

ATLAS 235

HORIZONTAL CHASSIS FAN COIL UNIT

ABILITY

FAN COIL UNITS



Chassis panelwork is all 'In House' manufactured from nominally 1.2mm Galvanised steel. All flanges are formed inward facing to prevent exposure to bare metal edges. Sufficient forms and folds are incorporated to provide a vibration free, robust structure. The panel work is jointed throughout using 3/16" 'Polygrip' self adjusting 'air tight' rivets.

Access is provided through two main panels. One covers the fan and motor sets, the other the coil and condensate tray. The fan access hooks in place on a front lip and swings closed. This is then retained by machine screws into captive "Nutserts". The coil / condensate tray access is retained by self tapping screws into sprung steel 'U' nuts.

Fans are direct drive, double inlet, forward curved centrifugal type. Both the impellers & impellor housings are of galvanised steel. Fan & motor assemblies are mounted separately to the fan deck assembly using M6 Machine screws into captive "Nutserts" and can be removed individually for non routine servicing or replacement. Each fan is connected to the fan wiring loom by terminal strip. Motor & impellor assemblies are statically and dynamically balanced in twin planes.

Motors are totally enclosed, external rotor, permanent split capacitor type. Power factor shall be 0.9 or better. Bearings are sealed for life ball race type with a manufacturers minimum life expectancy of 50,000 hours under typical operating conditions. Overload protection is afforded to each individual motor by an auto resetting thermal contactor. Motor insulation is to class 'B' with the enclosure to IP44. Supply 230V 1Ph 50Hz.

Speed Control is by multi-tapped transformer. 18 speed outputs are available and 9 selected outputs are wired for on site adjustment. Controls are fed from an additional 50VA 24V output. More detail about our speed control method is given on the last page of this data sheet.

Coils are manufactured from seamless 3/8" copper tube, mechanically expanded onto aluminium fins. Fins are punched with die formed collars to afford maximum heat transfer surface area with the tubes. All coils are circuited contra flow and bottom to top, optimising output and ensuring free venting and draining. Vents and drains are slotted type. Coils are handed left hand or right hand and are not interchangeable. Handings notated against direction of airflow. Coil terminations are 15mm dia' plain copper at 40mm centres through an aluminium support plate for rigidity. Every coil is leak tested using dry air under water to 30 bar. Pressure drop details are given on page 6 of this data sheet. Both 5 row and 4 row coils are used to optimise performance. The coil terminations shall be within the profile of the unit to prevent damage.

The Condensate Tray covers the entire coil and valve assembly area and has a positive fall to the 15mm drain point. The pan is manufactured from galvanised steel, corners are brazed and the termination is silver soldered into position. Each pan additionally incorporates an "air bypass baffle" and a pressure normalising external cover. Stainless steel pans are available as an option. The condensate drain pipe shall be within the profile of the unit to prevent damage.

Insulation is used throughout for both thermal and acoustic damping. Insulation is open cell, class 'O', CFC and HFC free expanded foam. Foam complies with CAA airport and London Borough flammability and toxicity requirements. Adhesive has light, ageing and temperature tolerance.

Spigots as standard, are circular 150mm, 200mm or 225mm dia. manufactured from galvanised steel. These are screw fixed to the unit in the positions required. Unused spigot connections are capped off but remain available for use if layout changes occur.

