

for fresher air

Air Handling Units



DIRECT DRIVE - BELT DRIVE - CUSTOM BUILT



Certificate No: GB9455

direct drive - belt drive - custom built *Air Handling Units*



Introduction

AVT's comprehensive and extensive range of air handling units from "IME" plant room models to custom built belt driven models able to deliver up to 20m³/sec ensures that any installation requirement can be met.

Design brief

To provide a comfortable, healthy environment, often without loss of heat and a multiplicity of parameters -

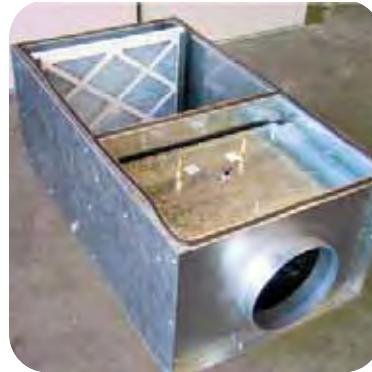
The occupants want a non-intrusive system.

The designers want to ensure that air exchange is optimised whilst bringing fresh air into the building.

The builders need a reliable product that can be easily installed and set up.

The answer lies in well thought out, efficient ventilation.

The correct ventilation method is an air handling system which encompasses all of the above.



What product to choose?

Stricter rules governing air tightness of buildings means more emphasis on controlled fresh air supply. Air handling units, which are easy to install and which have a wide variety of options, will effectively ventilate the required area providing a healthy atmosphere for people to work and play. AVT's range of units, together with comprehensive, computerised design facilities, gives the specifier the ability to choose a fan capacity which ensures a proper level of ventilation, together with **heating, heat recovery, sound attenuation and control options.**



Flexibility

AVT's air handling units are available in an extensive range with a variety of options which contribute to their versatility of use and ensure that exactly the correct unit can be specified. There are direct drive versions either electrically or hot water heated together with belt driven units for bigger airflow requirements. Combine this with the facility for custom built systems, and the flexibility of design and use is infinite.



Technical Support

With its firm commitment to quality and customer care, AVT's technical support staff can help with your requirements.

Installation

AVT can advise on installing and commissioning your air handling unit system and can give full technical back-up.

direct drive - belt drive - custom built *Air Handling Units*



Quality Control

AVT air handling units are manufactured to the highest quality and inspected at every stage of the manufacturing process. All products are built to BS EN ISO 9001. We operate a continuous evaluation of products and services to ensure customer requirements are met in full.

Materials

AVT air handling units are generally finished in galvanised, double skinned steel with 25mm thick mineral wool slab insulation and have a triple layer of steel at the corners with pre-drilled 8mm dia holes providing an ideal location for fixing points.

All panel filters are manufactured from bonded and coated continuous spun glass fibre filaments with arrestance of 84% to G3 grade.



Heating Control Panels

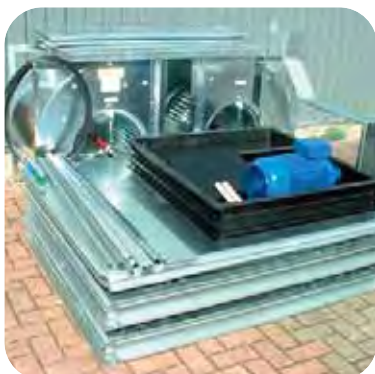
Designed for quick and easy installation with external wiring kept to a minimum. A mains supply is taken to the panel door interlocked isolator and outputs then taken to the fan, heater and safety circuits. Sensors are supplied pre-wired to the panel. Switches on the front of the panel allow control of the fan and heater. All outputs to the fan are protected. All control panels are stand alone, but can be BMS compatible as an option.



Options

A full range of accessories and controls are also available - these include

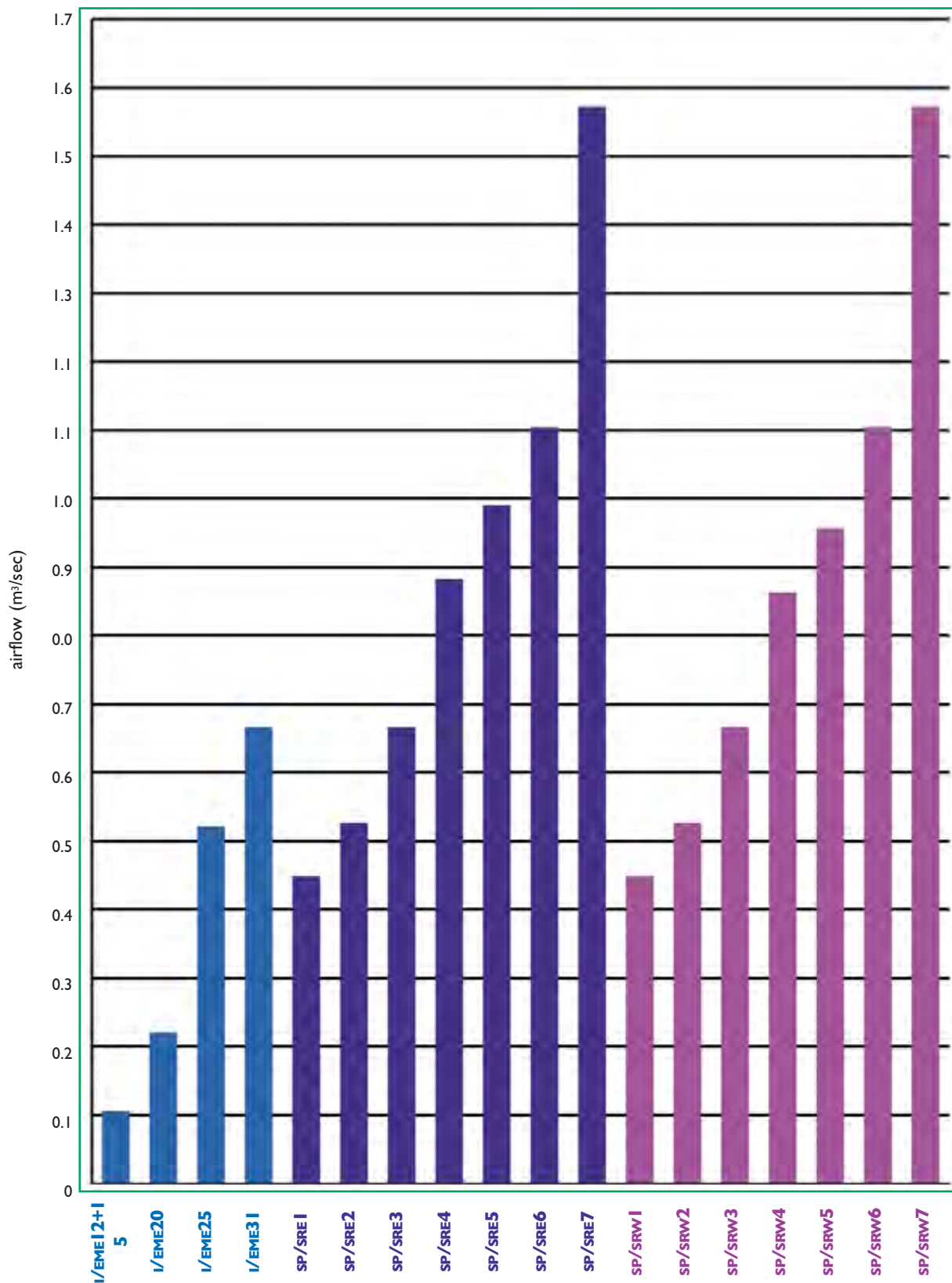
- **intake damper/mixing box**
- **electric or hot water frost heaters**
- **bag filters**
- **cooling coils**
- **heat recovery systems**
 - cross flow heat exchangers
 - thermal wheel
 - run around coils
- **alternative heating source**
 - gas fired
- **casings**
 - 50mm panels can be supplied with high density mineral wool and barrier matt
 - can be constructed in a vertical or horizontal layout
 - can be supplied as "flatpack" for on site assembly



Manufactured in UK to ISO 9001

Direct Drive - Air Handling Units

Selection Chart



See page 5 for IME/EME details, page 9 for SPE/SRE details, and page 15 for SPW/SRW details

Direct Drive - Air Handling Units

Compact



"IME/EME" - compact



Features - PLANT Models

- electrically heated
- 5 models for duct installation - IME
- airflow from 0.001 to 0.66 m³/sec
- pressure to 350 Pa
- speed controllable
- single skinned spangled galvanised steel cases with 25mm thick acoustic lining
- panel filter fitted into slide-in channels
- can be mounted horizontally or vertically with access either on bottom or top
- complete with integral mounting points for either floor or ceiling mounting
- quick and easy to install
- LPHW model available - please contact technical department for details

Additional Features - WEATHERPROOF Models

- external models available with top access via a single removable weather lid - EME
- air intake side protected by weather proof cowl and bird guard

