

Installation, operating and maintenance **COANDAIR**



- Providing indoor climate comfort



GENERAL INFORMATION

Foreword

This installation and maintenance manual is destined for users of the Lennox VCD range units. It describes all the operations to ensure long product life and reliability. The warnings shown in this manual are aimed at guaranteeing the safety of persons working on these units and must be respected.

Guarantee

This is subject to Lennox's general terms and conditions of sale and delivery. Any repairs or modifications made to the equipment without Lennox's approval will render the grantee void. The guarantee does not cover any damage due to negligence, poor maintenance or non-respect of the recommendations and prescriptions. The guarantee and the manufacturer's obligations may be declared invalid if the user fails to respect the recommendations given in this manual. The manufacturer declines all responsibility for installations or maintenance operations carried out by unqualified personnel.

Receiving equipment

Check the condition of the equipment and report any transport damage to the transporter by recorded delivery letter within 24 hours; with a copy to the sales office. Do not unpack the equipment until just before installation, and make sure they are as close as possible to the installation area; respect the storage precautions marked on the packaging.

Installation conditions

Respect the Local safety in force. Make sure that the electrical supply is compatible with the characteristics of the VCD to be installed. Never handle units by using the water pipe connections, flexibles, valves, cables

Disconnect the power supply to the unit before carrying out any work on parts of the unit identified by the sign . Any work carried out must be in accordance with the local regulations in force, where eye protection, work gloves, non-inflammable clothes when welding, provide a fire extinguisher nearby.

The units are not designed for installation in explosive, acid or alkaline environments. The Copper/aluminium coils and other internal components would risk irreversible damage.

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1. INTRODUCTION

The fan coil diffuser unit (VCD) is a compact air conditioning terminal unit integrating fan(s), coils, and supply and return air diffusers. Particularly well adapted for air conditioning offices in the small and medium tertiary sector, the VCD is available in three sizes, for conditioning rooms from 12 to 30 m²; they integrate perfectly with 600 x 600 or 600 x 1200 modular false ceilings.

Careful attention to the design of the VCD allows it to meet the most severe comfort standards..

The VCD has been designed for installation in the room to be air conditioned, near to partitions adjacent to corridors or close to the centre of the building for open space installations, thus minimising the lengths of the water pipe work, electrical wiring and condensate evacuation installations.

The supply air diffuser design meets several important requirements: firstly it provides good air diffusion in all circumstances, meaning in both cooling and heating modes; this is made possible by the special design of the supply outlets, the shape and dimensions of these allows a large quantity of ambient air to be induced by the coanda effect, this guarantees rapid mixing of the primary air and the air in the conditioned space which translates into the absence of the « cold shower » feeling or the stagnation of warm air at ceiling level ; secondly it provides for satisfactory conditioning of the whole ceiling surface due to the possibility of being able to orient each air outlet to the desired direction; and finally thirdly generated outlet noise is minimised due to the shaped profile of the outlet vanes.

The return air grill, located in the filter access door, has been designed large to reduce the air pressure drop across the air openings and consequently reduce the noise generated by the fan.

The fan motor assembly, with forward curved single or double scroll fan, is mounted on anti vibration mounts and has been generously sized for minimum noise generation; the choice of 5 rotation speeds allows for the closest adjustment of the required airflow to maintain the desired temperature conditions.

The VCD is available in all the configurations demanded by the market, 2 Pipe with Change/Over, 2 Pipe/2Wire, 4 Pipe and 4 Pipe/2Wire. The On/Off or proportional type water flow control valves associated with electronic controls offer a perfect control of the space temperature. The electric heaters used in the 2P/2W or 4P/2W application, are equipped as standard with a manual reset thermostat, reset by switching off the power, and a thermo fusible link.

Each unit is supplied with a minimum of a terminal block with a protective cover; This is generously designed and allows the optional housing of all the components necessary for the connection and electrical protection, and also for the mounting of a communicating electronic controller which with a link to the Building management system allows the building manager to modify the operating parameters of the installation at any moment.

As an option the VCD can be fitted with a fresh airflow regulator and spigot to provide fresh air renewal as required by legislation.

A raised option is available on request to increase the condensate evacuation tube height when there is insufficient drain evacuation head or when the use of an evacuation pump is not permitted.

2. Technical data

2.1 Physical and electrical data

VCD		Size 600	Size 900	Size 1200
Nominal air flow	L/sec (m3/h)	124 (447)	133 (480)	166 (600)
Total cooling capacity (1)	kW	2,5	3,01	4,13
Sensible cooling capacity (1)	kW	1,8	2,16	2,82
Heating capacity	kW	2,84	3,39	4,41
Electrical supply		single phase - 50Hz - 230 V+/- 10%		
Fan:		forward curved, single wheel		
Air flow at max speed	L/sec (m3/h)	142 (510)	153 (550)	208 (750)
Motor:		asynchronous type 230V-1-50		
4 pole with internal overload protection; permanent capacitor; winding insulation class B, varnish class F, IP20				
Maximum absorbed	W	53	80	85
Nominal current	A	0,232	0,346	0,37
Starting current	A			
Water coil:				
3/8" copper tubes, aluminium fins				
		3 row/2way	3 row/3way	3 row/3way
Water content	L	0,939	1,432	1,932
Operating pressure	kPa	16	16	16
Test pressure	kPa	24	24	24
Electric heater				
"UDH" bare wire resistive type				
Electrical supply		single phase - 50Hz - 230 V+/- 10%		
Protections		manual reset thermostat; trigger temperature 75°C (reset by switching off the power)		
		thermo fusible link; breaks at 152°C		
Power (+5%/-10%) not including fan	W	800	800 2000	800 2000
		1500	1600 3000	1600 3000
Minimum air flow	Mini speed	V2	V2 V3	V2 V3
Air filter				
95% efficiency (G3 following Standard EN 779), throwaway type, M1 fire rating, metal frame				
Dimensions	mm	450 x 207	750 x 207	1050 x 207
Weight and Dimensions				
Length x Width x Height	mm	595 x 595 x 300	895 x 595 x 300	1195 x 595 x 300
Weight	kg	25	36	47

