

### LENNOX CORNICHE CHILLED WATER FAN COIL UNITS

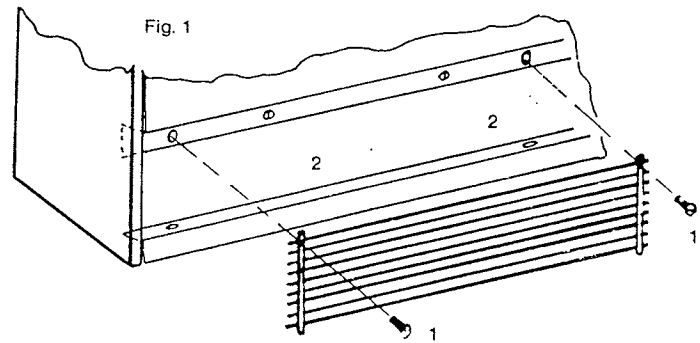
#### GENERAL

The Corniche fan coil unit has been designed with versatility, adaptability and performance in mind. The Lennox fan coil unit offers probably the widest range of chilled water fan coil units available anywhere

#### 1. INSTALLATION AND OPERATIONAL INSTRUCTIONS

##### 1. Removal of Cabinet (Front Inlet)

Remove grille by unscrewing two fixing screws (1). Grille can be removed by pulling forward and lifting upwards. Access can then be obtained to the cabinet fixing screws (2). With these unscrewed Cabinet can be removed by pulling bottom of Cabinet forward and lifting upwards.

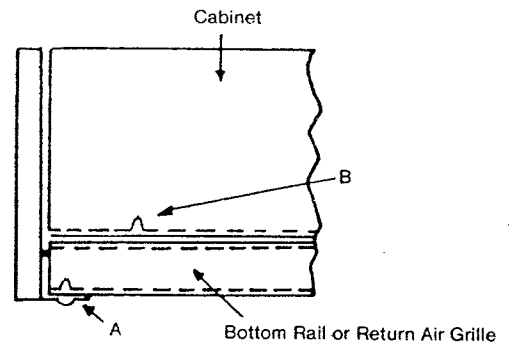


##### Removal of Cabinet (Bottom Inlet)

Remove two screws holding bottom rail in position (A). Remove bottom rail or return Air Grille. Access can then be gained to remove the two countersunk cabinet fixing screws (B). Remove screws. With these unscrewed, Cabinet can be removed by pulling bottom of Cabinet forward until it is clear of the chassis cabinet support rail and then lift upwards.

Removal of the cabinet reveals the chassis fan coil unit. It is advisable to replace the cabinet in the packaging to protect it from damage on site.

Fig. 2

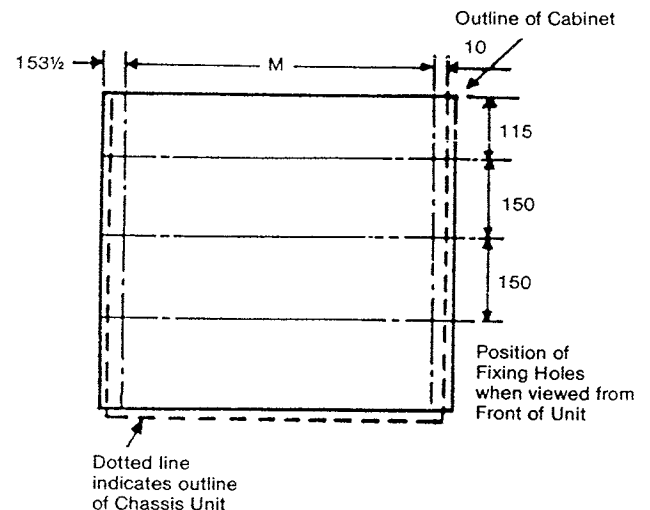


#### 1.2 Chassis

All chassis models are supplied with six keyhole slots for fixing. Wall positions can be marked either by offering the unit to the wall at the appropriate location or using the fixing dimensions in Fig. 3. Allow sufficient clearance from side wall, beams etc. to enable a cabinet to be fitted.

Model	Dim. M.
C2 or F2	458
C4 or F4	775
C6 or F6	1175
C8 or F8	1490
C12 or F12	1175
C16 or F16	1490

Fig. 3



Locate unit in position and secure at fixing points with adequate screws. All connections to electrics and service pipe work can be made with the unit in the final location. Two drain condensate 15mm connections are provided, one at each end of the drip pan. Ensure that the unit is level otherwise the drip pan may fill and overflow without draining to waste. After connecting electrical services ensure the fans and motor(s) are operating satisfactorily. Replace cabinet in reverse process to removal of cabinet.