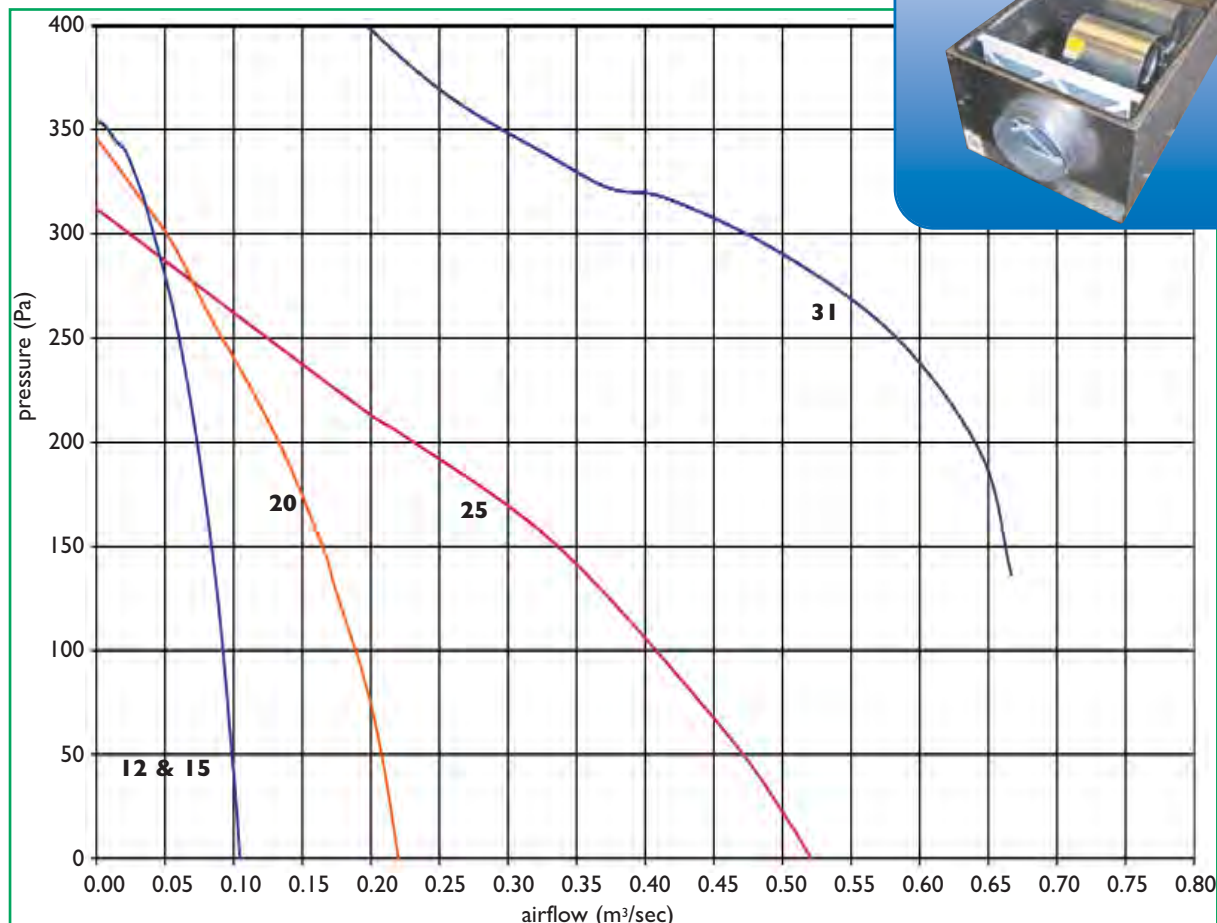
- external models in galvanised steel, single skinned with plastisol exterior in light grey to BS10A05
- LPHW model available - please contact technical department for details

Specification

- the fans are direct drive double inlet, double width, forward curved centrifugal fans
- fan blades statically and dynamically balanced in accordance with VDI2060 and ISO 1940/1
- direct drive induction motors with IP10 protection.
- insulation Class 'O' barafoam
- a manual reset thermal cut-out is an integral part of heater control circuits. It is recommended that fans should be operated via a run-on timer incorporated within the controller
- maximum air temperature 40°C
- panel filters manufactured from bonded and coated spun glass fibre to EU3 grade, fitted as standard in easily removable housings
- **manufactured in UK to ISO 9001**



Performance



Performance based on filters with a pressure drop 20% above clean

Range - Plant and External	
IME/EME12	IME/EME25
IME/EME15	IME/EME31
IME/EME20	

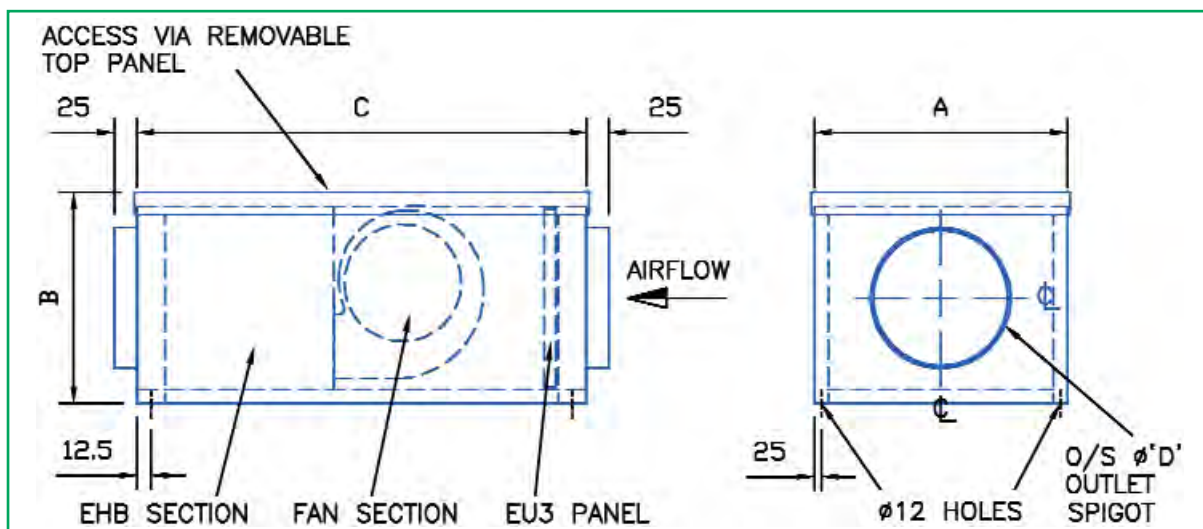
Model	m³/sec at Pa								Max m³/hr	Fan				Sound Pressure Level dBA@3m	Speed Control- ler
	0	50	100	150	200	250	300	350		Supply	Power W	FLC A	SC A		
12's SFP	0.104 1.05	0.098 1.10	0.092 1.16	0.084 1.24	0.073 0.14	0.060 1.66	0.041 2.38	0.008 -	374	230v1ph	135	0.63	1.60	28.0	QE1.5
15's SFP	0.104 1.05	0.098 1.10	0.092 1.16	0.084 1.24	0.073 0.14	0.060 1.66	0.41 2.38	0.008 -	374	230v1ph	135	0.63	1.60	28.0	QE1.5
20's SFP	0.220 0.83	0.208 0.87	0.188 0.93	0.164 1.03	0.132 1.21	0.091 1.65	0.050 2.83	- -	792	230v1ph	190	0.85	2.20	32.0	QE1.5
25's SFP	0.521 1.61	0.471 1.72	0.407 1.89	0.336 2.17	0.231 3.03	0.124 -	0.024 -	- -	1876	230v1ph	373	3.60	11.20	37.0	QE6
31's SFP	- -	- -	- -	0.662 1.23	0.640 1.24	0.583 1.28	0.473 1.46	0.295 2.12	2398	230v1ph	373	3.85	12.00	42.0	QE6

SFP = Specific Fan Power

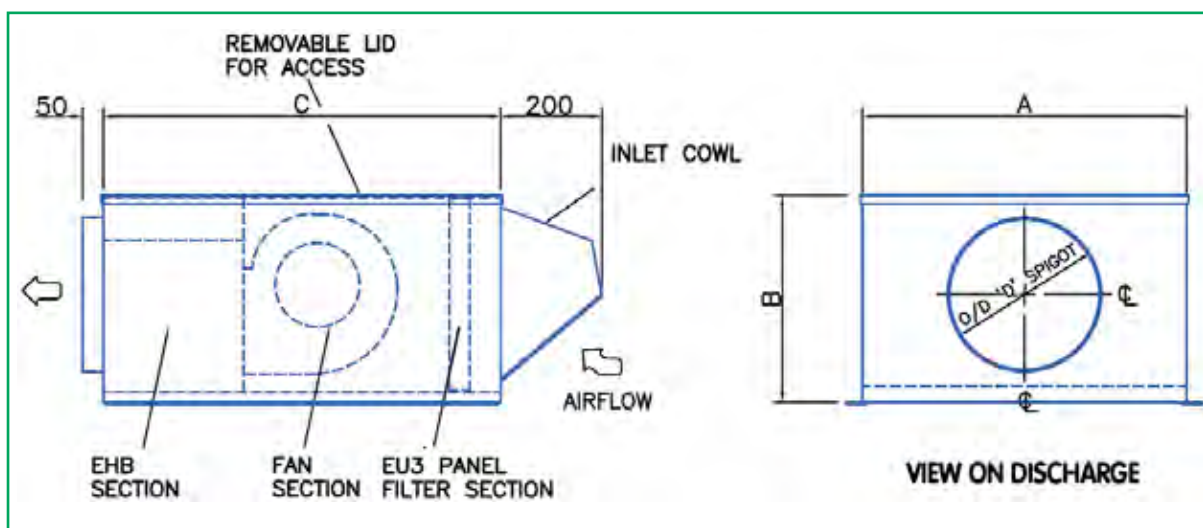


Model	A mm	B mm	C mm	D mm	kg
IME12	400	225	750	125	29
IME15	400	225	750	150	29
IME20	475	335	850	200	37
IME25	500	400	920	250	45
IME31	550	475	970	315	49
EME12	400	350	750	125	24
EME15	400	350	750	150	24
EME20	425	375	850	200	35
EME25	650	450	900	250	43
EME31	650	475	900	315	47