(1) Based on water entering temperature of 7 °C and a water temperature difference of 5 °C at nominal conditions, air at 27 °C dry bulb, 50 % relative humidity

(2) Based on water entering temperature of 50 °C and a water temperature difference of 5 °C at nominal conditions, air de 20 °C

2.2 Codification

CODIFICATION

DIGIT		DIGIT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
EXAMPLE			V	D	0	6	A	3	P	G	W	W	A	A	0	A	A	A	P
DIGIT	DIGIT	DESIGNATION																	
1	2	Unit type																	
3	4	Unit size																	
5		Modification reference																	
6		Cooling coil																	
7		Heating coil																	
8		Water connection																	
9		Fresh air controller																	
10		Fresh air position																	
11	12	Control type																	
13		Specials																	
14		Temperature sensors																	
15		Water valves																	
16		Valve actuators																	
17		Condensate pump																	

DIGIT	CODIF	DESIGNATION
1 & 2		Unit type
	VD	Fan Coil
3 & 4		Unit size
	06	Size 600
	09	Size 900
	12	Size 1200
5		Modification reference
	A	Original
6		Cooling coil
	3	3 rows
	4	4 rows
7		Heating coil
	-	Without coil (2 pipe C/O, 2 pipe/2 wire application)
	1	Water, 1 row (4 pipe application)
	G	Electric 800 Watts (2 pipe/2 wire application)
	P	Electric 1500 Watts (2 pipe/2 wire application)
	Q	Electric 1600 Watts (2 pipe/2 wire application), size 09 & 12
	R	Electric 3000 Watts (2 pipe/2 wire application), size 09 & 12
	S	Water, 1 row (4 pipe application) + electric 800 Watts
	T	Water, 1 row (4 pipe application) + electric 1500 Watts
	U	Water, 1 row (4 pipe application) + electric 1600 Watts (size 09 & 12)
	V	Water, 1 row (4 pipe application) + electric 3000 Watts (size 09 & 12)
8		Water connections
	G	Left
	D	Right
9		Fresh air controller
	W	Without (no spigot, fresh air is introduced outside the unit)
	A	Spigot ext. dia 124 mm (inside diameter 114 mm, without controller)
	B	30 m3/h constant air flow regulator mounted (spigot ext. dia. 99 mm)
	C	Spigot ext. dia 99 mm (inside diameter 74 mm, without controller)
	D	60 m3/h constant air flow regulator mounted (spigot ext. dia. 124 mm)

DIGIT	CODIF	DESIGNATION
10		Fresh air position
	W	Without
	C	On side
11 et 12		Controls type
	AA	Terminal block
	BA	Honeywell Excel 10
	CA	Siemens ACC86
	CM	Siemens RXC
	DA	Peter & Kiebach
	GA	Johnson Controls
	HA	Sauter
	JA	TAC
	KA	Trane ZN 523
	SA	Satchwell
	VA	Trend IQL
13		Specials
	W	Standard
	0-9	Special product
14		Temperature sensors
	A	Supply
	B	Return
	C	Water
	D	Change Over thermostat
	E	Supply + Return
	F	Supply + Return + Water
	G	Supply + Return + Change Over thermostat
	H	Supply + Water
	J	Supply + Change Over thermostat
	K	Return + Water
	L	Return + Change Over thermostat
	W	Without

DIGIT	CODIF	DESIGNATION
15		Water valves
	A	HONEYWELL Valve 2 way Kvs 1
	B	HONEYWELL Valve 2 way Kvs 1,6
	C	HONEYWELL Valve 3 way Kvs 1
	D	HONEYWELL Valve 3 way Kvs 1,6
	E	SIEMENS Valve 2 way Kvs 1
	F	SIEMENS Valve 2 way Kvs 1,6
	G	SIEMENS Valve 3 way Kvs 1
	H	SIEMENS Valve 3 way Kvs 1,6
	J	JOHNSON CONTROL Valve 2 way Kvs 1
	K	JOHNSON CONTROL Valve 2 way Kvs 1,6
	L	JOHNSON CONTROL Valve 3 way Kvs 1
	M	JOHNSON CONTROL Valve 3 way Kvs 1,6
	N	SAUTER Valve 2 way Kvs 1
	P	SAUTER Valve 2 way Kvs 1,6
	Q	SAUTER Valve 3 way Kvs 1
	R	SAUTER Valve 3 way Kvs 1,6
	W	Without
16		Valve actuator
	A	24 V thermo actuator NO
	B	24 V thermo actuator NC
	C	230 V thermo actuator NO
	D	230 V thermo actuator NC
	E	24 V PROPORTIONNAL
	F	230 V PROPORTIONNAL
	G	BELPARTS 24 V thermo actuator NC
	H	BELPARTS 230 V thermo actuator NC
	W	Without
17		Condensate pump
	P	Sauerman condensate pump
	W	Without

NOTE: the handing (left or right) of the water and electrical connections is defined when looking in to the airflow