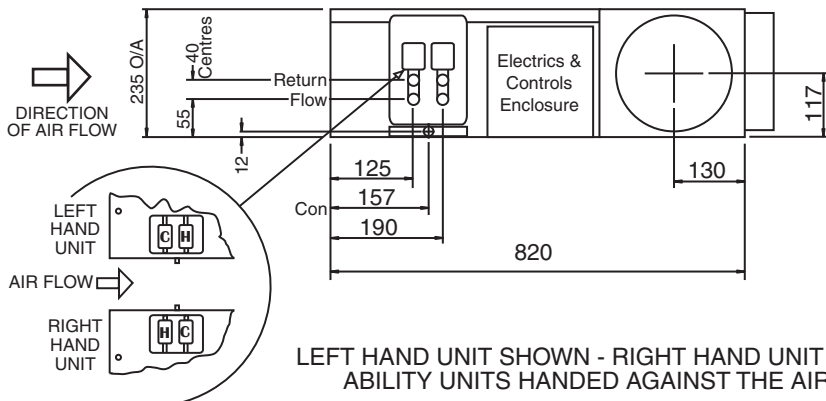
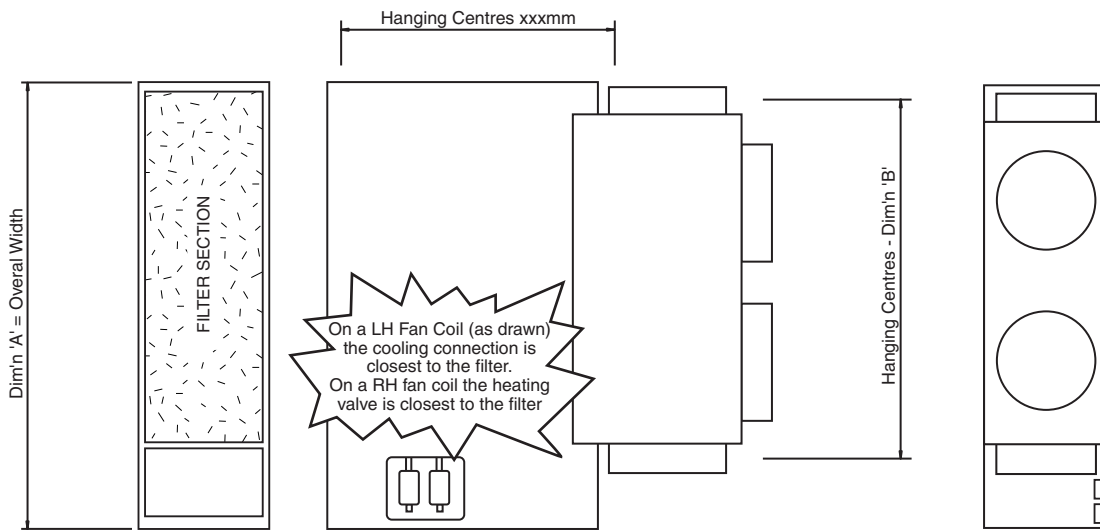
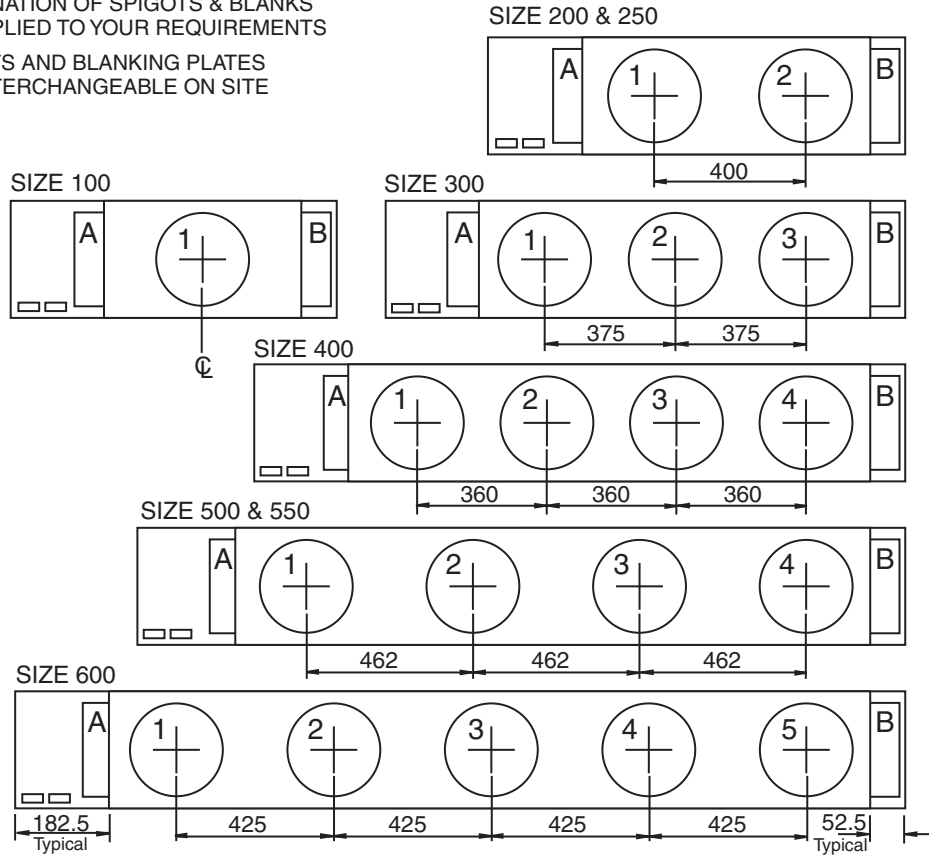
Controls Enclosure All controls are, as standard, fitted to a control back plate which is mounted into the electrical enclosure. The enclosure has dual access from both the side and below. The whole electrical enclosure including all switches shall be within the overall profile of the unit to prevent damage.