IME - Plant Models

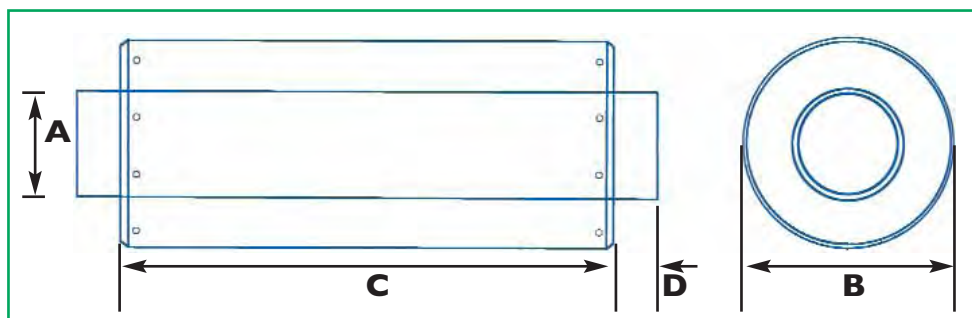


EME - Weatherproof Models





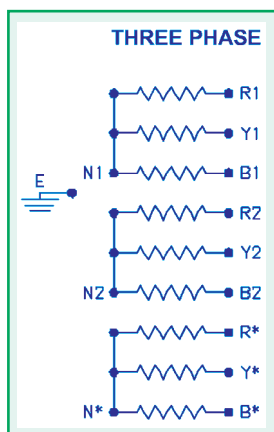
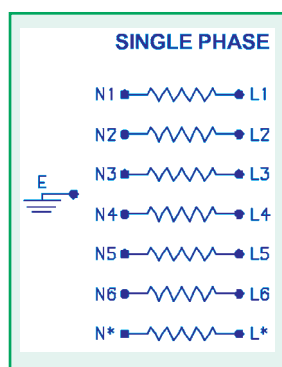
Silencers



Model	A mm - Dia	B mm - Dia	C mm	D mm	kg
012-060	123	230	600	40	5.4
015-060	148	255	600	40	6.1
020-060	198	305	600	40	7.6
025-090	248	355	900	40	9.1
031-090	313	420	900	40	12.3

Model	Attenuation: Insertion loss - dB - mid frequency Hz							
	63	125	250	500	1000	2000	4000	8000
012-060	4	8	13	30	35	35	31	15
015-060	4	7	12	23	30	36	31	15
020-060	4	6	10	20	27	32	20	11
025-090	5	8	12	24	30	30	22	14
031-090	4	7	10	20	31	28	17	14

Electric Heater Batteries



Model	kW Rating	Single Phase Steps					3 Phase Steps			
		1	2	3	4	6	1	2	3	4
IME/EME12 IME/EME15	1.5	✓								
	2.0	✓	✓							
	2.5	✓								
	3.0	✓	✓							
IME/EME20	2.0	✓	✓							
	2.5	✓								
	3.0	✓	✓							
	4.5	✓		✓						
IME/EME25	4.5	✓		✓						
	6.0	✓	✓	✓			✓			
	7.5	✓		✓			✓			
	9.0	✓	✓	✓			✓	✓		
IME/EME31	9.0	✓	✓	✓			✓	✓		
	12.0		✓	✓	✓	✓	✓	✓		
	15.0		✓	✓		✓	✓	✓		
	18.0		✓	✓		✓	✓	✓		

Direct Drive - Air Handling Units

Electric Heater



"SPE/SRE" - electric heater



Features - PLANT Models

- 14 models (7 sizes) for duct or roof installation
- airflow to 1.57 m³/sec
- pressure to 350 Pa
- speed controllable
- inlets and outlets fitted with "Mez" type duct connecting flanges
- rigid casing construction with triple layer of steel at corners - 8mm dia integral fixing point at each corner for either floor or ceiling mounting
- optional casing materials include stainless steel or aluminium - can be powder coated to any BS or RAL colour
- bag and panel filter fit into slide-in channels
- top access on duct mounted models (bottom access can be provided if required)

Additional Features - WEATHERPROOF Models

- top access on roof mounted models (via a single, removable weather lid)
- air inlets on external units protected by weatherproof cowl and bird guard
- roof mounted units constructed in galvanised steel, single skin with plastisol exterior in light grey to BS10A05

Specification

- internally mounted units are finished in galvanised, double skinned steel with 25mm thick mineral wool slab insulation of 45 kg/m³ density (providing high degree of acoustic insulation) (50mm panels with

- high density mineral wool and barrier matt also available for reduced noise breakout)
- fans are direct drive double inlet, double width, forward curved centrifugal type
- motors - with thermal overload protection
- electric heater batteries for 1ph and 3ph operation are manufactured from sheathed rod elements with an integral, manual reset thermal cut-out for wiring into control unit
- maximum air temperature 40°C
- panel filters manufactured from bonded and coated spun glass fibre to G3 grade, fitted as standard in easily removable housings. Higher degree of filtration can be provided on request
- **manufactured in UK to ISO 9001**



