Indoor coil dry bulb temp.	Entering wet bulb	Air volume m ³ /s	Air volume l/s	25°C			30°C			35°C			40°C		
				Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts	Total cooling capacity kW	S/T ratio	Comp motor watts
27°C	17°C	4.15	4200	85.06	.88	29829	81.67	.90	31977	78.18	.92	34054	74.54	.95	35995
		4.40	4400	85.94	.90	30012	82.44	.92	32219	78.85	.94	34303	75.24	.96	36221
		4.65	4700	86.73	.92	30182	83.28	.94	32358	79.66	.96	34473	75.98	.98	36429
19°C	19°C	4.15	4200	90.07	.74	30965	86.32	.75	33167	82.42	.77	35307	78.48	.78	37247
		4.40	4400	90.87	.75	31102	87.06	.76	33306	83.15	.78	35437	79.17	.80	37381
		4.65	4700	91.50	.76	31282	87.67	.78	33523	83.66	.80	35664	79.72	.82	37547
21°C	21°C	4.15	4200	95.42	.60	32198	91.47	.61	34475	87.43	.62	36609	83.31	.63	38687
		4.40	4400	96.09	.61	32432	92.03	.62	34710	87.95	.63	36822	83.87	.64	38786*
		4.65	4700	96.80	.62	32569	92.77	.63	34818	88.64	.64	36953	84.40	.65	38945*
24°C	15°C	4.15	4200	79.93	.89	28650	76.73	.91	30783	73.45	.93	32808	70.09	.95	34692
		4.40	4400	80.77	.91	28835	77.61	.93	30939	74.29	.95	32991	70.87	.97	34880
		4.65	4700	81.57	.92	29023	78.28	.94	31175	74.92	.96	33216	71.53	.99	35101
17°C	17°C	4.15	4200	84.96	.74	29791	81.49	.75	31914	77.83	.77	33960	74.04	.78	35854
		4.40	4400	85.67	.75	29981	82.09	.76	32132	78.38	.78	34172	74.61	.80	36032
		4.65	4700	86.35	.76	30110	82.80	.77	32243	79.01	.79	34286	75.12	.81	36176
19°C	19°C	4.15	4200	90.19	.60	30977	86.37	.61	33186	82.49	.61	35315	78.57	.62	37239
		4.40	4400	90.95	.60	31121	87.13	.61	33326	83.24	.62	35454	79.19	.63	37393
		4.65	4700	91.58	.61	31303	87.69	.62	33547	83.71	.63	35657	79.72	.64	37556
21°C	13°C	4.15	4200	74.82	.90	27483	71.93	.91	29486	68.92	.93	31445	65.79	.95	33290
		4.40	4400	75.65	.91	27664	72.69	.93	29714	69.58	.95	31704	66.51	.97	33515
		4.65	4700	76.43	.93	27837	73.49	.94	29876	70.36	.96	31873	67.15	.98	33721
15°C	15°C	4.15	4200	79.84	.74	28624	76.55	.75	30735	73.17	.76	33724	69.72	.77	34565
		4.40	4400	80.61	.75	28789	77.32	.76	30863	73.88	.77	32861	70.30	.79	34713
		4.65	4700	81.30	.76	28977	77.88	.77	31073	74.38	.78	33062	70.81	.80	34880
17°C	17°C	4.15	4200	85.04	.59	29792	81.58	.60	31931	77.90	.60	33976	74.11	.61	35873
		4.40	4400	85.80	.60	29995	82.16	.60	32151	78.44	.61	34189	74.65	.62	36049
		4.65	4700	86.49	.60	30127	82.87	.61	32258	79.09	.62	34307	75.17	.63	36192

Fan data (continued)

Drive section

Model number	drive kit motor outputs	1) Rpm range available
GCS3-025	1.5 kw	820 to 1030
GCS3-031	2.2 kw 3.0 kw	1015 to 1190 1015 to 1190
GCS3-042	2.2 kw 4.0 kw	740 to 900 880 to 1060
GCS3-060	2.2 kw 4.0 kw 5.5 kw	730 to 920 790 to 1020 790 to 1020
GCS3-082	4.0 kw 5.5 kw 7.5 kw	750 to 915 790 to 1020 900 to 1060

1) System designer must calculate ductwork static pressure and all pressure drops of accessories before selecting drive kit.