2.3 Packaging

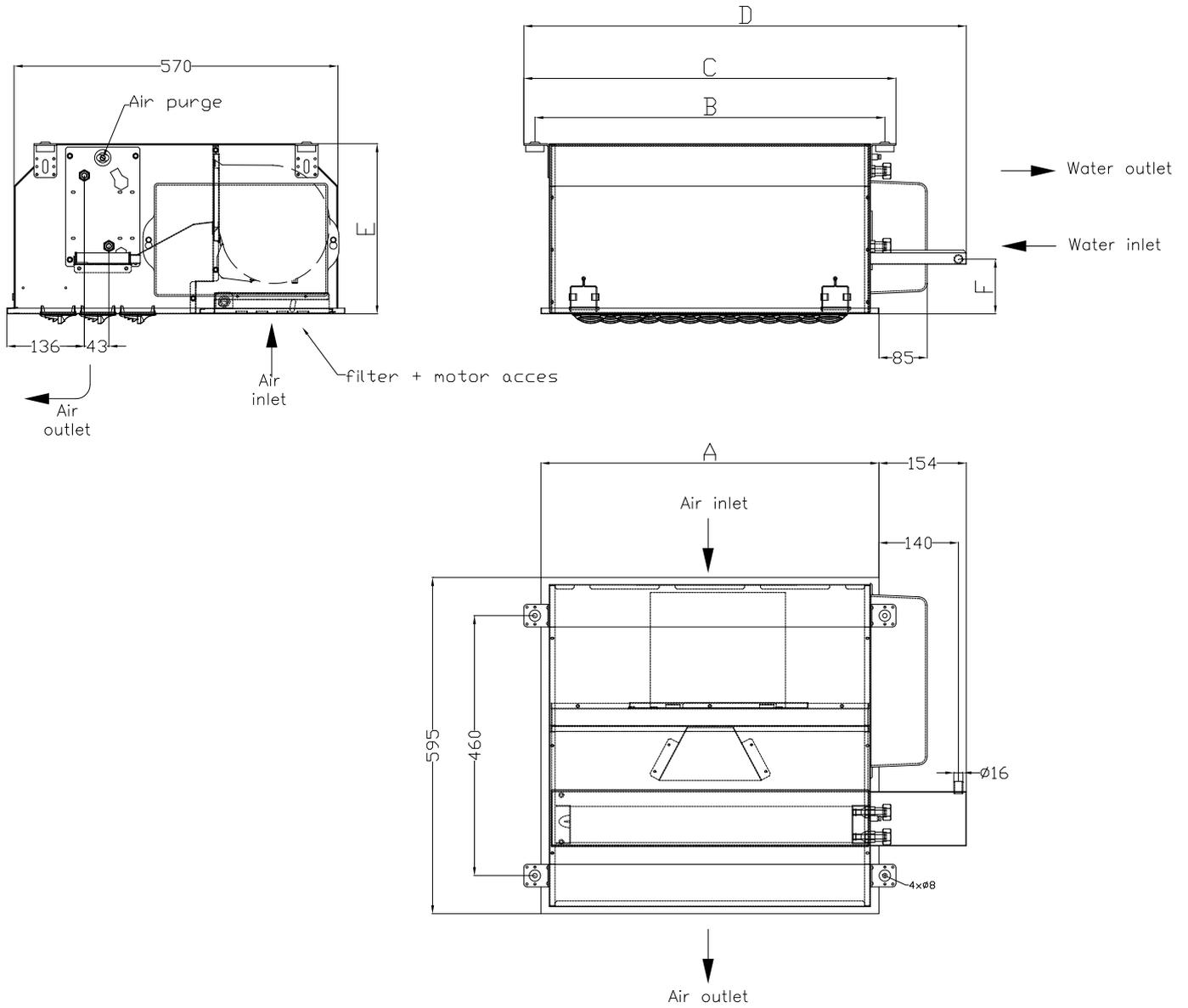
VCD units are packed on palettes in multiples of 10 unit, filmed wrapped; a maintenance and storage precautions notice is fixed to each palette.