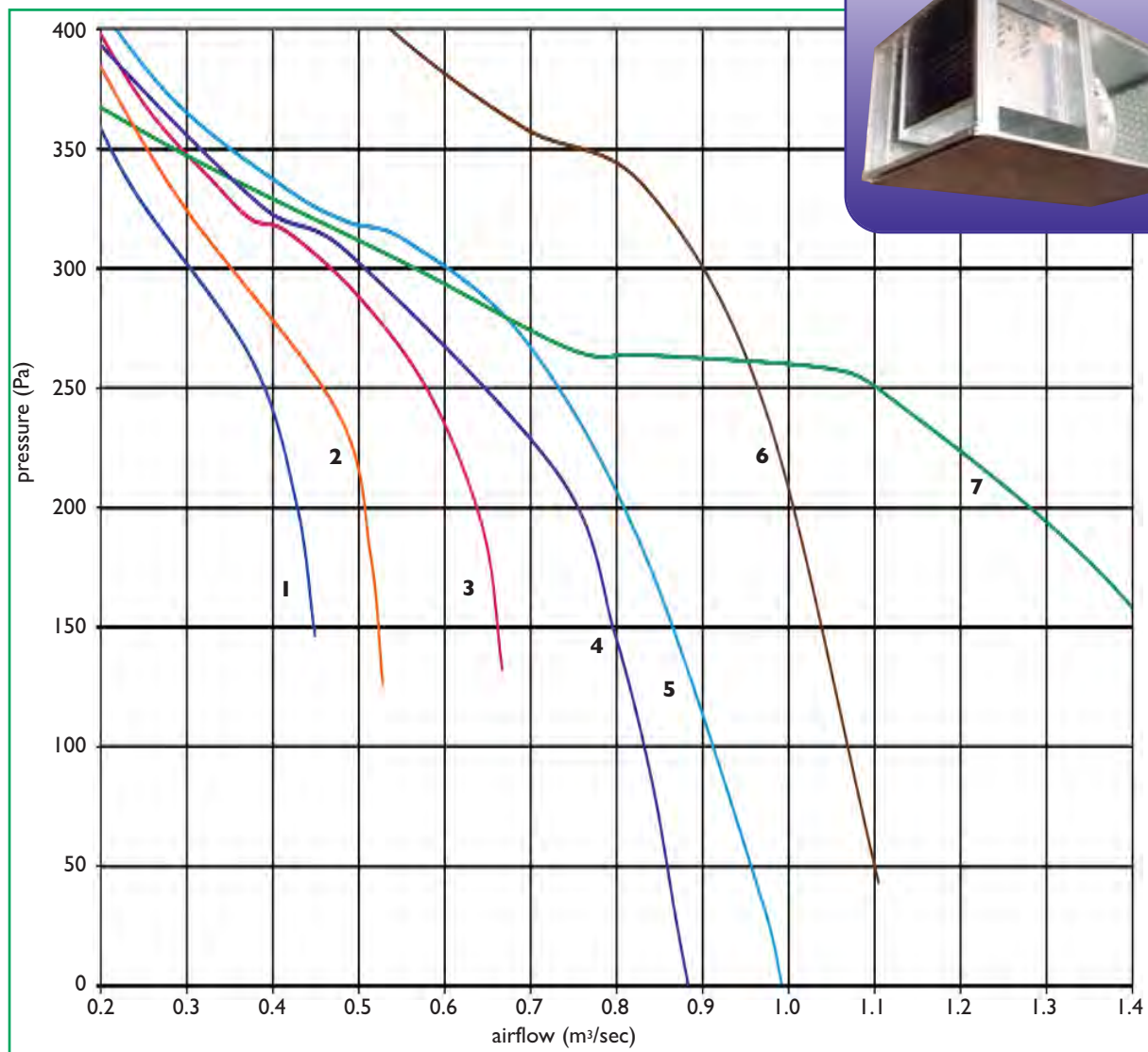
HEATING COIL

Direct Drive - Air Handling Units

SPE/SRE - *Performance Curves*



Fan, Filter and Electric Heater Battery



Performance based on filters with a pressure drop 20% above clean

	Range	
	Plant	Roof
1	SPE1	SRE1
2	SPE2	SRE2
3	SPE3	SRE3
4	SPE4	SRE4
5	SPE5	SRE5
6	SPE6	SRE6
7	SPE7	SRE7

Direct Drive - Air Handling Units

SPE/SRE - *Performance & Sound*



Fan, Filter and Electric Heater Battery

Model	m³/sec at Pa								Max m³/hr	Fan				Speed Control- ler
	50	100	150	200	250	300	350	400		Supply	Power W	FLC A	SC A	
SPE/SRE1	-	-	0.448	0.428	0.390	0.303	0.211	0.149	1616	230v 1ph	373	2.00	5.00	n/a
SFP	-	-	1.47	1.24	1.14	1.15	1.45	2.070						
SPE/SRE2	-	-	0.522	0.504	0.458	0.352	0.253	0.175	1897	230v 1ph	373	2.85	7.13	n/a
SFP	-	-	1.40	1.27	1.09	1.04	1.27	1.780						
SPE/SRE3	-	-	0.661	0.637	0.579	0.467	0.293	0.196	2398	230v 1ph	373	3.85	9.63	QE6
SFP	-	-	1.23	1.25	1.28	1.47	2.13	-						
SPE/SRE4	0.859	0.832	0.795	0.752	0.646	0.506	0.32	0.183	3179	230v 1ph	550	3.80	9.50	n/a
SFP	1.21	1.14	1.05	0.99	0.95	0.97	1.33	2.180						
SPE/SRE5	0.956	0.911	0.865	0.807	0.733	0.603	0.349	0.217	3568	230v 1ph	550	4.80	12.00	QE6
SFP	1.28	1.23	1.19	1.17	1.21	1.30	1.97	-						
SPE/SRE6	1.076	1.043	1.009	0.966	0.900	0.763	0.545	0.397	3974	230v 1ph	550	6.80	17.00	QE8
SFP	1.40	1.36	1.33	1.31	1.29	1.32	1.61	2.05						
SPE/SRE7	1.493	1.402	1.287	1.146	0.747	0.522	0.274	0.046	5663	230v 1ph	736	7.40	18.50	QE8
SFP	0.87	0.84	0.84	0.87	1.07	1.42	2.50	-						

Sizes 1, 2 and 4 are not speed controllable - select larger unit

Performance based on filters with a pressure drop 20% above clean

See page 14 for Heater Battery Details

A 3ph electricity supply is recommend for the heater battery if it is rated over 18kw (regardless of the fact that the fan is single-phase)

SFP = Specific Fan Power

Fan Outlet Sound Levels

Model	Sound Pressure Level dBA at 3m	Sound Power Levels dB							
		Mid Octave Bands (Hz)							
		63	125	250	500	1000	2000	4000	8000
SPE/SRE1	33	68	70	71	71	71	68	64	56
SPE/SRE2	34	69	71	72	72	72	69	65	57
SPE/SRE3	38	73	75	77	76	76	73	69	61
SPE/SRE4	40	77	76	77	75	77	74	72	65
SPE/SRE5	41	77	77	78	76	78	75	73	66
SPE/SRE6	41	77	77	78	76	78	75	73	66
SPE/SRE7	39	76	78	76	78	76	74	72	67

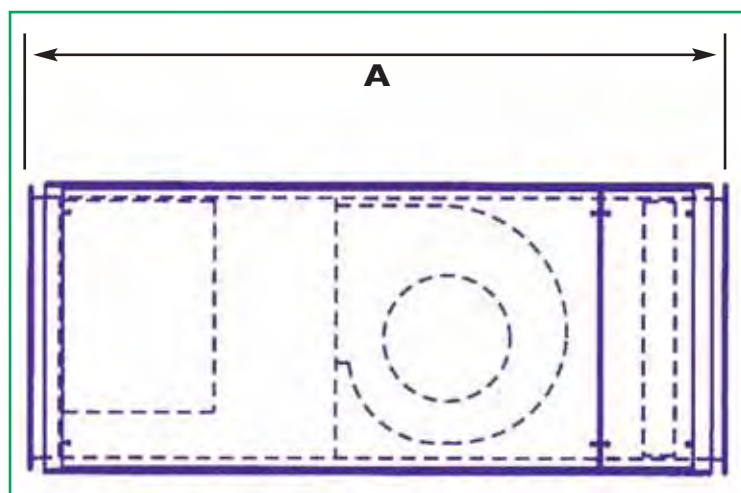
Direct Drive - Air Handling Units

SPE - *Dimensions*



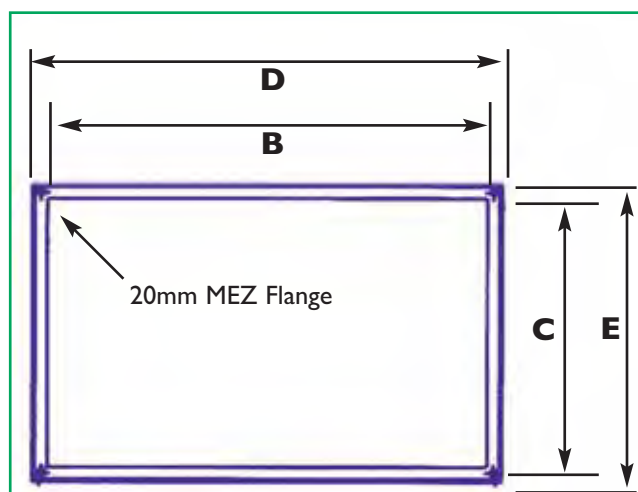
Fan, Filter and Electric Heater Battery - Plant Models

Model-Plant	A mm	B mm	C mm	D mm	E mm	kg
SPE1	1150	600	450	650	500	65
SPE2	1150	600	450	650	500	65
SPE3	1150	600	450	650	500	65
SPE4	1150	750	450	800	500	77
SPE5	1150	750	450	800	500	77
SPE6	1250	825	500	875	550	92
SPE7	1350	900	600	950	650	117



Side

Ends



Direct Drive - Air Handling Units

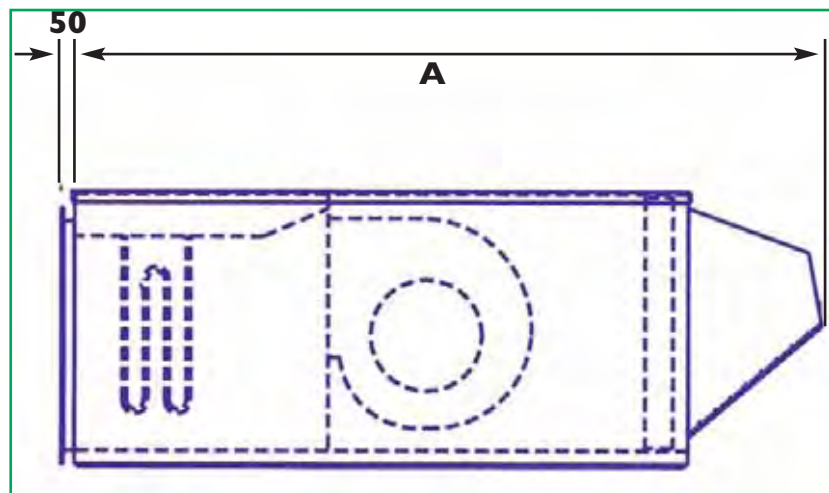
SRE - *Dimensions*



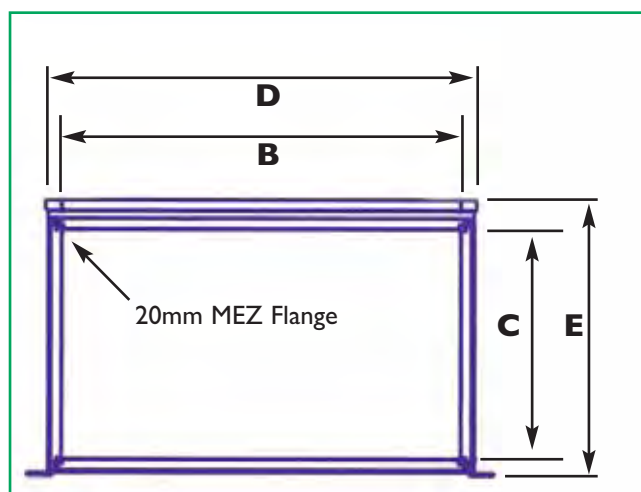
Fan, Filter and Electric Heater Battery - Weatherproof Models

Model-Roof	A mm	B mm	C mm	D mm	E mm	kg
SRE1	1350	600	450	650	580	57
SRE2	1350	600	450	650	580	57
SRE3	1350	600	450	650	580	57
SRE4	1350	750	450	800	580	66
SRE5	1350	750	450	800	580	66
SRE6	1600	825	500	875	580	78
SRE7	1650	900	600	950	680	97

Side



Ends

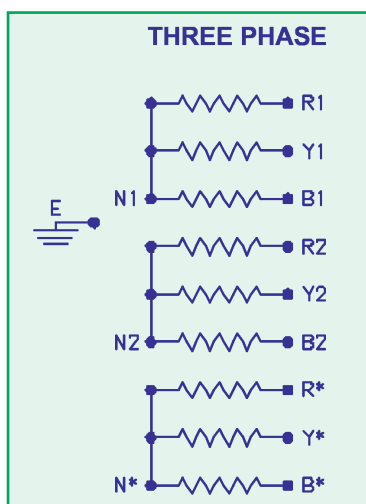
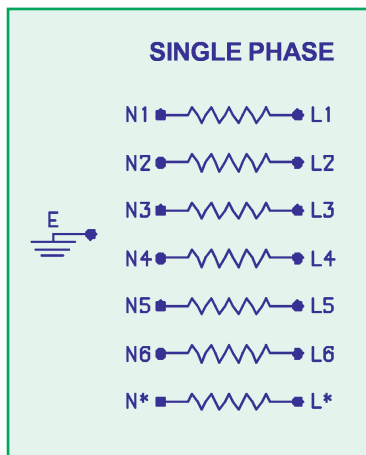