Accessory pressure drop

Model number	Air volume		1) Total pressure drop*				
			Power Saver	2) RTD combination ceiling supply and return diffuser			2) FD combination ceiling supply and return diffuser
				2 sides open	3 sides open	4 sides open	
m ³ /s	litres/s	Pa	Pa	Pa	Pa	Pa	
GCS3-025 & 031	1.30	1300	20	95	85	72	58
	1.40	1400	22	108	98	85	65
	1.50	1500	22	122	110	95	72
	1.60	1600	22	138	122	108	80
	1.70	1700	25	155	135	120	90
	1.80	1800	25	170	148	132	100
GCS3-042	1.80	1800	8	98	78	62	45
	1.90	1900	8	108	88	70	52
	2.00	2000	8	122	100	82	62
	2.10	2100	10	138	112	95	72
	2.15	2200	10	155	128	108	85
	2.25	2300	10	175	142	122	98
	2.35	2400	12	198	165	142	115
	2.45	2500	12	218	182	158	128
GCS3-060	2.35	2400	5	140	115	105	55
	2.60	2600	5	160	132	120	68
	2.85	2800	8	182	150	135	80
	3.05	3100	8	210	170	150	92
	3.30	3300	10	238	195	168	105
	3.55	3500	10	265	215	185	118
3) GCS3-082	3.05	3100	0	112	98	88	42
	3.30	3300	0	132	110	98	50
	3.55	3500	0	160	125	110	60
	3.80	3700	0	198	145	128	72
	4.00	4000	0	—	172	150	85
	4.25	4200	0	—	212	175	95
	4.50	4500	0	—	—	202	108
	4.70	4700	0	—	—	235	122

1) System designer must calculate ductwork static pressure and add pressure drops of accessories before selecting drive kit.

2) Diffuser pressure drop includes grille and 900 mm of ductwork.

3) Power Saver has no appreciable pressure drop with GCS3-082.

Fan data (continued)
Ceiling supply air throw data

Model number	Air volume		Radius of diffusion	
	m ³ /s	litres/s	RTD step-down* metres	FD flush** metres
GCS3-025 & 031	1.40	1400	10.0	6.0
	1.60	1600	11.5	6.5
	1.75	1800	12.5	7.5
GCS3-042	2.10	2100	13.5	6.5
	2.35	2300	14.5	7.5
	2.60	2600	16.0	8.5
GCS3-060	2.85	2800	12.0	9.0
	3.20	3200	13.5	10.5
	3.55	3500	14.5	11.5
GCS3-082	4.15	4200	15.5	10.0
	4.65	4700	17.0	11.5

1) *Four sides open and terminates at a point where conditioned air reaches a velocity of 0.25m/s at the ceiling.
 2) **Four sides open at a point where conditioned air reaches a velocity of 0.18m/s at the ceiling.
 Note : Flush diffusers are not recommended for use on applications with ceiling heights below 5 metres.

GCS3-025 and GCS3-031 fan performance

Air volume (m ³ /s)	Static pressure external to unit (Pascals)																					
	0		25		50		75		100		125		150		175		200		225		250	
	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts
1.40	815	750	845	785	890	875	915	930	965	1080	995	1160	1030	1270	1070	1340	1100	1420	1135	1530	1165	1600
1.50	875	1025	900	1080	935	1120	970	1230	1015	1300	1045	1380	1080	1455	1110	1530	1140	1640	1175	1750	1200	1850
1.65	925	1230	960	1300	995	1360	1020	1420	1065	1535	1090	1600	1120	1680	1150	1770	1185	1880				
1.80	990	1490	1015	15300	1050	1620	1075	1700	1115	1790	1140	1865	1170	1960	1200	2050						
1.95	1040	1680	1070	1790	1100	1900	1125	1975	1160	2090	1185	2160	1215	2240								