The palette dimensions are as follows

Length	Width	Height
1500	1200	1500
800	1200	1500
1250	1500	1500
1200	800	1500

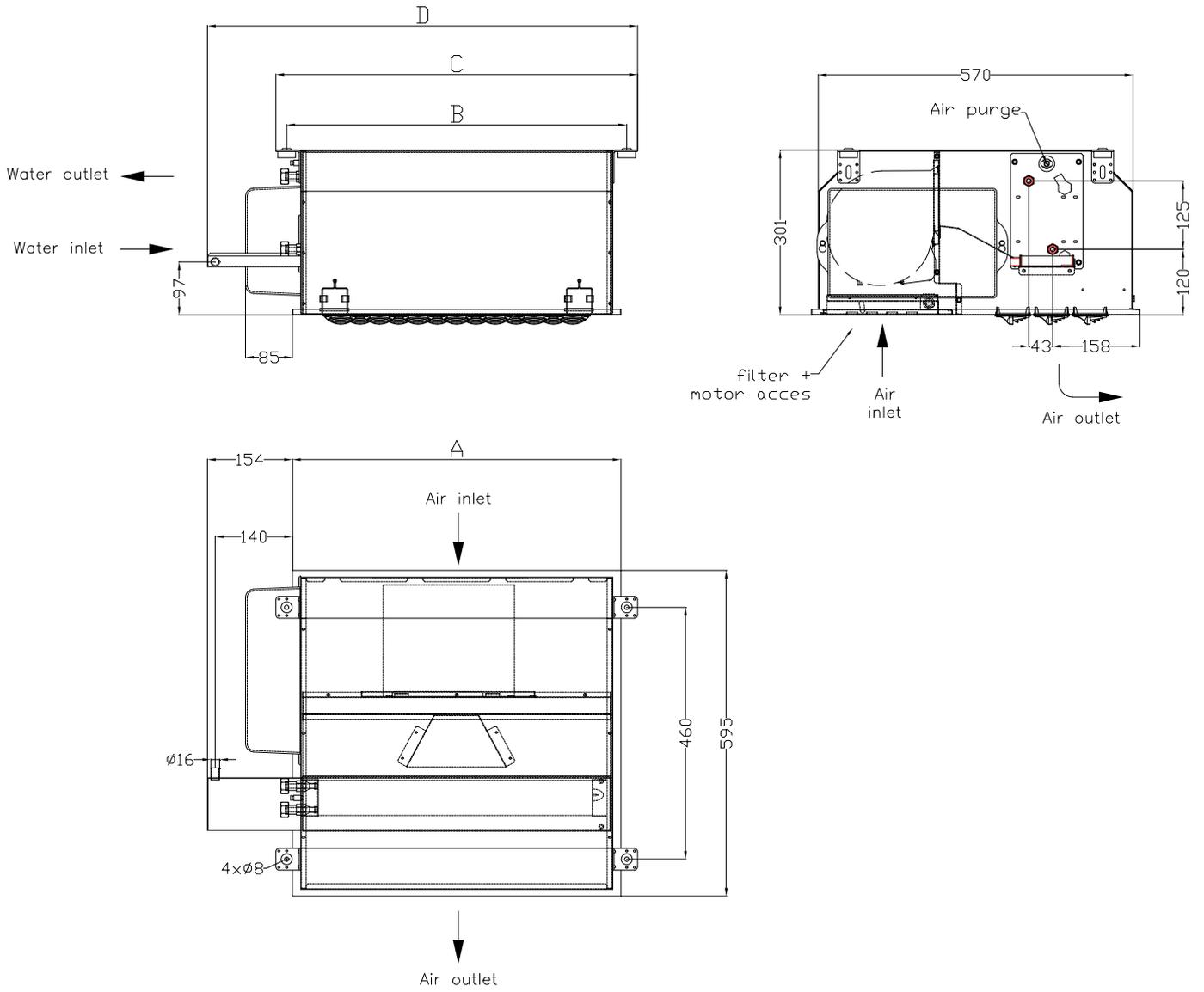
2.4 Dimensional drawings

2.4.1 3 row coil Right hand



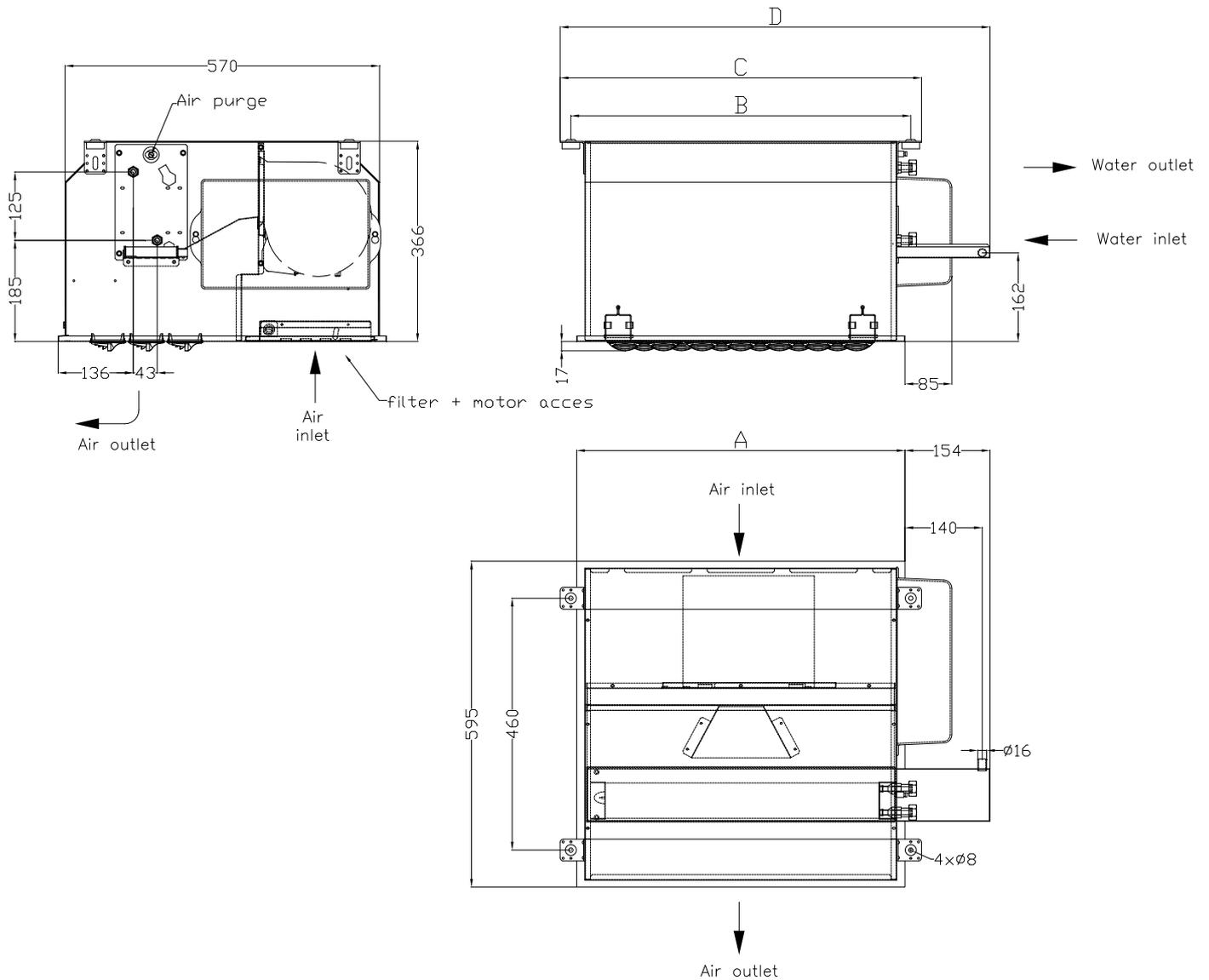
Size	A	B	C	D
600	595	616	655	779
900	895	916	955	1079
1200	1195	1216	1255	1379