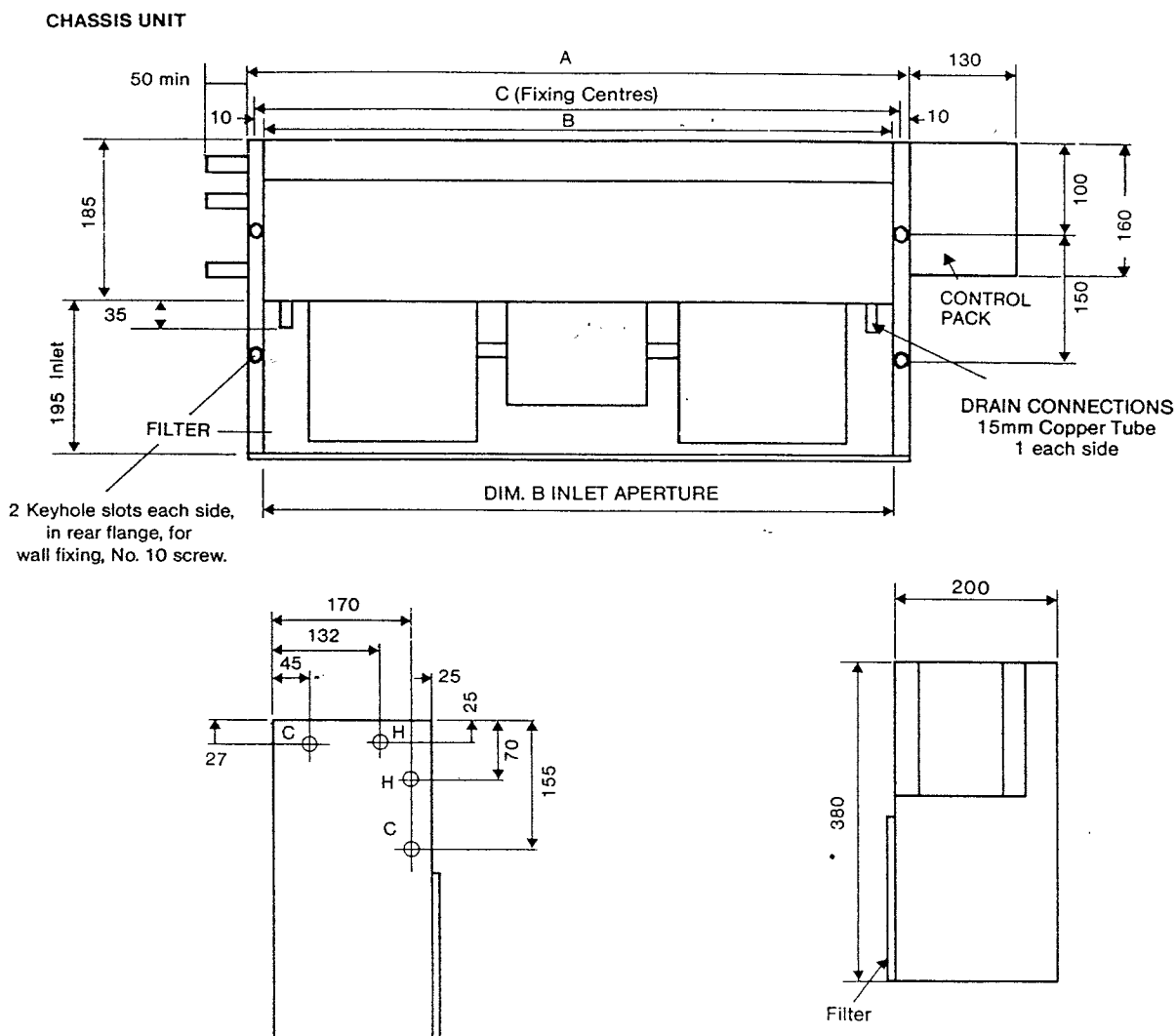
#### IMPORTANT

The Corniche fan coil unit is available in both vertical and ceiling/horizontal mounting styles. Please advise of the particular orientation at time of ordering.