GCS3-042 fan performance

Air volume (m ³ /s)	Static pressure external to unit (Pascals)																					
	0		25		50		75		100		125		150		175		200		225		250	
	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts
1.80							680	1120	725	1270	765	1420	800	1565	830	1680	870	1805	905	1925	940	2050
1.90							720	1305	750	1420	790	1600	825	1750	860	1940	895	2015	925	2310	970	2650
2.00	625	1080	670	1230	700	1305	740	1455	775	1600	815	1750	840	1900	875	2090	915	2310	940	2425	970	2650
2.10	660	1230	700	1380	730	1490	765	1600	795	1750	830	2030	865	2610	900	2290	930	2460	965	2685	990	2870
2.20	685	1420	725	1545	765	1715	790	1830	820	1975	850	2100	885	2310	920	2500	950	2685	980	2910	1015	3095
2.30	715	1570	750	1730	785	1900	820	2050	840	2163	875	2350	910	2575	940	2665	970	2910	1000	3095	1025	3280
2.40	740	1790	780	1780	810	2030	840	2275	870	2425	900	2610	930	2760	965	2950	990	3130	1020	3320	1045	3510
2.55	775	2050	810	2200	840	2350	870	2540	890	2650	925	2870	950	3020	985	3245	1020	3470	1040	3620	1070	3840
2.65	810	2310	840	2460	870	2650	895	2800	920	2980	950	3130	980	3360	1015	3540	1040	3770	1070	3950	1095	4140

GCS3-060 fan performance

Air volume (m ³ /s)	Static pressure external to unit (Pascals)																					
	0		25		50		75		100		125		150		175		200		225		250	
	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts
2.35									675	1604	705	1753	730	1902	760	2052	785	2201	810	2350	835	2462
2.60									705	2089	735	2238	765	2387	795	2574	820	2723	845	2909	870	3059
2.85			620	1380	650	1492	685	1641	715	1790	740	1940	775	2089	800	2238	825	2350	850	2462	875	2611
3.00	640	1604	670	1753	700	1902	725	2014	750	2126	780	2275	810	2462	835	2611	860	2723	885	2872	910	3059
3.30	685	1977	715	2163	740	2313	770	2462	800	2611	825	2760	850	2909	875	3096	900	3245	920	3394	940	3544
3.55	735	2425	765	2574	790	2760	815	2947	840	3006	865	3245	890	3432	910	3581	930	3730	955	3917	980	4140

GCS3-082 fan performance

Air volume (m ³ /s)	Static pressure external to unit (Pascals)																					
	0		25		50		75		100		125		150		175		200		225		250	
	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts	rpm	watts
3.00									675	1604	705	1753	730	1902	760	2052	785	2201	810	2313	835	2462
3.30									705	2089	735	2238	765	2387	795	2574	820	2723	845	2909	870	3059
3.55			645	1790	675	1940	705	2089	735	2238	765	2387	795	2574	820	2723	845	2909	870	3059	895	3245
3.70	650	1977	680	2126	715	2313	745	2462	770	2611	800	2798	825	2947	850	3133	875	3320	900	3506	920	3655
4.00	690	2350	720	2536	750	2723	780	2872	805	3059	830	3208	855	3394	880	3581	905	3805	930	3991	950	4140
4.25	730	2835	760	3021	790	3208	815	3357	840	3544	865	3767	890	3917	915	4103	940	4327	960	4513	980	4662
4.50	775	3394	800	3544	825	3730	850	3879	875	4066	900	4290	925	4513	950	4700	970	4886	990	5073	1015	5334
4.70	815	3917	840	4103	860	4252	885	4476	915	4700	935	4886	960	5110	980	5334	1000	5520	1020	5707	1040	5931

All m³/s data is measured external to the unit standard recirculation air opening with air filter in place.

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Since the company pursues a policy of continuous product development it reserves the right to make changes without prior notice.

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