2.4.2 3 row coil Left hand



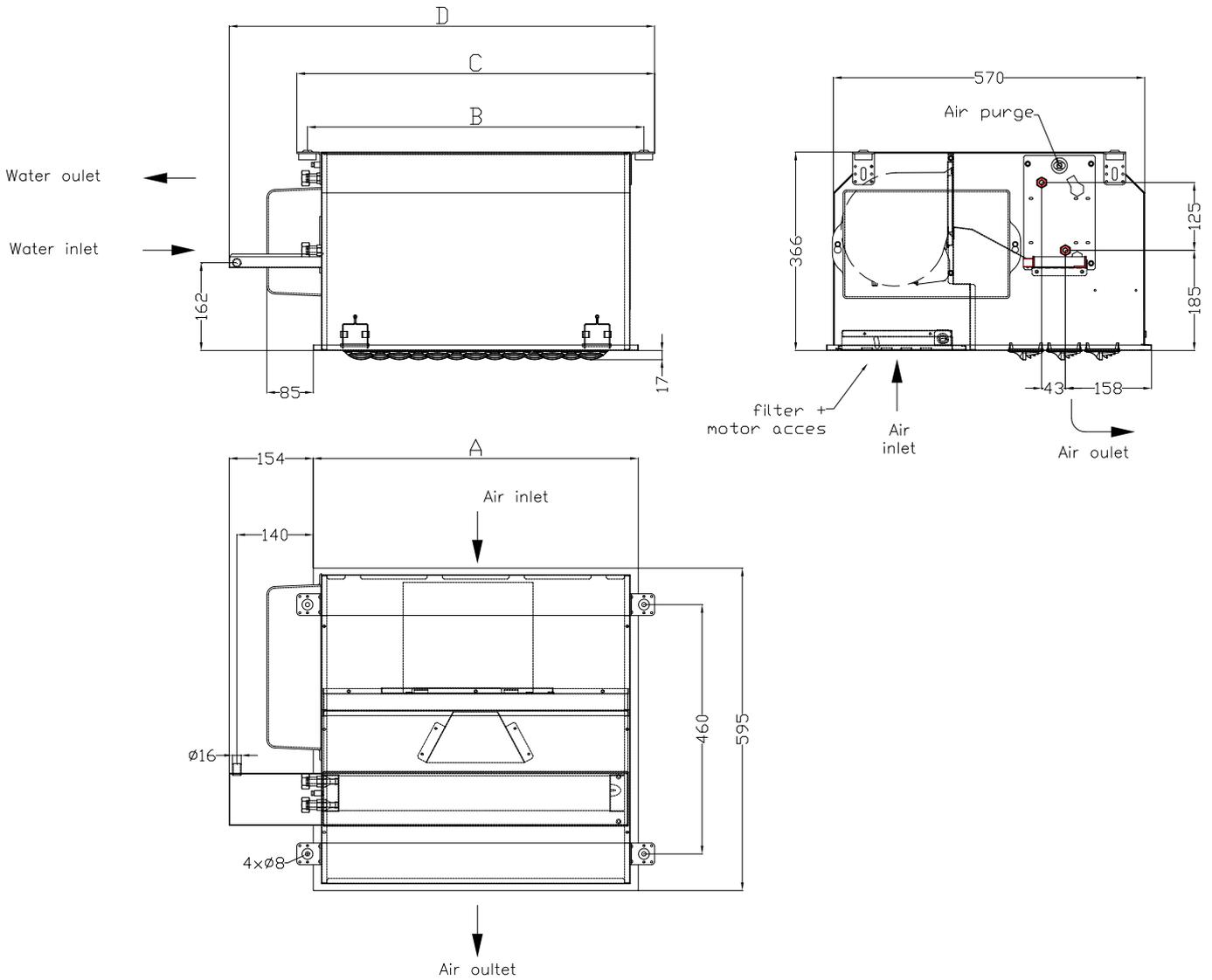
Size	A	B	C	D
600	595	616	655	779
900	895	916	955	1079
1200	1195	1216	1255	1379

2.4.3 3 row coil Right hand- - raised option



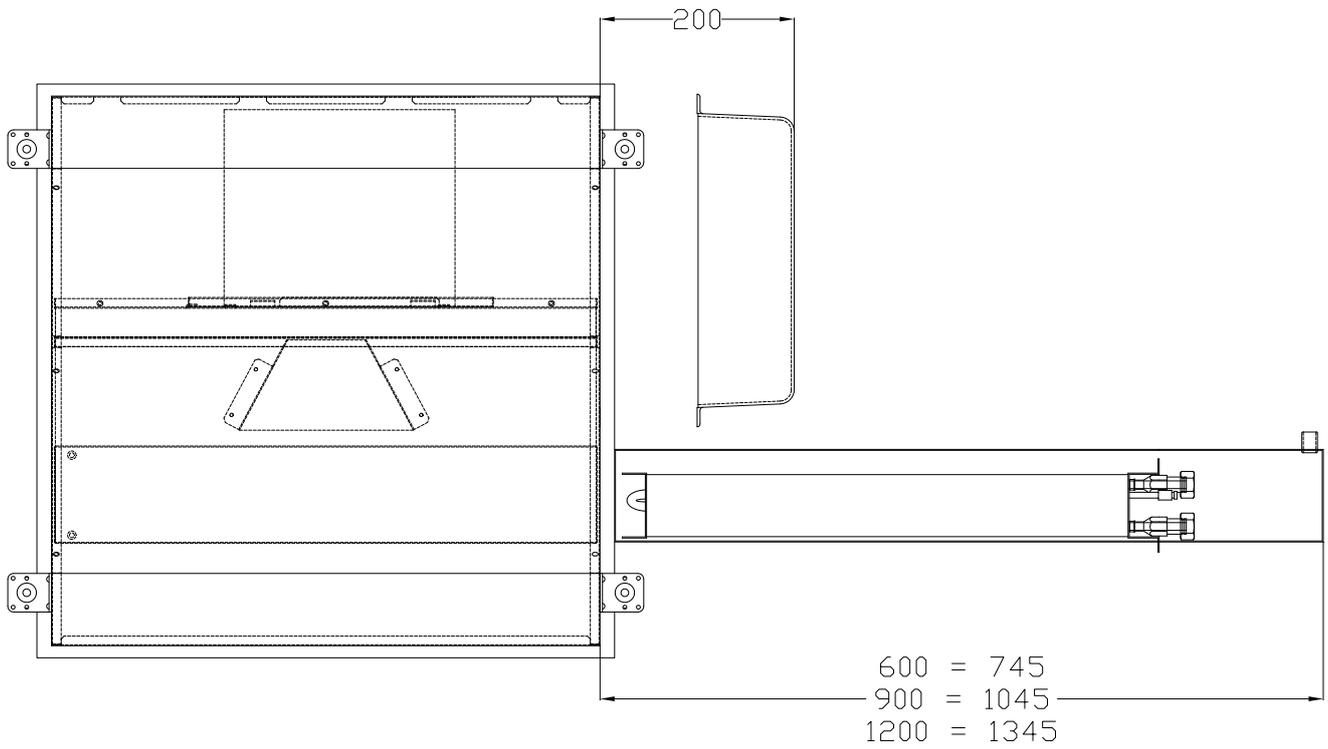
Size	A	B	C	D
600	595	616	655	779
900	895	916	955	1079
1200	1195	1216	1255	1379