Control Valves are modulating 4 port via a stand alone controller. Standard return air sensors are bead type for mounting in the return air path. Room sensor/temperature adjustment is optional. The standard valve assembly terminates in 15mm or 22mm copper compression fittings. The whole valve assembly shall be within the profile of the unit to prevent damage.

Filters are EU2 or EU3 media secured to a wire metal frame, easily removable for routine maintenance, cleaning or replacement. Other types are available.

ANY COMBINATION OF SPIGOTS & BLANKS
WILL BE SUPPLIED TO YOUR REQUIREMENTS

SPIGOTS AND BLANKING PLATES
ARE INTERCHANGEABLE ON SITE



FCU SIZE	Dim'n 'A'	Dim'n 'B'	WEIGHT Kg
100	755	570	37
200 & 250	1055	870	48 & 52
300	1355	1170	60
400	1655	1470	78
500 & 550	1955	1770	86 & 92
600	2255	2070	97

LEFT HAND UNIT SHOWN - RIGHT HAND UNIT OPPOSITE
ABILITY UNITS HANDED AGAINST THE AIR FLOW

Do Not Scale



ACOUSTICS

Acoustic Selection Guide

The noise figures shown are for a unit operating against 30Pa with sufficient duct connections to keep in duct air velocities at or below 2.5m/s.

As a guide, for each additional 10Pa external resistance the Sound Power figures will increase by 1 to 1.5dB

The inlet Sound Power figures are as measured. The discharge figures have been factored to allow for ductwork, a plenum and grille. Please refer to the bottom of this column for the factors used.

Reducing the lowest fan speed using the fine trimming device will lower the Ultra Low SWL .

NR levels can only be used as a guide as they cannot be accurate for every office environment. An evaluation must be undertaken by an acoustician to reliably ascertain the final NR levels in the air conditioned space.

Independent test data to qualify the SWL's and the discharge factors shown below is available from the office upon request.

Levels less than 15dB have been shown at 15dB.

DISCHARGE FACTORS

63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
-5	-5	-5	-9	-10	-10	-9	-3

DISCHARGE SOUND POWER

63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8Hz
33	29	29	20	19	15	15	20
39	35	34	26	26	19	15	20
40	39	39	31	31	25	18	21
40	41	41	33	35	28	24	25
44	46	44	34	37	32	28	30
35	32	28	25	17	15	15	19
38	36	33	30	23	15	15	20
41	39	36	34	29	22	16	21
42	41	39	37	33	26	22	24
46	42	41	39	37	30	27	30
41	35	37	32	27	19	15	20
44	38	39	34	32	24	18	21
46	41	43	38	36	30	25	26
48	45	46	41	40	33	30	31
51	48	50	44	44	37	35	37
43	38	38	33	27	19	15	20
45	40	40	35	30	23	15	20
46	43	43	38	34	27	21	22
48	45	46	40	38	32	26	27
48	47	48	42	42	35	31	33
43	39	40	35	29	21	15	20
45	42	42	37	33	26	18	20
47	45	45	40	38	31	24	25
50	48	49	43	42	36	30	32
52	51	52	46	46	40	36	38
42	39	38	32	26	18	15	20
45	42	40	35	30	22	15	20
48	46	44	39	35	28	22	23
50	48	47	41	40	31	27	29
50	50	50	43	42	36	33	35
43	40	41	34	29	22	15	20
46	44	43	38	34	28	21	21
49	46	47	41	39	33	27	28
51	50	50	44	43	37	33	35
52	53	53	47	47	41	39	41
43	41	43	37	31	23	15	20
50	44	45	40	36	29	22	22
53	47	48	43	41	34	29	29
55	50	51	46	45	38	34	36
55	53	54	48	48	42	39	41