## 2.1 Petite Corniche Fan Coil Units

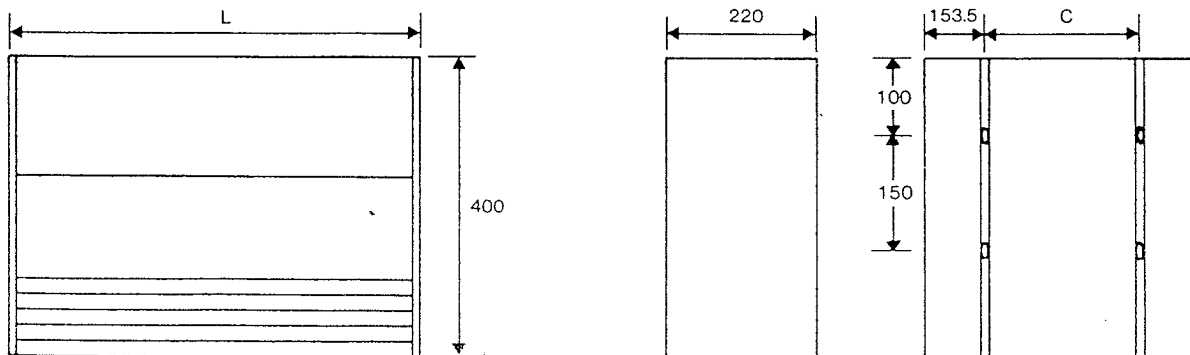
For extra low heights the Corniche is available as the Petite in 4 sizes of 200, 400, 600, 800 in front or bottom inlet with top outlets. In each case a cabinet or chassis style is available in 2 or 3 row cooling and 2 row cooling with 1 row heating.

**DIMENSIONS:** all measurements are given in millimetres



**NOTE:** Horizontal units are not available unless for special applications – Consult Environheat.

## CABINET



## Dimensions

MODEL	CHASSIS PF			CABINET PC	
	A	B	C	L	M
2	478	438	458	765	458
4	795	755	775	1082	775
6	1195	1155	1175	1482	1175
8	1510	1470	1490	1797	1490

Connections – all connections are 15mm plain copper tail.

**NOTE:** Horizontal units are not available unless for special applications – Consult Environheat.

Table 2. Heating Performance Heat Emission Btu/h

Water Temp. Drop 20°F

C Model or Fan Speed	221			421			621			821			1221			1621			
	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	
Ent Water °F	Ent Air °F	1 Row			1 Row			1 Row			1 Row			1 Row			1 Row		
160	70	9050	6460	5250	16150	11950	9370	23910	17690	13690	32390	23910	18740	29720	22770	19220	37470	27700	21720
	75	8480	6060	4920	15140	11210	8780	22410	16580	13020	30360	22410	17570	27860	21350	18020	35130	25970	20370
	80	7910	5650	4590	14130	10460	8200	20920	15480	12150	28340	20920	16390	26010	19930	16820	32790	24240	19010
180	70	11310	8080	6560	20190	14910	11710	29880	22110	17360	40480	29880	23420	37150	28470	24030	46840	34630	27160
	75	10740	7670	6230	19180	14190	11120	28390	21000	16500	38460	28390	22250	35290	27040	22830	44500	32900	25800
	80	10180	7270	5910	18170	13450	10540	26890	19900	15630	36430	26890	21080	33440	25620	21620	42160	31160	24440
200	70	13570	9690	7870	24230	17930	14050	35860	26530	20840	48580	35860	28100	44580	34160	28830	56210	41550	32590
	75	13000	9290	7550	23220	17180	13470	34360	25420	19970	46550	34360	26930	42720	32740	27630	53870	39820	31230
	80	12440	8880	7220	22220	16430	12880	32870	24320	19100	44530	32870	25760	40870	31320	26430	51530	38090	29870
Air Volume ft <sup>3</sup> /min	200	170	140	405	340	255	605	490	360	800	680	530	1080	940	750	1430	1120	960	

Table 2.2. Water Temperature Drop Correction Factors

Water Temperature Drop °F	Factors
10	1.13
20	1.00
30	0.93
40	0.85

For alternative water temperature drops multiply emission data in Table 2 wherever appropriate, by the correction factors in Table 2.2.

Table 2.1. Heating Performance Factors for 2, 3, and 4 Rows Heating

No. of Rows	Factor to be multiplied by emission Table 2
1	1.00
2	1.39
3	1.66
4	1.78

Table 3 Emission and Air Volume change with external duct resistance (In wg)

Factors below are average fan coil units with filter fitted Factors to be applied to Table 1, 1.1, 2, 1, data.

