APOLLO 180

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, single inlet, forward curved centrifugal type. Both the impellors & 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 the last page of this data sheet. 5 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, 125mm or 100mm 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.

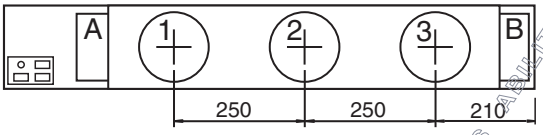
Control Valves are modulating 4 port via a stand alone controller. Standard return air sensors are bead type for mounting in the return air path. Room sensor/temperature adjustment is optional. The standard valve assembly terminates in 15mm or 22mm copper compression fittings. The whole valve assembly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

SIZE 100



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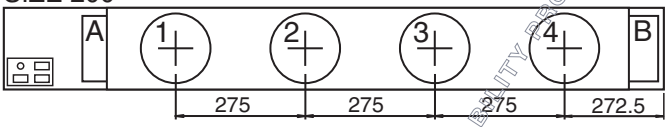

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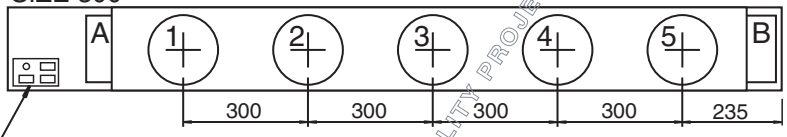
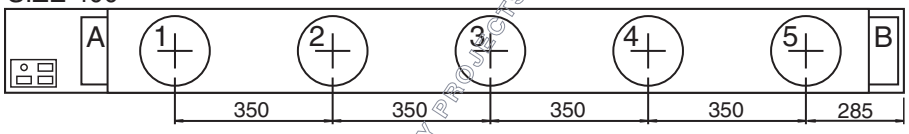
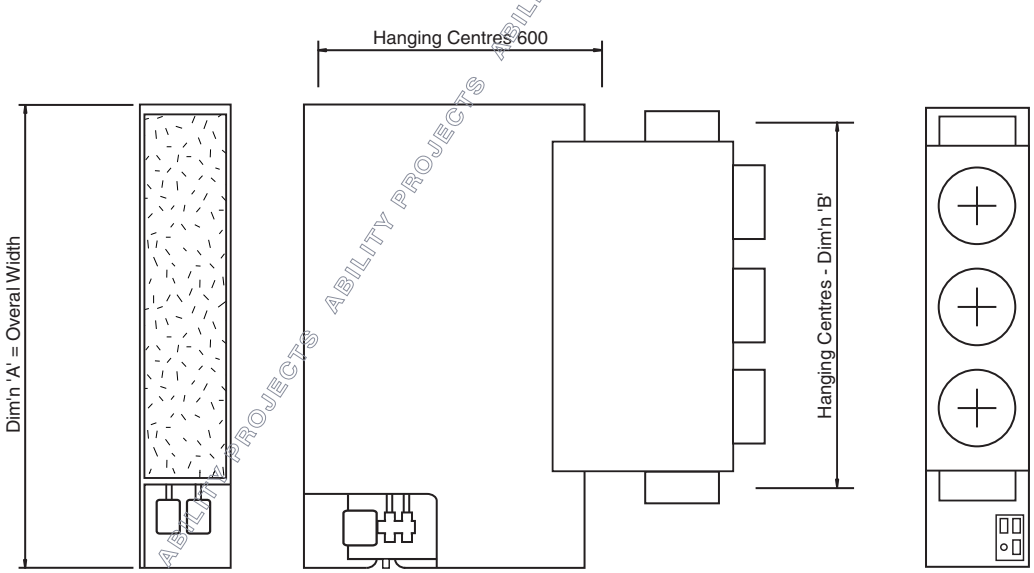
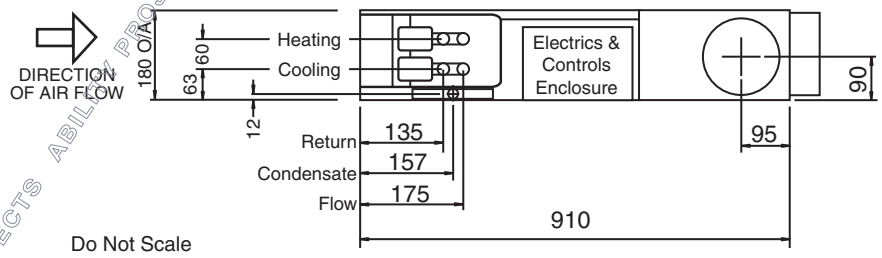


Speed, On/Off
Switches & Fuse

SIZE 400







FCU SIZE	Dim'n 'A'	Dim'n 'B'
100	1055	870
200	1505	1320
300	1805	1620
400	2105	1920

Do Not Scale

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

ABILITY

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.