INLET SOUND POWER

63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8Hz
------	-------	-------	-------	------	------	------	-----

41	42	40	37	26	16	16	20
45	46	45	41	32	24	17	21
48	51	50	45	38	30	26	23
48	51	52	49	41	35	31	24
49	54	55	50	44	39	35	27

41	40	37	34	26	16	16	20
44	44	42	39	32	25	17	20
50	48	46	43	38	31	23	20
50	50	48	46	41	36	29	21
50	52	51	48	45	40	34	25

45	45	47	42	35	26	18	20
50	48	50	46	39	32	24	20
51	52	53	49	44	37	32	21
54	55	56	52	47	41	37	25
55	58	60	55	52	45	42	32

48	46	46	42	34	26	17	21
50	50	50	46	38	31	22	21
52	52	52	49	42	36	29	21
53	56	55	51	46	41	34	23
54	58	58	54	49	44	40	30

47	49	50	44	35	26	18	21
50	51	52	47	39	31	24	21
50	54	55	50	43	36	30	21
54	57	58	53	47	41	36	26
57	60	61	57	51	45	42	32

50	48	47	44	35	29	18	21
52	51	50	47	40	34	24	21
53	55	54	51	44	39	31	22
54	56	56	53	48	43	36	25
54	58	59	56	51	47	41	31

47	49	51	46	38	33	21	21
52	52	53	49	43	38	29	21
51	54	54	52	46	42	35	23
54	58	59	55	50	47	40	30
56	61	62	58	54	50	46	36

48	49	50	47	38	32	23	21
54	53	55	50	43	38	30	21
54	56	57	54	48	43	36	25
57	58	60	56	52	47	41	31
58	61	62	59	55	50	46	36

100 200 250 300 400 500 550 600

NR	SPEED	FULL LOAD AMPS	START AMPS
25	UL LOW	0.32	0.96
27	EX LOW	0.39	1.17
31	STD LOW	0.46	1.38
35	LOW PLUS	0.53	1.59
36	MEDIUM	0.60	1.80
25	UL LOW	0.32	0.96
25	EX LOW	0.39	1.17
29	STD LOW	0.46	1.38
32	LOW PLUS	0.53	1.59
34	MEDIUM	0.60	1.80
28	UL LOW	0.64	1.92
32	EX LOW	0.78	2.34
34	STD LOW	0.92	2.76
36	LOW PLUS	1.06	3.18
39	MEDIUM	1.20	3.60
28	UL LOW	0.64	1.92
32	EX LOW	0.78	2.34
34	STD LOW	0.92	2.76
35	LOW PLUS	1.06	3.18
37	MEDIUM	1.20	3.60
31	UL LOW	0.97	2.91
31	EX LOW	1.18	3.54
35	STD LOW	1.39	4.17
37	LOW PLUS	1.60	4.80
40	MEDIUM	1.81	5.43
29	UL LOW	0.97	2.91
31	EX LOW	1.18	3.54
35	STD LOW	1.39	4.17
36	LOW PLUS	1.60	4.80
39	MEDIUM	1.81	5.43
31	UL LOW	1.29	3.87
33	EX LOW	1.58	4.74
36	STD LOW	1.85	5.55
38	LOW PLUS	2.13	6.39
41	MEDIUM	2.40	7.20
31	UL LOW	1.62	4.86
34	EX LOW	1.95	5.85
37	STD LOW	2.31	6.93
39	LOW PLUS	2.64	7.92
42	MEDIUM	2.96	8.88



PERFORMANCE

The cooling duties are based on 30Pa external resistance, Summer Entering Air at 23 °C db - 50% RH and the heating duties are based on Winter Entering Air at 20 °C. Cooling kW are the maximum available. Leaving air temperature or pressure drop constraints may reduce outputs.