Model	Fan Speed	0		0.05		0.10		.15		0.20		0.25	
		Heat	Air	Heat	Air	Heat	Air	Heat	Air	Heat	Air	Heat	Air
200	High	1.00	1.00	1.00	0.99	0.97	0.93	0.89	0.85	0.81	0.76	0.67	0.63
	Medium	1.00	1.00	0.98	0.97	0.96	0.92	0.86	0.82	0.78	0.74		
	Low	1.00	1.00	0.97	0.96	0.92	0.88	0.83	0.79	0.71	0.66		
400	High	1.00	1.00	1.00	0.99	0.96	0.93	0.91	0.86	0.81	0.77	0.67	0.63
	Medium	1.00	1.00	0.98	0.97	0.95	0.91	0.89	0.84	0.78	0.73		
	Low	1.00	1.00	0.97	0.95	0.93	0.88	0.84	0.80	0.69	0.65		
600	High	1.00	1.00	1.00	0.99	0.97	0.93	0.91	0.86	0.82	0.78	0.68	0.64
	Medium	1.00	1.00	0.99	0.98	0.95	0.91	0.89	0.84	0.77	0.73		
	Low	1.00	1.00	0.98	0.96	0.93	0.88	0.84	0.80	0.71	0.66		
800	High	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.85	0.83	0.78	0.65	0.62
	Medium	1.00	1.00	0.99	0.97	0.94	0.90	0.87	0.82	0.77	0.73		
	Low	1.00	1.00	0.97	0.95	0.92	0.87	0.83	0.78	0.69	0.65		
1200	High	1.00	1.00	0.99	0.98	0.95	0.91	0.91	0.86	0.81	0.76	0.65	0.62
	Medium	1.00	1.00	0.97	0.95	0.92	0.87	0.86	0.81	0.77	0.72	0.57	0.54
	Low	1.00	1.00	0.95	0.92	0.87	0.82	0.81	0.76	0.69	0.65		
1600	High	1.00	1.00	0.99	0.98	0.95	0.91	0.90	0.85	0.81	0.75	0.65	0.62
	Medium	1.00	1.00	0.97	0.95	0.93	0.88	0.85	0.80	0.76	0.71	0.57	0.54
	Low	1.00	1.00	0.97	0.95	0.93	0.88	0.84	0.80	0.69	0.65		

Table 4.1 Hydraulic resistance (in wg) of fan coil unit with different water flow (lb/h)

Model Size	2				4				6				8				12				16			
	Rows				Rows				Rows				Rows				Rows				Rows			
Water Flow Rate lb/h	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
250	7.5	4.0	2.7	—	11	8	3.3	—	17	10	4.1	—	20	11	5.5	—	21	11	5.1	2.8	23	13	7.0	3.5
500	24.5	10.0	7.0	3.5	34	13	9	2.0	39	17	11	2.5	45	21	18	3.8	46	21	14	6.5	52	26	22	4.5
750	48	19.0	13.0	5.0	70	22	16	5.0	78	26	20	6.5	86	30	25	8.0	92	31	24	8.0	94	36	31	10.0
1000	70	30.0	22	11.0	85	34	27	13	95	38	33	17	100	45	38	20	110	45	36	21	115	52	48	23
1500	—	—	36	18.0	—	56	44	22	—	62	50	25	—	74	62	32	117	72	56	30	128	85	77	38
2000	—	—	—	—	—	—	—	—	—	70	38	—	—	110	81	44	—	84	76	45	—	122	90	49

Table 4.2 Water Control Package

Approximate estimation of hydraulic resistance (in wg) of Valve packages fully open. Comprising valve, pipework, gate valves on flow and return.

Flow Rate lb/h.	500	1000	2000
Valve Type			
1.3 port motorised package	5.5	6.5	16.0
2. Staefa modulating 4 port valve 10G	28.5	94.0	
20G	7.5	20.5	92

### 3. Technical Performance Data

Table 1. Cooling Performance – Heat extraction Btu/h

Water Temperature Rise 10°F

C Model or F		220						420						
Air Volume ft <sup>3</sup> /min		220		180		155		430		360		270		
Fan Speed		High		Medium		Low		High		Medium		Low		
Ent Water °F	Ent Air °F		Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat
	DB	WB												
40	70	59	4860	4230	3890	3380	2910	2530	8830	7680	6980	6070	5490	4770
	75	63	6120	5020	4900	4020	3670	3010	11130	9120	8970	7310	6900	5550
	80	67	7510	5780	6000	4620	4510	3470	13670	10490	10800	8300	8460	6510
	85	71	9560	6830	8590	6150	5730	4090	17340	12400	13920	9950	10760	7700
45	70	59	3620	3380	2880	2700	2170	2030	6570	6190	5560	4850	4070	3810
	75	63	4860	4230	3890	3380	2910	2530	8830	7680	6980	6070	5490	4770
	80	67	6230	5020	4980	4020	3730	3010	12140	9120	9060	7320	6980	5660
	85	71	7460	5780	5960	4620	4470	3470	13460	10490	12840	9950	8390	6510
50	70	59	2620	2620	2100	2100	1570	1570	4750	4750	3760	3760	2950	2950
	75	63	3510	3380	2810	2700	2110	2030	6390	6140	5040	4850	3960	3810
	80	67	4740	4230	3180	3380	2830	2530	8500	8130	6800	6070	5340	4780
	85	71	5970	5020	4780	4020	3580	3010	10800	9120	8700	7320	6730	5660