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.

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.

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

INLET SOUND POWER

63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8Hz
34	41	33	33	31	20	16	20
38	44	38	39	37	28	17	20
43	48	41	43	41	34	23	20
44	52	45	47	44	38	29	21
48	54	47	49	47	42	33	25
43	46	40	39	38	28	16	20
45	50	44	43	42	34	20	20
48	53	47	47	45	38	27	20
51	56	51	51	48	43	33	24
52	57	53	53	51	46	37	28
46	46	42	41	40	30	17	20
47	50	46	45	43	36	21	20
51	52	50	48	46	40	28	21
52	56	52	52	50	44	34	25
55	58	55	55	53	48	39	31
44	48	44	43	41	31	17	20
48	52	48	47	44	36	21	20
51	55	51	50	48	41	28	21
53	57	54	53	51	45	34	24
57	59	56	56	54	49	39	31

DISCHARGE SOUND POWER

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

HEATING DUTY - kW			SPEED		AIR VOLUMES L/S				
82°C/71°C	60°C/50°C	50°C/40°C			10Pa	20Pa	30Pa	40Pa	50Pa
1.31	1.04	0.88	UL LOW	100	55	50	44	N/A	N/A
1.58	1.22	1.01	EX LOW		69	63	59	55	50
1.86	1.41	1.13	STD LOW		85	79	74	70	68
2.15	1.60	1.27	LOW PLUS		101	95	90	86	83
2.43	1.79	1.40	MEDIUM		116	109	105	103	101
1.79	1.36	1.10	UL LOW	200	90	81	70	66	61
2.46	1.81	1.42	EX LOW		122	111	107	103	98
3.14	1.76	1.23	STD LOW		157	148	144	140	135
3.79	2.69	2.03	LOW PLUS		194	185	179	176	171
4.45	3.13	2.34	MEDIUM		228	219	215	209	206
2.07	1.38	0.97	UL LOW	300	135	118	113	109	99
2.99	2.00	1.40	EX LOW		184	174	163	158	153
4.06	2.71	1.89	STD LOW		237	229	221	219	216
4.88	3.26	2.28	LOW PLUS		287	278	266	259	255
5.84	3.89	2.72	MEDIUM		329	321	318	311	306
2.63	1.75	1.23	UL LOW	400	174	156	143	132	120
3.87	2.58	1.81	EX LOW		237	225	211	202	191
5.27	3.51	2.46	STD LOW		302	293	287	279	268
6.41	4.27	2.99	LOW PLUS		365	359	349	343	336
7.56	5.04	3.53	MEDIUM		428	418	412	403	396

COOLING DUTY - kW								NR	SPEED	FULL LOAD AMPS	START AMPS
SEN kW	TOTAL kW	SEN kW	TOTAL kW	SEN kW	TOTAL kW	SEN kW	TOTAL kW				
0.72	0.87	0.67	0.79	0.65	0.71	0.48	0.48	25	UL LOW	0.24	0.72
0.97	1.16	0.90	1.06	0.87	0.95	0.65	0.65	26	EX LOW	0.30	0.90
1.21	1.46	1.13	1.33	1.09	1.19	0.82	0.82	29	STD LOW	0.35	1.05
1.47	1.78	1.38	1.62	1.32	1.45	0.99	0.99	33	LOW PLUS	0.40	1.35
1.72	2.07	1.61	1.89	1.54	1.69	1.16	1.16	35	MEDIUM	0.45	1.35
1.15	1.38	1.07	1.26	1.03	1.13	0.77	0.77	26	UL LOW	0.51	1.53
1.75	2.11	1.64	1.93	1.57	1.73	1.18	1.18	30	EX LOW	0.62	1.86
2.36	2.84	2.20	2.59	2.12	2.32	1.59	1.59	33	STD LOW	0.72	2.16
2.93	3.53	2.74	3.22	2.63	2.89	1.97	1.97	36	LOW PLUS	0.82	2.46
3.52	4.24	3.29	3.87	3.16	3.47	2.37	2.37	39	MEDIUM	0.91	2.73
1.85	2.23	1.73	2.03	1.66	1.82	1.24	1.24	28	UL LOW	0.77	2.31
2.67	3.22	2.49	2.93	2.39	2.63	1.80	1.80	32	EX LOW	0.93	2.79
3.62	4.36	3.38	3.98	3.25	3.57	2.43	2.43	33	STD LOW	1.09	3.27
4.35	5.25	4.07	4.79	3.91	4.29	2.93	2.93	36	LOW PLUS	1.25	3.75
5.21	6.27	4.87	5.72	4.67	5.13	3.50	3.50	39	MEDIUM	1.38	4.14
2.34	2.82	2.19	2.57	2.10	2.31	1.58	1.58	29	UL LOW	1.02	3.06
3.45	4.16	3.23	3.80	3.10	3.41	2.32	2.32	31	EX LOW	1.24	3.72
4.70	5.66	4.39	5.17	4.22	4.63	3.16	3.16	34	STD LOW	1.45	4.35
5.71	6.88	5.34	6.28	5.13	5.63	3.84	3.84	37	LOW PLUS	1.66	4.98
6.74	8.13	6.30	7.42	6.05	6.65	4.54	4.54	40	MEDIUM	1.84	5.52