2.4.4 3 row coil Left hand – raised option

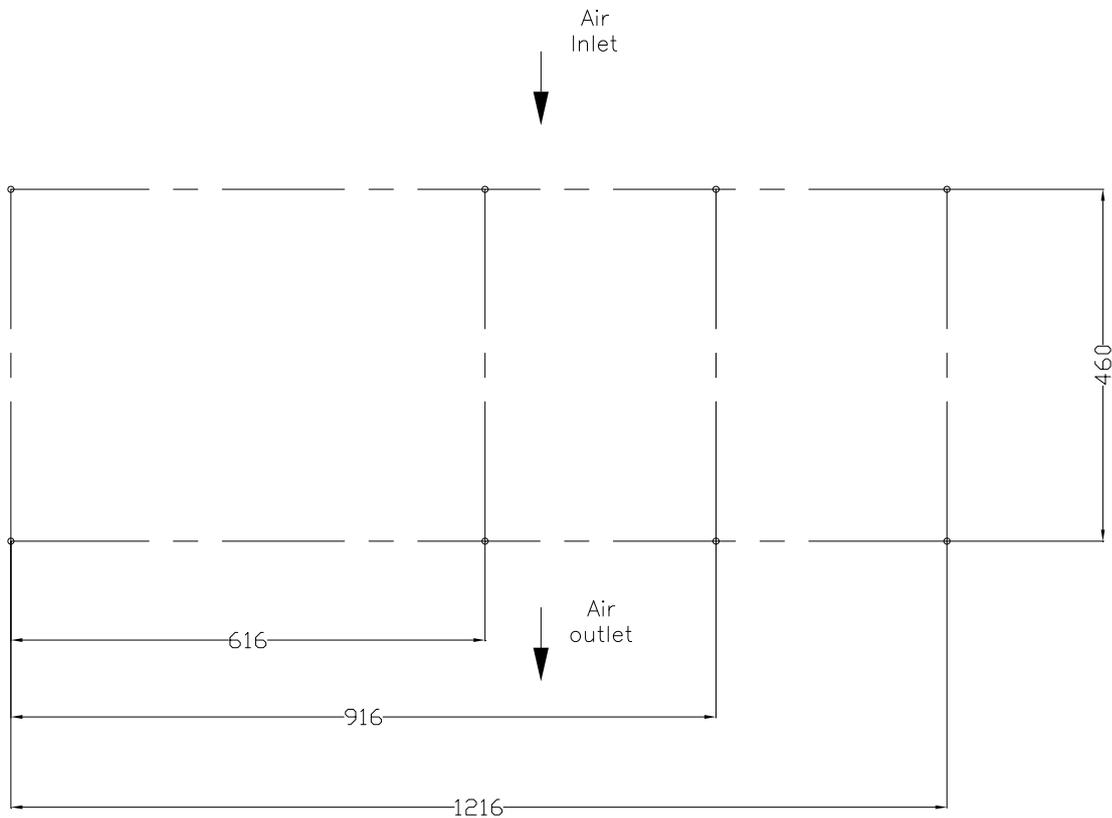


Size	A	B	C	D
600	595	616	655	779
900	895	916	955	1079
1200	1195	1216	1255	1379

2.5 Maintenance access requirements



2.6 Template for positioning threaded hangers

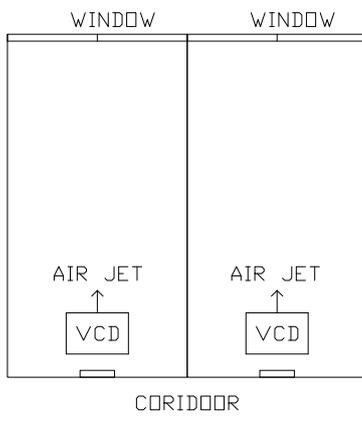


3. INSTALLATION METHOD

3.1 Matching the VCD to the installation position

Before starting the installation process, it is advisable to study a VCD prototype to help facilitate the mounting of the unit. For the plan, it is recommended a mounting template be obtained, contact your local representative or Lennox directly.

It is recommended that VCD units are installed in false ceilings and at the entrance to an office with the air jet directed towards the window.



3.2 Casing installation procedure

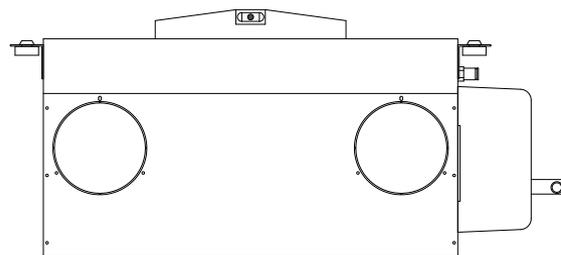
3.2.1 Installation precautions

- During the installation of the unit, make sure all construction debris, that could damage the unit, has been removed from the ducts or equipment.
- Before starting the installation process, fit all the accessories (if necessary) to the unit according to the instructions provided in the kit.
- Determine the false ceiling type in order to define the type of threaded hangers to be used and make sure that the surface can support the weight of the unit

3.2.2 False ceiling installation

- A lift and ladder will make the task easier.
- Position the unit on the ground under the position where it will be placed in the false ceiling.
- Confirm that the clearances around unit are sufficient to allow for unrestricted maintenance access. Refer to the drawing showing maintenance access requirements

- Use the drilling template to mark the ceiling fixing positions.
- Drill 4 holes for the anchor fixings
- Raise the unit, align the threaded hangers with the unit and fit the nuts.
- Check that the unit is level to ensure that the condensate will drain correctly.



3.2.3 Condensate drain pipe

It is recommended to use a 16 mm inside diameter clear tube, preferably reinforced, with a fall of 2 cm/m, over the whole horizontal pipe run. Install a 5 cm (minimum) siphon at the outlet to prevent gas or odours flowing back from the drain.

When connecting multiple units to the same collector, use a tube with an inside diameter of 16 mm to connect the drain pan to the collector, a fall of 2 cm/m is recommended.

The condensate drain pipe is fixed to the drain pan using a collar, this is not supplied by Lennox.

Note: In order to avoid the risk of any leaks, pour 1 to 2 litres of water in to the auxiliary drain pan and check that it drains correctly. Should the water fail to drain correctly, check the fall of the drain pipe and investigate the potential causes of the problem.