Direct Drive - Air Handling Units

SPE/SRE - *Electric Heater Data*



Electric Heater Battery



Model	kW Rating	Single Phase Steps					3 Phase Steps			
		1	2	3	4	6	1	2	3	4
SPE/SRE1	3.0	✓	✓							
	4.5	✓		✓						
	6.0	✓	✓	✓			✓			
	7.5	✓		✓			✓			
	9.0	✓	✓	✓			✓	✓		
	12.0		✓	✓	✓	✓	✓	✓		
SPE/SRE2	4.5	✓		✓						
	6.0	✓	✓	✓			✓			
	7.5	✓		✓			✓			
	9.0	✓	✓	✓			✓	✓		
	12.0		✓	✓	✓	✓	✓	✓		
	15.0		✓	✓		✓	✓	✓		
SPE/SRE3	6.0	✓	✓	✓			✓			
	7.5	✓		✓			✓			
	9.0	✓	✓	✓			✓	✓		
	12.0		✓	✓	✓	✓	✓	✓		
	15.0		✓	✓		✓	✓	✓		
	18.0		✓	✓		✓	✓	✓		
SPE/SRE4	9.0	✓	✓	✓			✓	✓		
	12.0		✓	✓	✓	✓	✓	✓		
	15.0		✓	✓		✓	✓	✓		
	18.0		✓	✓		✓	✓	✓		
	21.0							✓		
	24.0							✓		✓
SPE/SRE5	15.0		✓	✓		✓	✓	✓		
	18.0		✓	✓		✓	✓	✓		
	21.0							✓		
	24.0							✓		✓
	27.0							✓	✓	
	30.0							✓		✓
SPE/SRE6	18.0		✓	✓		✓	✓	✓		
	21.0							✓		
	24.0							✓	✓	
	27.0							✓	✓	
	30.0							✓		✓
	36.0							✓	✓	✓
SPE/SRE7	21.0							✓		
	24.0							✓		✓
	27.0							✓	✓	
	30.0							✓		✓
	36.0							✓	✓	✓
	45.0							✓	✓	

Heater ratings can be calculated using the following formula: $kW = m^3/sec \times 1.21 \times \text{Temp rise } ^\circ C$

Dependent on external system resistance and airflow achieved, the temperature rise should not exceed 35°C

Direct Drive - Air Handling Units

LPHW



"SPW/SRW" - LPHW heater



Features - PLANT Models

- 14 models (7 sizes) for duct or roof installation
- airflow to 1.59 m³/sec
- pressure to 350 Pa
- speed controllable
- inlets and outlets fitted with "Mez" type duct connecting flanges
- rigid casing construction with triple layer of steel at corners - 8mm dia integral fixing point at each corner for either floor or ceiling mounting
- optional casing materials include stainless steel or aluminium - can be powder coated to any BS or RAL colour
- bag and panel filter fit into slide-in channels
- top access on duct mounted models (bottom access can be provided if required)

Additional Features - WEATHERPROOF Models

- top access on roof mounted models (via a single, removable weather lid)
- air inlets on external units protected by weather proof cowl and bird guard
- roof mounted units constructed in galvanised steel, single skin with plastisol exterior in light grey to BS10A05

Specification

- internally mounted units are finished in galvanised, double skinned steel with 25mm thick mineral wool slab insulation of 45 kg/m³ density (providing high

degree of acoustic insulation) (50mm panels with high density mineral wool and barrier matt also available for reduced noise breakout)

- fans are direct drive double inlet, double width, forward curved centrifugal type
- motors - with thermal overload protection
- LPHW batteries are constructed from copper tubes mechanically bonded onto aluminium fins supplied with standard BSP male connectors
- maximum air temperature 40°C
- panel filters manufactured from bonded and coated spun glass fibre to G3 grade, fitted as standard in easily removable housings. Higher degree of filtration can be provided on request
- **manufactured in UK to ISO 9001**



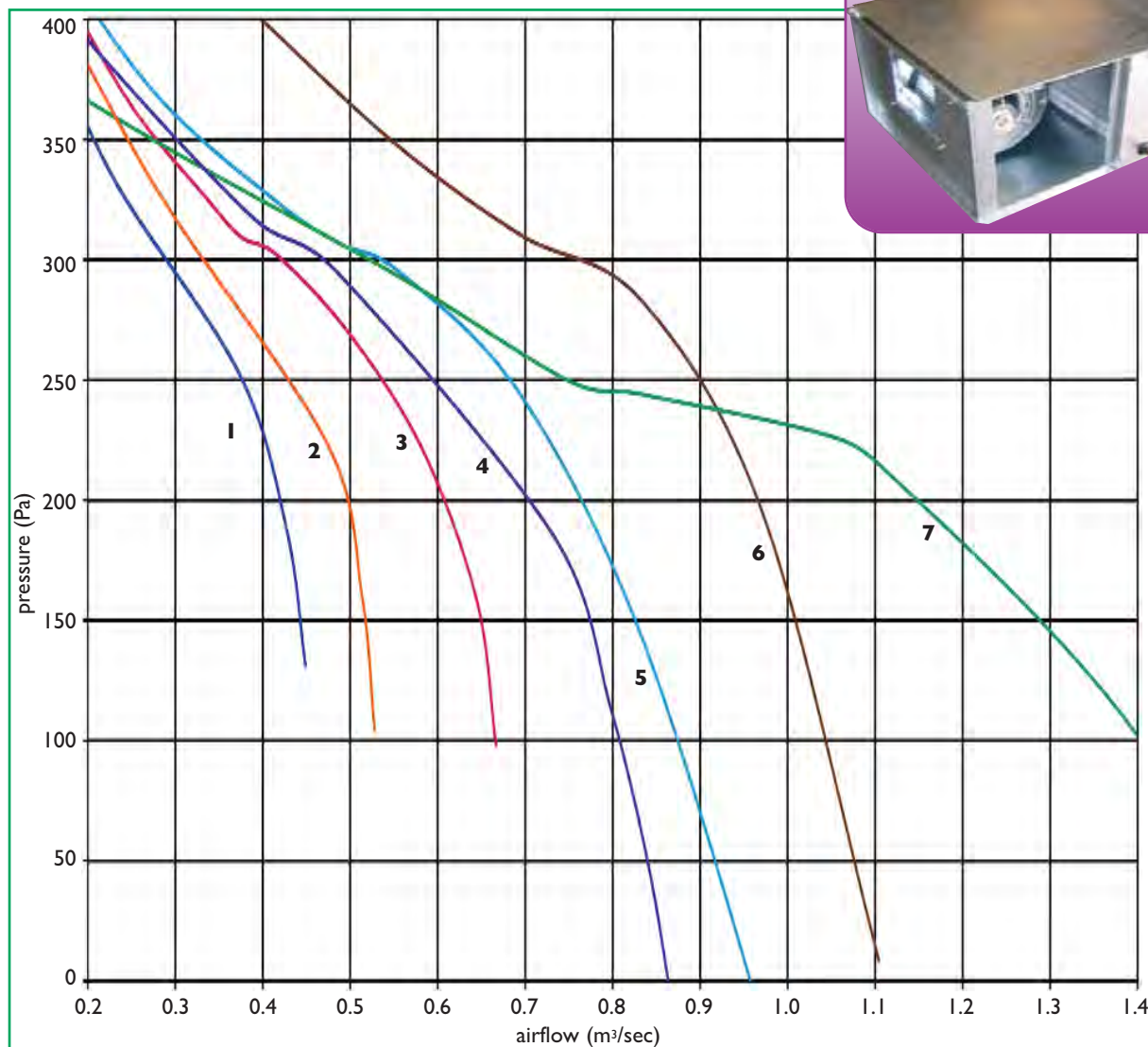
LPHW COIL

Direct Drive - Air Handling Units

SPW/SRW-Performance Curves



Fan, Filter and LPHW Heater Battery



Performance based on filters with a pressure drop 20% above clean

	Range	
	Plant	Roof
1	SPW1	SRW1
2	SPW2	SRW2
3	SPW3	SRW3
4	SPW4	SRW4
5	SPW5	SRW5
6	SPW6	SRW6
7	SPW7	SRW7

Direct Drive - Air Handling Units

SPW/SRW - Performance & Sound



Fan, Filter and LPHW Heater Battery

Model	m³/sec at Pa								Max m³/hr	Max Coil kW	Fan				Speed Control- ler
	50	100	150	200	250	300	350	400			Supply	Power W	FLC A	SC A	
SPW/ SRW1	-	-	0.443	0.420	0.377	0.290	0.207	0.147	1616	21	230v1ph	373	2.00	5.00	n/a
SFP	-	-	1.40	1.20	1.12	1.17	1.47	2.10							
SPW/ SRW2	-	-	0.517	0.493	0.429	0.332	0.246	0.172	1897	21	230v1ph	373	2.85	7.13	n/a
SFP	-	-	1.36	1.22	1.03	1.07	1.30	1.81							
SPW/ SRW3	-	0.666	0.649	0.607	0.536	0.423	0.280	0.192	2398	21	230v1ph	373	3.85	9.63	QE6
SFP	-	1.23	1.24	1.26	1.33	1.58	2.21	-							
SPW/ SRW4	0.839	0.808	0.771	0.682	0.594	0.470	0.300	0.179	3107	29	230v1ph	550	3.80	9.50	n/a
SFP	1.16	1.08	1.01	0.97	0.92	1.03	1.39	2.23							
SPW/ SRW5	0.917	0.874	0.825	0.764	0.747	0.537	0.330	0.213	3445	29	230v1ph	550	5.10	12.00	QE6
SFP	1.24	1.20	1.17	1.19	1.20	1.39	2.05	-							
SPW/ SRW6	1.076	1.043	1.008	0.965	0.900	0.764	0.546	0.397	3974	36	230v1ph	550	6.80	17.00	QE8
SFP	1.38	1.36	1.33	1.31	1.29	1.32	1.61	2.05							
SPW/ SRW7	1.493	1.403	1.299	1.146	0.747	0.521	0.274	-	5663	51	230v1ph	736	7.40	18.50	QE8
SFP	0.87	0.84	0.84	0.87	1.07	1.42	2.50	-							