Rev A

USEFUL INFORMATION

HYDRAULIC PRESSURE DROPS

5 ROW COOLING COIL	FLOW L/S	KPa
SIZE 100	0.10	16.2
SIZE 200	0.15	15.1
SIZE 300	0.20	18.4
SIZE 400	0.25	16.5

1 ROW HEATING COIL	FLOW L/S	KPa
SIZE 100	0.05	3.1
SIZE 200	0.05	4.3
SIZE 300	0.08	4.1
SIZE 400	0.10	7.7

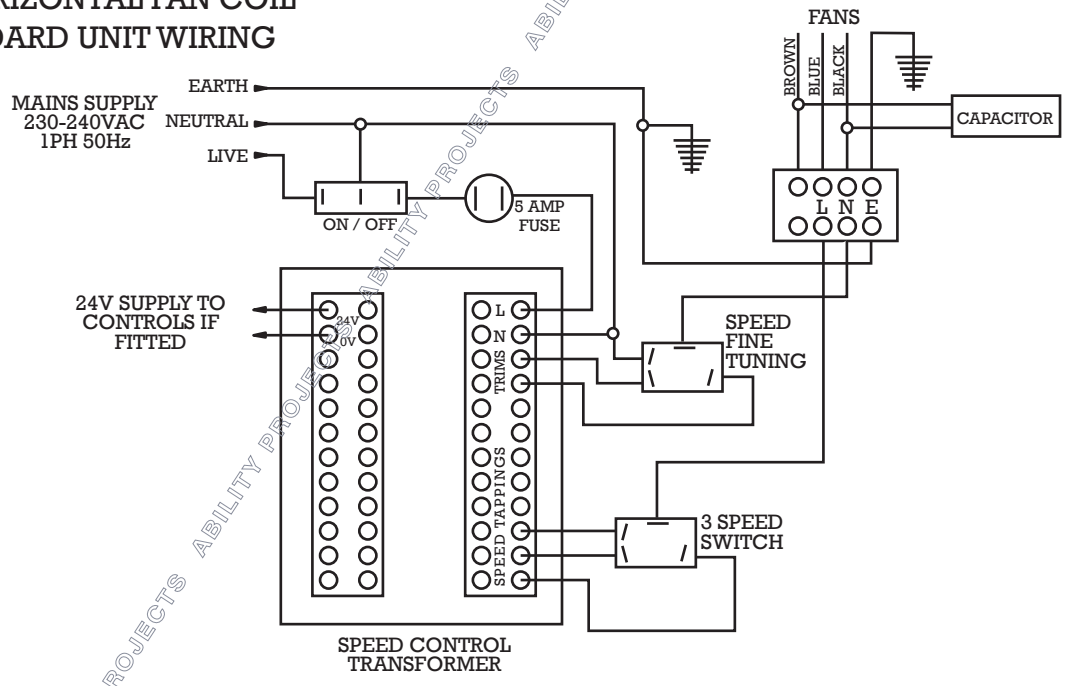
$$\text{NEW PRESS DROP} = \left(\frac{\text{NEW FLOW}}{\text{KNOWN FLOW}}\right)^2 X \text{ KNOWN PRESS DROP}$$

UNIT WEIGHTS

Kg	
SIZE 100	45
SIZE 200	60
SIZE 300	81
SIZE 400	91

Speed Control. Every fan coil is supplied with a speed controlling transformer with 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 also 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 switch settings giving two reductions on the main speed set.

180 HORIZONTAL FAN COIL STANDARD UNIT WIRING



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.

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