HYDRAULIC PRESSURE DROPS

$$\frac{\text{NEW PRESS DROP}}{\text{KNOWN PRESS DROP}} = \left(\frac{\text{NEW FLOW}}{\text{KNOWN FLOW}} \right)^2 \times \frac{\text{KNOWN PRESS DROP}}{\text{KNOWN FLOW}}$$

5 ROW COOLING COIL	FLOW L/S	KPa
SIZE 100	0.10	13.6
SIZE 200 / 250	0.15	14.0
SIZE 300	0.20	13.9
SIZE 400	0.25	14.4
SIZE 500 / 550	0.30	21.4
SIZE 600	0.35	26.5

4 ROW COOLING COIL	FLOW L/S	KPa
SIZE 100	0.10	11.6
SIZE 200 / 250	0.15	12.4
SIZE 300	0.20	11.8
SIZE 400	0.25	12.2
SIZE 500 / 550	0.30	18.2
SIZE 600	0.35	22.5

1 ROW HEATING COIL	FLOW L/S	KPa
SIZE 100	0.05	2.35
SIZE 200 / 250	0.05	3.05
SIZE 300	0.08	9.66
SIZE 400	0.10	18.0
SIZE 500 / 550	0.10	6.00
SIZE 600	0.10	6.30

COOLING DUTY - kW

SEN kW	TOTAL kW	SEN kW	TOTAL kW	SEN kW	TOTAL kW	SEN kW	TOTAL kW
0.65	0.78	0.61	0.72	0.59	0.65	0.44	0.44
0.98	1.17	0.92	1.08	0.88	0.97	0.66	0.66
1.21	1.44	1.13	1.33	1.09	1.19	0.82	0.82
1.67	1.99	1.56	1.84	1.50	1.65	1.12	1.12
2.00	2.38	1.87	2.20	1.79	1.97	1.34	1.34
1.10	1.31	1.03	1.21	0.98	1.08	0.74	0.74
1.38	1.64	1.29	1.51	1.23	1.36	0.93	0.93
1.69	2.01	1.58	1.85	1.51	1.61	1.13	1.13
2.01	2.40	1.88	2.21	1.81	1.99	1.35	1.35
2.21	2.63	2.07	2.43	1.98	2.18	1.49	1.49
1.33	1.58	1.24	1.46	1.19	1.31	0.89	0.89
1.93	2.30	1.81	2.12	1.73	1.90	1.30	1.30
2.52	3.00	2.36	2.77	2.26	2.49	1.70	1.70
3.19	3.80	2.98	3.51	2.86	3.15	2.15	2.15
3.86	4.60	3.61	4.25	3.47	3.81	2.60	2.60
1.42	1.70	1.33	1.57	1.28	1.40	0.96	0.96
2.13	2.53	1.99	2.34	1.91	2.10	1.43	1.43
2.82	3.35	2.63	3.10	2.53	2.78	1.89	1.89
3.55	4.23	3.32	3.91	3.19	3.50	2.39	2.39
4.42	5.26	4.13	4.86	3.97	4.36	2.97	2.97
1.95	2.32	1.82	2.14	1.75	1.92	1.31	1.31
3.05	3.63	2.85	3.35	2.73	3.00	2.05	2.05
4.16	4.95	3.89	4.57	3.73	4.10	2.80	2.80
5.22	6.22	4.88	5.74	4.69	5.15	3.51	3.51
6.29	7.48	5.88	6.91	5.64	6.20	4.23	4.23
2.13	2.53	1.99	2.34	1.91	2.10	1.43	1.43
3.29	3.92	3.08	3.62	2.95	3.24	2.21	2.21
4.34	5.16	4.05	4.77	3.89	4.28	2.92	2.92
5.50	6.55	5.14	6.05	4.94	5.42	3.70	3.70
6.58	7.83	6.15	7.24	5.90	6.49	4.43	4.43
2.70	3.22	2.52	2.97	2.42	2.66	1.82	1.82
4.08	4.85	3.81	4.48	3.66	4.02	2.74	2.74
5.62	6.68	5.25	6.17	5.04	5.54	3.78	3.78
6.88	8.19	6.43	7.56	6.17	6.78	4.63	4.63
8.32	9.90	7.77	9.14	7.46	8.20	5.60	5.60
3.34	3.98	3.12	3.67	3.00	3.29	2.25	2.25
4.99	5.94	4.67	5.49	4.48	4.92	3.36	3.36
6.78	8.07	6.33	7.45	6.08	6.68	4.56	4.56
8.40	10.00	7.85	9.23	7.53	8.28	5.65	5.65
10.02	11.93	9.36	11.02	8.99	9.88	6.74	6.74