Sizes 1, 2 and 4 are not speed controllable - select larger unit

Performance based on filters with a pressure drop 20% above clean

SFP - Specific Fan Power

Fan Outlet Sound Levels

Model	Sound Pressure Level dBA at 3m	Sound Power Levels dB							
		Mid Octave Bands (Hz)							
		63	125	250	500	1000	2000	4000	8000
SPW/SRW1	33	68	70	71	71	71	68	64	56
SPW/SRW2	34	69	71	72	72	72	69	65	57
SPW/SRW3	38	73	75	76	76	76	73	69	61
SPW/SRW4	40	76	76	77	75	77	74	72	65
SPW/SRW5	41	77	77	78	76	78	75	73	66
SPW/SRW6	41	77	77	78	76	78	75	73	67
SPW/SRW7	39	76	78	76	78	76	74	72	67

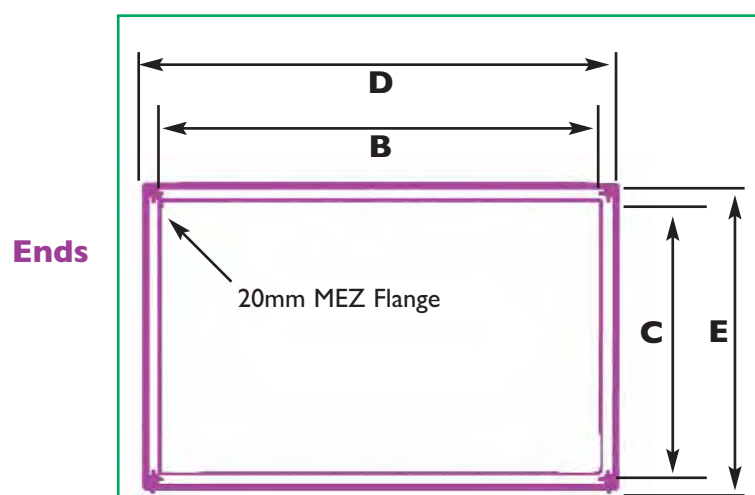
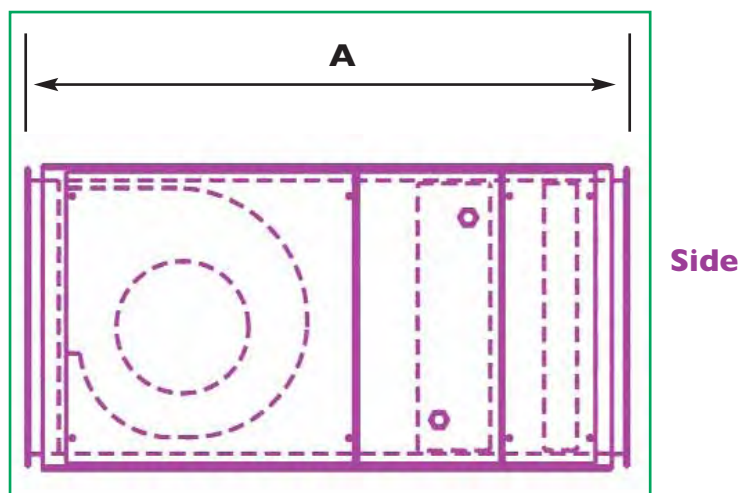
Direct Drive - Air Handling Units

SPW - *Dimensions*



Fan, Filter and LPHW Heater Battery - Plant Models

Model-Duct	A mm	B mm	C mm	D mm	E mm	kg
SPW1	950	600	450	650	500	79
SPW2	950	600	450	650	500	79
SPW3	950	600	450	650	500	79
SPW4	950	750	450	800	500	93
SPW5	950	750	450	800	500	93
SPW6	1050	825	500	875	550	112
SPW7	1200	900	600	950	650	131



Direct Drive - Air Handling Units

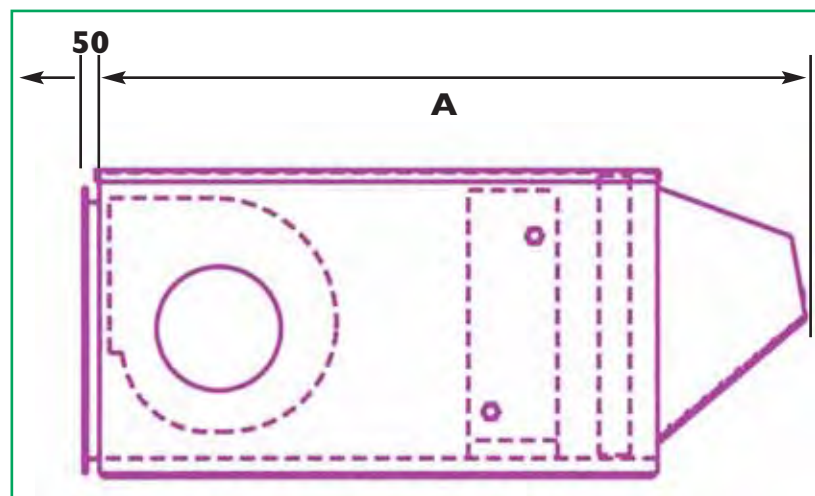
SRW - *Dimensions*



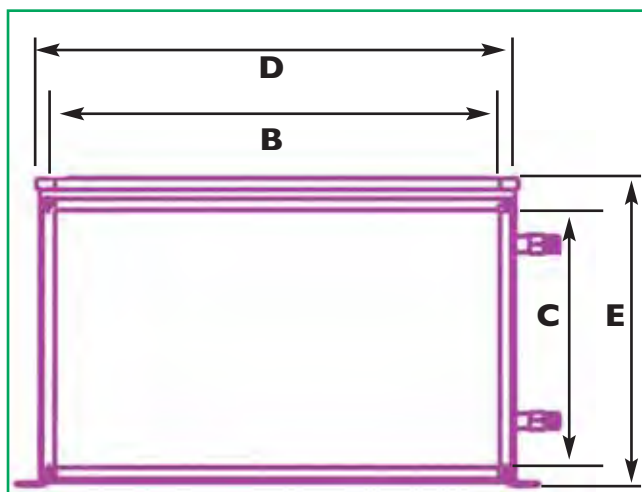
Fan, Filter and LPHW Heater Battery - Weatherproof Models

Model-Roof	A mm	B mm	C mm	D mm	E mm	kg
SRW1	1200	600	450	650	580	74
SRW2	1200	600	450	650	580	74
SRW3	1200	600	450	650	580	74
SRW4	1225	750	450	800	580	87
SRW5	1225	750	450	800	580	87
SRW6	1350	825	500	875	580	104
SRW7	1600	900	600	950	680	125