Table 1. Cooling Performance – Heat extraction Btu/h

C Model or F		620						820						
Air Volume ft <sup>3</sup> /min		640		520		410		850		710		550		
Fan Speed		High		Medium		Low		High		Medium		Low		
Ent Water °F	Ent Air °F		Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat
	DB	WB												
40	70	59	14200	12280	11300	9820	8400	7300	16900	15600	13500	12400	10900	10100
	75	63	17500	14600	14200	11600	10600	8560	22200	18200	17600	14500	14400	11800
	80	67	21000	16600	16800	13200	12900	9980	27600	20800	22000	16600	17900	13500
	85	71	26900	19300	21500	15400	16500	11800	34100	24800	27300	19800	22100	16100
45	70	59	10500	9810	8400	7850	6240	5840	13000	12800	10400	10200	8500	8320
	75	63	14100	12280	11300	9820	8400	7300	17600	15600	14100	12500	11400	10100
	80	67	18100	13800	14400	11000	10700	8670	24000	18400	19200	14700	15600	11900
	85	71	20300	15800	16200	12600	12800	9980	26800	20800	21400	16600	17400	13500
50	70	59	7600	7600	6080	4520	4520	9500	9500	7600	7600	6200	6200	
	75	63	10300	9840	8240	7870	6070	5840	12600	12100	10000	9680	8200	7860
	80	67	13700	12200	11000	9760	8170	7310	17000	16600	13600	13200	11000	10800
	85	71	16800	14200	13400	11400	10300	8670	21000	18200	16800	14600	13600	11800

Table 1. Cooling Performance – Heat Extraction Btu/h

C Model or F		1220						1620						
Air Volume ft <sup>3</sup> /min		1140		990		780		1500		1180		990		
Fan Speed		High		Medium		Low		High		Medium		Low		
Ent Water °F	Ent Air °F		Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat	Total Heat	Sens. Heat
	DB	WB												
40	70	59	23400	20200	18650	16200	13800	12000	26700	24800	21400	19650	17200	16000
	75	63	28800	24000	23400	19100	17500	14100	35190	28900	27900	22980	22800	18700
	80	67	34600	27300	27700	21800	21200	16400	43750	33070	34870	26300	28300	21400
45	70	59	17300	16100	13900	12950	10200	9640	20610	20290	16480	16200	13470	13190
	75	63	23300	20200	18600	16200	13800	12000	27980	24730	22300	19800	18100	16000
	80	67	29800	22700	23700	18200	17600	14300	38160	29300	30400	23300	24700	18800
50	70	59	12500	12500	10900	10900	7500	7500	15100	15100	12040	12040	9830	9830
	75	63	17000	16200	13500	12900	10010	9600	20030	19180	15850	15340	12900	12450
	80	67	22600	20100	18100	16100	13500	12100	27030	26310	21500	20900	17400	17100

Table 1.1. Cooling duties with alternative number of rows and water temperature rise

Model	Temp Rise °F	2 Row		3 Row		4 Row	
		Total	Sens.	Total	Sens.	Total	Sens.
All Models	5	1.23	1.20	1.43	1.39	1.60	1.52
	10	1.00	1.00	1.21	1.17	1.35	1.26
	15	0.78	0.78	1.01	1.00	1.08	1.07
Air Volume Factors (average)		1.00		0.94		0.88	

For duties of alternative coil rows other than 2 rows multiply appropriate technical data of Table 1 by the factors in Table 1.1 at corresponding temperature rise e.g. if total heat is 10000 Btu/h from Table 1, the cooling duty for 3 row coil at 5°F temperature rise is 10000 x 1.43 = 14300 Btu/h. NB. Sensible performances in Table 1 must be used with Sens. factors of Table 1.1 and likewise total heat. Linear interpolation for alternative temperature rises is permitted. Air volumes are likely to change with rows and average factors across the range is given for 3 and 4 row.