HEATING DUTY - kW

82°C/71°C 60°C/50°C 50°C/40°C

0.89	0.59	0.42
1.13	0.75	0.53
1.20	0.79	0.56
1.42	0.94	0.67
1.60	1.05	0.75

1.57	1.04	0.74
1.68	1.11	0.79
1.78	1.17	0.84
1.81	1.20	0.85
1.88	1.24	0.88

1.66	1.10	0.78
2.07	1.37	0.97
2.22	1.46	1.04
2.51	1.66	1.18
2.81	1.85	1.32

1.79	1.18	0.84
2.33	1.54	1.10
2.54	1.68	1.19
2.79	1.84	1.31
3.23	2.13	1.52

2.61	1.72	1.22
3.55	2.35	1.67
3.86	2.55	1.81
4.50	2.97	2.11
5.07	3.35	2.38

2.82	1.86	1.32
3.62	2.39	1.70
3.91	2.58	1.84
4.53	2.99	2.13
5.10	3.36	2.39

3.40	2.24	1.60
4.26	2.81	2.00
5.08	3.35	2.39
5.70	3.76	2.68
6.52	4.31	3.07

3.11	2.05	1.46
4.16	2.75	1.96
5.03	3.32	2.36
5.76	3.80	2.71
6.52	4.30	3.06

SPEED

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

UL LOW
EX LOW
STD LOW
LOW PLUS
MEDIUM

100
200
250
300
400
500
550
600

AIR VOLUMES L/S

10Pa 20Pa 30Pa 40Pa 50Pa

40	N/A	N/A	N/A	N/A
71	60	53	43	N/A
94	89	74	69	65
112	107	102	98	85
133	127	122	118	111

68	65	50	38	N/A
94	84	82	70	64
117	112	103	98	87
138	132	123	112	104
154	148	135	125	115

100	86	73	63	52
136	127	118	107	94
174	162	154	149	138
216	207	195	186	179
254	249	236	227	222

117	101	87	75	66
158	140	130	122	111
196	184	172	162	153
242	228	217	209	199
285	277	270	257	248

159	142	119	103	89
218	203	186	172	155
280	267	254	242	231
346	328	319	308	297
415	400	384	366	356

172	150	130	112	89
233	216	201	184	167
296	281	265	250	241
363	351	336	320	308
420	412	402	389	379