Side



Ends

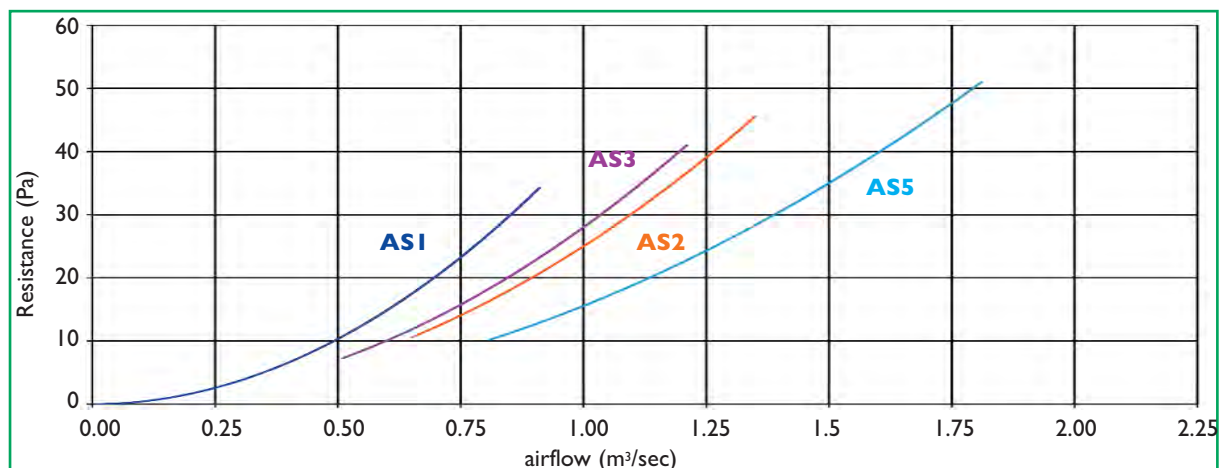


Direct Drive - Air Handling Units

Silencers



Pressure Drop

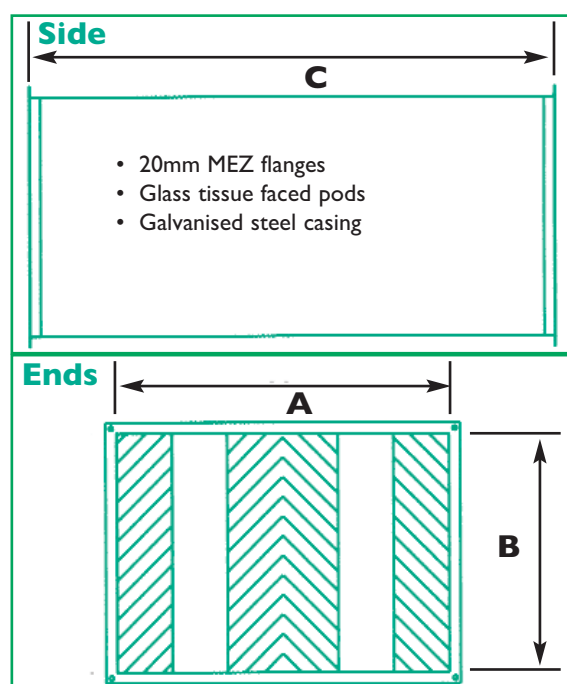


Insertion Loss

Model	Attenuation: Insertion loss - dB - mid frequency Hz							
	63	125	250	500	1000	2000	4000	8000
ASI	5	9	16	30	39	39	31	26
AS2	3	6	11	20	25	25	15	8
AS3	5	9	16	30	39	39	31	26
AS5	5	9	16	30	39	39	31	26

Dimensions

Model	A	B	C	kg
ASI	600	450	1000	48
AS2	750	450	1000	51
AS3	825	500	1000	80
AS5	900	600	1000	105



Air Handling Units Control Panels



Electric Heating

Single Stage Electric Heating Control Panel

Epoxy painted steel enclosure, 160 x 250 x 125mm
Individual switches and indicators for fan and heater
Individual MCB for fan and heater element
Mains input: 230v, 50Hz, 1ph
Maximum output: Heater 1 x 3kw 1ph elements
Fan 1 x 1ph
2A MCB fitted as standard
Number of steps of heater control: 1



3 Step Electric Heating Control Panel

Epoxy painted steel enclosure, 400 x 500 x 150mm
Door interlocked isolator
Individual switches, and run and trip indicators for fan and heater
Panel live indicator
Individual fuses for fan and heater element
Mains input: 400v, 50Hz, 3ph and neutral; or 230v 50Hz 1ph
Maximum output: Heater 3 x 3kw 1ph elements
Fan 1 x 1ph 6.3A max full load current
2A fuse fitted as standard
Number of steps of heater control: 3
Fan run-on timer: approximately 2 minutes



6 Step Electric Heating Control Panel

Epoxy painted steel enclosure, 400 x 500 x 150mm
Door interlocked isolator
Individual switches, and run and trip indicators for fan and heater
Panel live indicator
Individual fuses for fan and heater element
Mains input: 400v, 50Hz, 3ph and neutral; or 230v 50Hz 1ph
Maximum output: Heater 6 x 3kw 1ph elements
Fan 1 x 1ph 6.3A max full load current
6A MCB fitted as standard
Number of steps of heater control: 6
Fan run-on timer: approximately 2 minutes



Hot Water Heating

Hot Water Heating Control Panel

Epoxy painted steel enclosure
Individual switches, and run and trip indicators for fan and heater
Panel live indicator
Heater on indicator
Mains input: 230v, 50Hz, 1ph
Maximum output: Fan 1 x 1ph 10A max full load current



Belt Driven - Air Handling Units

Plant Models



"SPBD" - plant models



Features

- for internal use only
- can be fitted with electric or LPHW heater
- 8 models (4 sizes) for duct installation
- airflow to 2.0 m³/sec
- speed controllable via optional inverter
- inlets and outlets fitted with "Mez" type duct connecting flanges
- rigid casing construction
- mounted on 100mm high galvanised sheet steel channel base
- side access
- bag and panel filter fit into slide-in channels
- filter doors fitted with easy access fasteners
- quick and easy to install

Specification

- units are manufactured from spangled galvanised sheet steel, double skinned with 25mm thick mineral wool slab insulation of 45 kg/m³ density (providing high degree of acoustic insulation)
- fans are belt drive, double inlet, double width, forward curved centrifugal type, mounted on integral anti-vibration mounts. Fan impellers are statically and dynamically balanced in accordance with VDI 2060 and ISO 1940/1. Supplied as standard with pre-greased sealed for life bearings having L10 life of 20,000 hours at peak performance

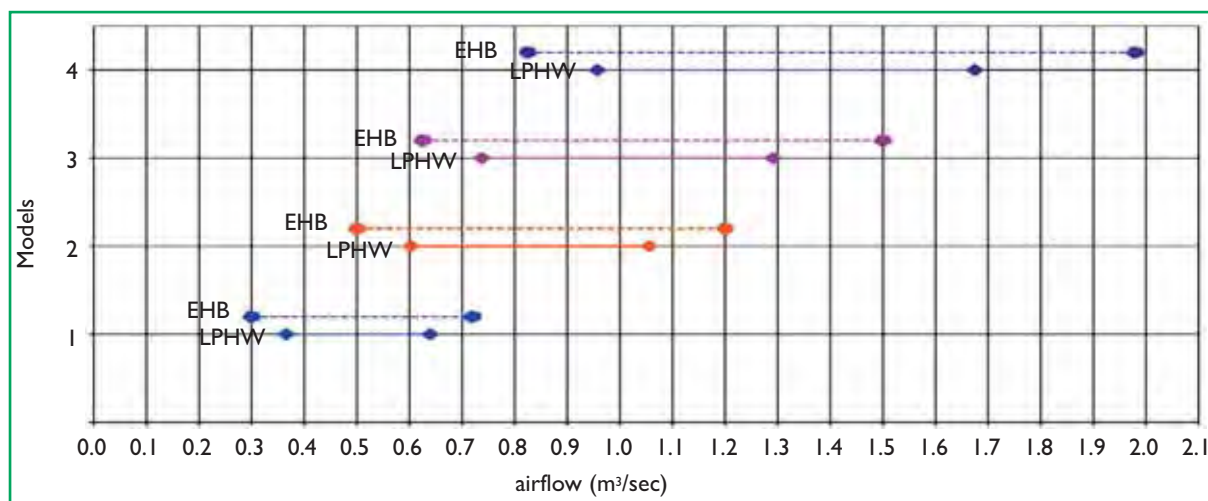
- standard motors of squirrel cage induction type, totally enclosed, fan cooled, suitable for 3ph, 50Hz electricity supply
- motors with IP55 protection and Class F rating
- fan and motor connected via vee belt drive, prealigned and tensioned
- fan and motor mounted on a common chassis frame isolated from casing via open coil spring anti-vibration mounts. Flexible connector fitted between fan discharge and casing. Transit bolt fitted to prevent damage in transit
- LPHW (low pressure hot water) coils constructed from copper tubes mechanically expanded into ribbed aluminium fin plates. Coils have galvanised sheet steel casing and mounted into slide-in channels for easy removal
- electric heater batteries manufactured using sheathed incolloy 8 elements.
The number and kW rating to be dictated by duty, number of stages required and electrical supply. A manual reset thermal cut-out is an integral part of heater control circuits. It is recommended that the fan run-on timer be incorporated in the controls to prevent possible heat damage
- panel filters manufactured from bonded and coated spun glass fibre to G4 grade, fitted as standard in easily removable housings
- **manufactured in UK to ISO 9001**

Belt Driven - Air Handling Units

SPBD - *Features*



Performance



	Range	
1	SPBD-E1	SPBD-W1
2	SPBD-E2	SPBD-W2
3	SPBD-E3	SPBD-W3
4	SPBD-E4	SPBD-W4

Fan Outlet - Sound Levels

Model	Sound Pressure Level dBA at 3m	Sound Levels - in Outlet Duct dBW							
		Centre Frequency Levels (Hz)							
		63	125	250	500	1000	2000	4000	8000
SPBD-1	66	76	76	74	72	76	75	73	69
SPBD-2	67	78	77	76	73	78	75	74	70
SPBD-3	69	81	78	77	74	77	76	75	71
SPBD-4	71	87	79	77	80	75	72	71	63

Noise levels depend on both air volume and resistance. The above levels should be used as a guide. They have been based on unit maximum air volume and 250Pa external static pressure

Sound - Case Breakout

	Centre Frequency Levels (Hz)							
	63	125	250	500	1000	2000	4000	8000
Insertion Loss dB	9	11	13	28	34	35	35	36