3.2.4 Connection of the flexible water pipes

When the installation is ready, i.e. the VCD fixed to the ceiling, the water manifolds are in position with stop valves fitted, electrical installation prepared, connect the flexibles water pipes (not supplied by Lennox). Each flexible has a 1/2" gas screw connector.

Warning: Don't forget to install the gasket between the screw connector and the stop valve (gasket not supplied by Lennox).

3.2.5 Purging the circuits

When all the VCD units have been installed, check that the control valves are open, pressurize and then purge the circuits.

To purge the coils, using a multi grip pliers for the heating circuit and a screwdriver for the cooling circuit, gently unscrew the bleed screw located on the upper coil header.

3.2.6 Electrical connections

- All the power, control and connection cables must be supplied and fitted by the installer(s). Always respect the IEE wiring regulations and also the national regulations during installation of the wiring.
- All wiring must be sized accordingly with the fuses recommended for a given unit.
- If required, install a circuit breaker within reach of the unit inside; always connect the equipment to earth.

Warning: Do not apply power to the unit until all the electrical connections have been made.

The installation can now be run.

3.3 – Casing removal procedure

DISCONNECT THE POWER SUPPLY BEFORE CARRYING OUT ANY WORK ON THE VCD.

- Switch of the power supply to the VCD at the isolator provided for this purpose during installation (isolator not supplied by Lennox).
- Disconnect the power supply cables from the quick connect terminal block using a flat-ended screwdriver (2.5 maximum) the earth wire is provided with a flat connector.

For special regulations, refer to the documentation attached to this manual.

- Remove the diffuser from the unit (see page XX)
- Shut the isolating valves located on the collectors.
- Disconnect the flexible water pipes by unscrewing the connectors (G 1/2" gas).
- Disconnect the flexible condensate drain pipe, empty the siphon into a container.
- Gently raise the VCD unit a little, unscrew the 4 nuts on the threaded hangers then lower the unit.

3.4 – Diffuser installation Procedure

3.4.1 Installation precautions

- Before starting the installation procedure, position the diffuser in it's packaging as close as possible to the unit to which it will be fitted.
- Make sure that the two locating lugs on the unit, which are used to fix the diffuser, are present and that they are correctly orientated.



- Should a locating lug and/or bracket be missing, please contact your local representative or Lennox directly and they will supply the necessary components for these parts.

- It is strongly recommended to wear new white gloves in order to avoid soiling, scratching, ... the diffuser. If gloves are not available then make sure that hands are carefully washed.

3.4.2 Installation of the diffuser onto the unit

Once these precautions have been followed, remove the diffuser from its packaging. Check that the black coloured filter and all the supply outlets are present.

Remove the filter by sliding it along the guides and place it to one side.

Bring the diffuser close to the suspended unit, the return air grill is located under the fan, tilt it so that the feet can be easily integrated in the slots



To engage the diffuser move it closer to the casing and make a lateral movement, two clicks should be heard (1).



Raise the diffuser towards the unit, the locating lugs should clip to the diffuser, two clicks should be heard (2), the diffuser can now support itself.

To install the filter, gently pull the door forwards, slide in the filter and close the door.

The diffuser is now fixed.

3.5 Removing the diffuser

3.5.1 Removing the filter door

This operation is necessary in 2 situations:

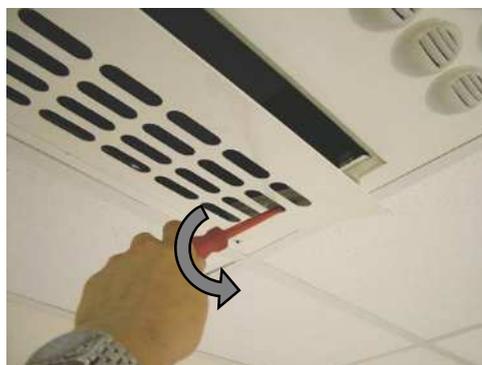
- Access to the fan motor assembly and/or the electric heater
- Removal of the diffuser

Removal procedure

Gently pull the filter door downwards, remove the filter and put it to one side.



Insert a screwdriver, through an opening, into the hole in the clip, then incliner one of the lateral faces of the door towards the inside to disengage the retainer. Remove the door by pivoting it to disengage the retainer on the opposite side.



3.5.2 Removing the diffuser

Raise the unit until the diffuser is above the false ceiling Tees.

Proceed with the removal of the filter door as indicated above.

Using a flat ended screwdriver, turn the retaining lugs located at the 2 ends of the opening, a ¼ turn.

The diffuser can now be tilted down from the return air opening.

Push the diffuser forwards then using a screwdriver, disengage the retaining clips.

The diffuser can now be removed completely

4. FAN MOTOR ASSEMBLY

4.1 Description

The VCD unit is equipped with a centrifugal forward curved fan with double inlet single or double wheels.

4.2 Removal procedure

DISCONNECT THE POWER SUPPLY BEFORE CARRYING OUT ANY WORK ON THE VCD.

If the fan motor assembly develops a fault, the whole assembly must be removed and replaced.

- Remove the filter door (see « removal of the filter door») and remove the motor cover fixed by two 8mm AF hexagonal head screws.
- Disconnect the quick connector power cable to the fan motor assembly.
- The fan motor assembly is fixed to a panel. Release the panel fixed by one 8mm AF hexagonal head screw, disengage the panel from the lugs by a sideways movement followed by an upward movement.
- If an electric heater has been installed, this is mounted on the panel and is removed at the same time as the fan motor assembly (see « removal of the electric heater »).

BE CAREFUL TO AVOID CAUSING DAMAGE DURING REMOVAL

- The fan motor assembly is removed from the panel by removing the two 8mm AF hexagonal head screws, and then freeing it from the lugs.
- Replace the fan motor assembly and apply the procedure in reverse to complete the installation.