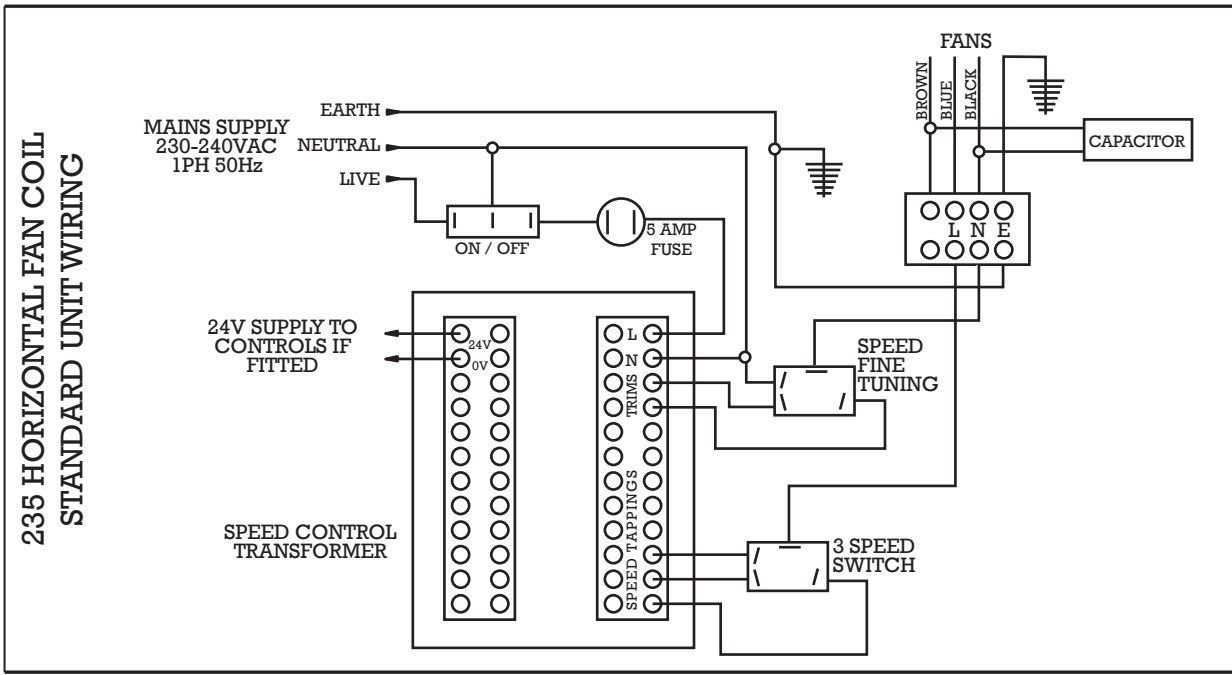
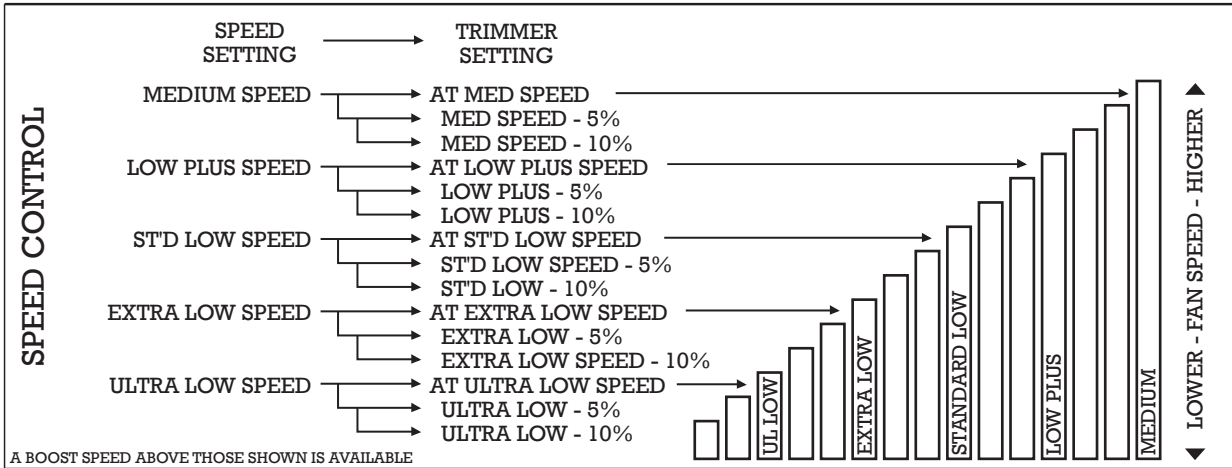
216	186	165	145	121
294	274	249	230	210
378	358	343	322	303
454	440	420	410	394
530	519	508	490	480

264	232	204	182	157
370	335	305	289	268
460	438	414	393	374
552	531	513	494	480
645	624	612	596	585



USEFUL INFORMATION

Speed Control. Every fan coil is supplied with a speed controlling transformer incorporating 6 speed tappings. Ability will wire each fan coil to the 3 speeds selected as the most appropriate for your project. Notwithstanding this, on site changes can be made if another set of speeds is felt more suitable for a particular area. Each fixed speed is additionally complemented with two fine adjustments. These are effected by adjusting the "fine tune" three position switch. The "fine tune" at setting one gives the selected speed unmodified with the two other fine tune settings giving two reductions on the main speed set.



Options & Extras
 Inlet Plenums. Electric Heating. Filter Variants. Stainless Steel Condensate Trays. Spigot Variants. Rearward facing Pipework Connections. All Control Packages Catered For. Other Unit Depths & Many More

As part of our continuous improvement initiative we have to reserve the right to alter the specifications and or dimensions without notice. Therefore, please check your selections and any recent updates by calling the Ability internal sales office.

ABILITY PROJECTS LTD, JOHNSON ROAD, FERNSIDE PARK, WIMBORNE, DORSET. BH21 7SE.
 TEL 01202 851440 FAX 01202 876111 email : sales@abilityprojects.co.uk