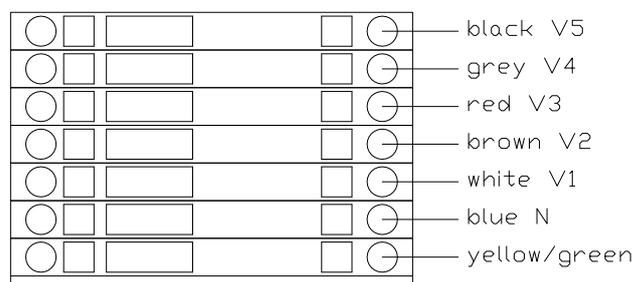
4.3 Unit wiring

DISCONNECT THE POWER SUPPLY BEFORE CARRYING OUT ANY WORK ON THE VCD.

The fan motor has 5 speeds, all are connected the quick connect terminal block.

To wire the speeds, connect the wires for the selected speeds.

The standard speeds are represented in the diagram shown below.



4.4 Capacitor replacement procedure

DISCONNECT THE POWER SUPPLY BEFORE CARRYING OUT ANY WORK ON THE VCD.

- Remove the fan motor assembly (see « fan motor removal procedure »).
- Unscrew the control box cover on the fan motor using a 2.5 flat-ended screwdriver.
- Disconnect the capacitor by removing the spade connectors from the back of the capacitor.
- Replace the capacitor and apply the procedure in reverse to complete the installation.

5. WATER COIL

5.1 Description

The coil offers a maximum heat exchanger surface for a minimum of space; available for 2 pipe or 4 pipe applications, the finned block is common offering an increased heat exchanger surface area.

The aluminium fins are mechanically bonded to 3/8" diameter copper tubes. The inlet and outlet connections are each provided with a 1/2" G internal diameter threaded nut to facilitate the connection of the flat seal valve connection. The knurled purge screw (or screws) is accessible from the outside and may be opened with pliers.

The coils are available in the following configurations: 3 or 4 row for 2 Pipe/change over or 2Pipe/2Wire applications and 3 row Cooling plus 1 row Heating for 4 pipe and 4 Pipe/2 Wire applications.

5.2 Removal procedure

DISCONNECT THE POWER SUPPLY BEFORE CARRYING OUT ANY WORK ON THE VCD.

- Close the isolating valves located on the headers.
- Disconnect the flexible water pipes by unscrewing the connectors (G 1/2" gas).
- Remove the valve motor(s) being careful not to damage them.
- Remove the body of the water control valve(s). Depending on the VCD configuration, do not remove the coupling associated with the valve.
- Disconnect the flexible condensate drain pipe, empty the siphon into a container.
- Remove the water coil / condensate drain pan assembly, this assembly is fixed by four 8mm AF hexagonal head screws, by pulling the assembly to the side of the VCD unit.
- Free the coil from the condensate drain pan.
- Replace the water coil and apply the procedure in reverse to complete the installation. Ensure that all the gasket joints are correctly remade.
- Purge the new water coil when it is refilled with water.

5.3 Water coil maintenance

For optimum performance of the water coil, the air filter should be replaced regularly. This maintenance avoids the accumulation of dust between the fins, which would significantly reduce the performance of the coil.

It is also recommended that the water coil is removed and cleaned using a compressed air jet between the fins to remove any possible accumulation of dust.



6. Supply air outlets

6.1 Description

The supply section includes outlets with 4 slots made from white RAL 9010 polypropylene plastic; the patented shape of the raised outlets offers a maximum heat exchange surface for inducing ambient air. The orientation of each outlet may be adjusted by simple rotation, the limited number for each unit size, 20, 32 or 40 respectively for sizes 600, 900 or 1200, minimises the time required for any adjustment.

6.2 Removal procedure

When the diffuser is viewed from below, the outlet positioned on the right near to the return air grill is easily removed.

By rotating this outlet towards the inside of the unit (around 45°), it may be detached from the diffuser.

The other outlets may be removed by pressing on the base of the outlet through the hole left by the removed outlet.

6.3 Outlet maintenance

For aesthetic reasons, all the outlets may be removed for cleaning.

Washing up type liquid may be used to remove marks on the outlets, it recommended that the water temperature should not exceed 60°C.

7. ELECTRIC HEATER

7.1 Description

The electric heater is of the bare wire resistive type, installed in the fan discharge air stream assuring optimum coverage and maximum heat exchange.

Available as standard with a capacity of 800 or 1500 W, the 230 V/1/50 Hz power supply is provided directly from the regulator or via a relay and a fuse.

The heater is provided with 2 levels of safety:

A manual reset thermostat, which is reset by switching off the power, and has a trigger temperature 75°C; whilst this is off a PTC coefficient resistance with a separate supply prevents the automatic reset of the coil whilst it remains under voltage.

This safety thermostat protects the unit from over heating due to the absence of airflow.

A fusible link, rated at temperature of 152 °C (± 16 °C). Replacement of heater assembly will be required if this blows, after establishing the cause of the fault.

7.2 Replacement

DISCONNECT THE POWER SUPPLY BEFORE
CARRYING OUT ANY WORK ON THE VCD.

- Remove the complete fan motor assembly (see« removal of the fan motor assembly »).
- Withdraw the electric heater from its support by tilting it to facilitate its removal.
- Replace the electric heater and apply the procedure in reverse to complete the installation.

8. AIR FILTER

8.1 Description

The VCD is available as standard with a G3 efficiency throwaway filter, 15 mm thick, which is accessible from the underside of the unit.

Fire classification M1.

The filter dimensions are

- Size 600: **450 x 215 mm.**
- Size 900 and 1200: **750 x 215 mm.**

8.2 Filter replacement

It is important that the filter is changed regularly. The filter life depends upon the clogging rate, which varies with the environmental conditions.

If the filter is not changed or cleaned, its pressure drop will increase and dust particles may be introduced into the fan and the water coil and degrade the performance of the VCD.

To access the filter, move the latches towards the interior to release them from the holding catches, the clip should be left suspended from the unit.

Remove the filter by pulling on the tab, replacement is the procedure in reverse.

9. REPLACEMENT PARTS

If a replacement part is required for a VCD unit, contact your local representative or Lennox to obtain a detailed and coded list of the following components

- ➔ **Fan motor assembly**
- ➔ **Water coil**
- ➔ **Electric heater**
- ➔ **Filter**
- ➔ **Air outlet**



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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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