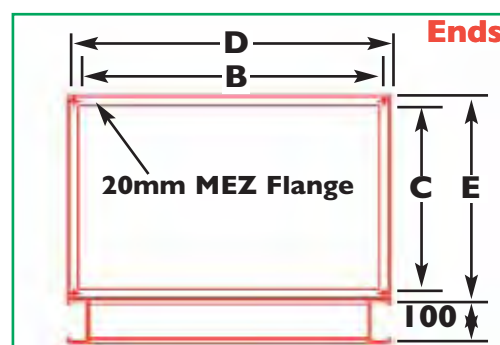
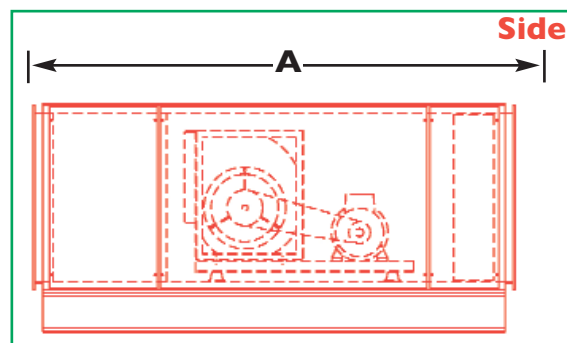
Belt Driven - Air Handling Units

SPBD-E/HW - *Dimensions*

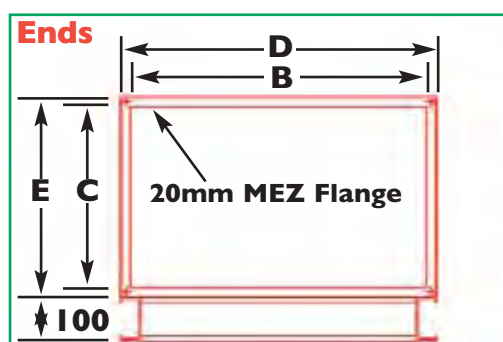
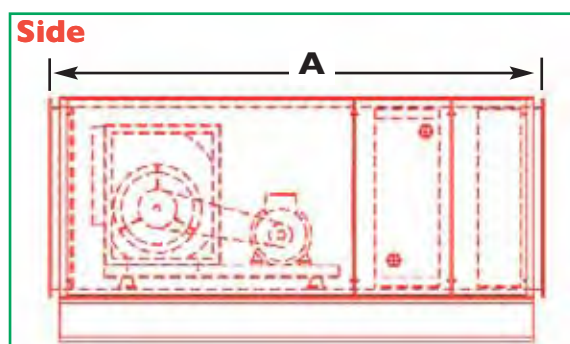


Fan, Filter and Electric Heater Battery - Plant Models

Model	A mm	B mm	C mm	D mm	E mm	kg
SPBD-E1	1400	600	450	650	500	130
SPBD-E2	1500	825	500	875	550	165
SPBD-E3	1600	825	650	875	700	225
SPBD-E4	1650	900	750	950	800	280



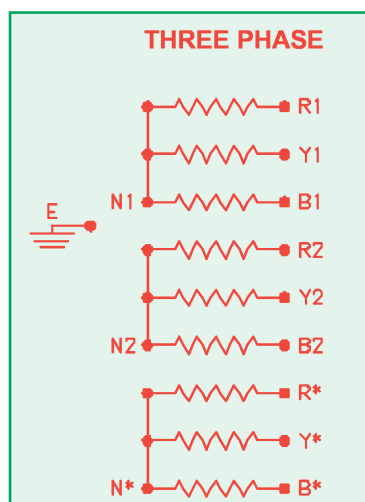
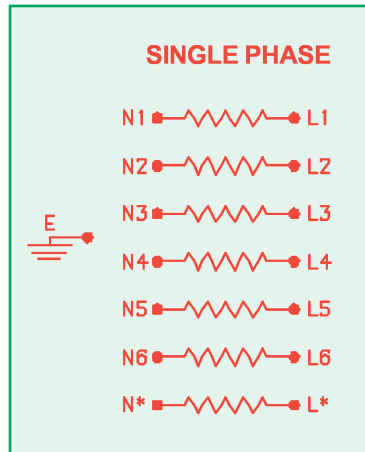
Fan, Filter and LPHW Heater Battery - Plant Models



Model	A mm	B mm	C mm	D mm	E mm	kg
SPBD-W1	1300	600	450	650	500	130
SPBD-W2	1400	825	500	875	550	165
SPBD-W3	1500	825	650	875	700	225
SPBD-W4	1550	900	750	950	800	280



Electric Heater Battery



Model	kW Rating	Single Phase Steps					3 Phase Steps			
		1	2	3	4	6	1	2	3	4
SBD-E1	6.0	✓	✓	✓			✓	✓		
	9.0	✓	✓	✓			✓	✓		
	12.0	✓	✓	✓	✓	✓	✓	✓		
	15.0	✓	✓	✓		✓	✓	✓		
	18.0	✓	✓	✓		✓	✓	✓		
	24.0						✓	✓		✓
	27.0							✓	✓	
SBD-E2	9.0	✓	✓	✓			✓	✓		
	12.0	✓	✓	✓	✓	✓	✓	✓		
	15.0	✓	✓	✓		✓	✓	✓		
	18.0	✓	✓	✓		✓	✓	✓		
	24.0						✓	✓		✓
	27.0							✓	✓	
	36.0							✓	✓	✓
SBD-E3	18.0	✓	✓	✓		✓	✓	✓		
	24.0						✓	✓		✓
	27.0							✓	✓	
	36.0							✓	✓	✓
	45.0							✓	✓	
	54.0							✓	✓	✓
	63.0							✓	✓	
SBD-E4	27.0						✓	✓	✓	
	36.0							✓	✓	✓
	45.0							✓	✓	
	54.0							✓	✓	✓
	63.0							✓	✓	
	72.0								✓	✓
	81.0							✓	✓	

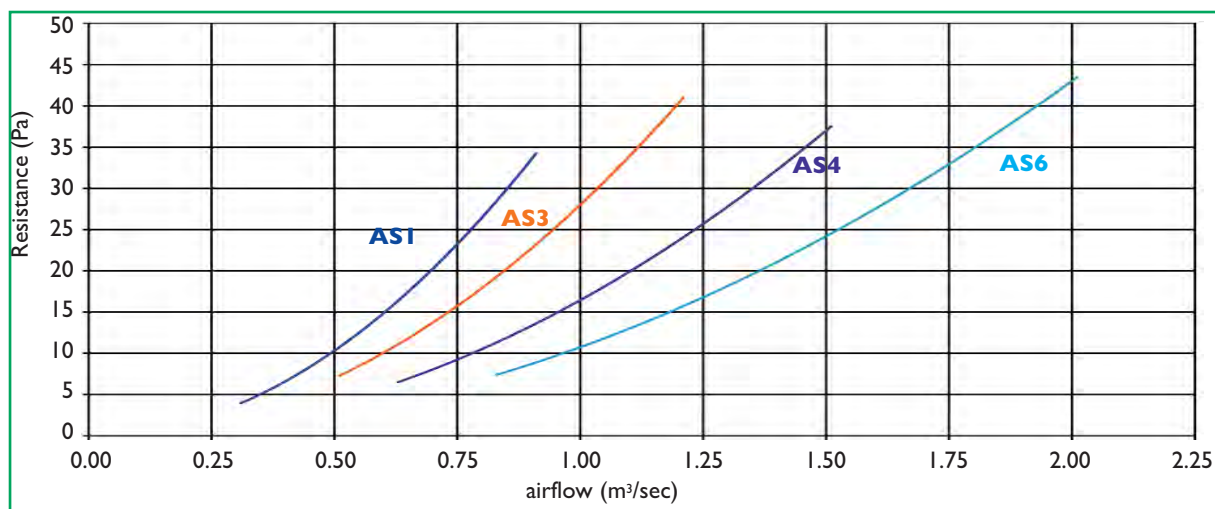
Heater ratings can be calculated using the following formula: $\text{kW} = \text{m}^3/\text{sec} \times 1.21 \times \text{Temp rise } ^\circ\text{C}$

Dependent on external system resistance and airflow achieved, the temperature rise should not exceed 35°C

Belt Driven - Air Handling Units Silencers



Pressure Drop

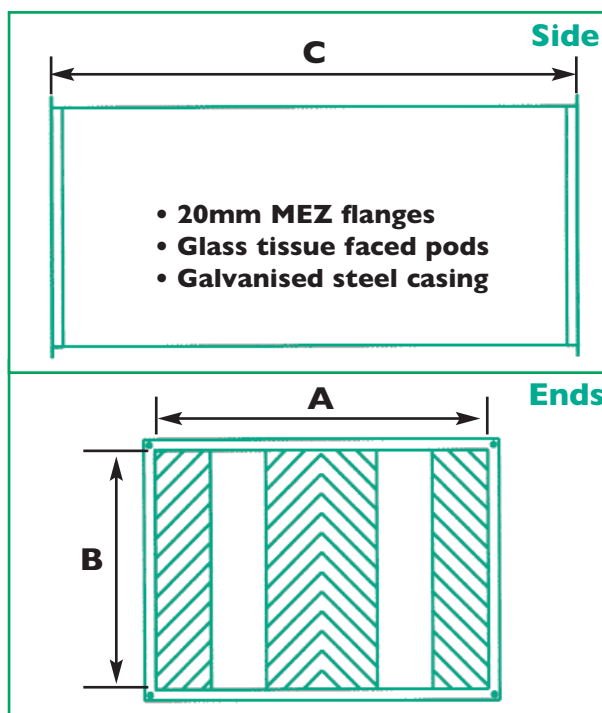


Insertion Loss

Model	Attenuation: Insertion loss - dB - mid frequency Hz							
	63	125	250	500	1000	2000	4000	8000
AS1	5	9	16	30	39	39	31	26
AS3	5	9	16	30	39	39	31	26
AS4	5	9	16	30	39	39	31	26
AS6	5	9	16	30	39	39	31	26

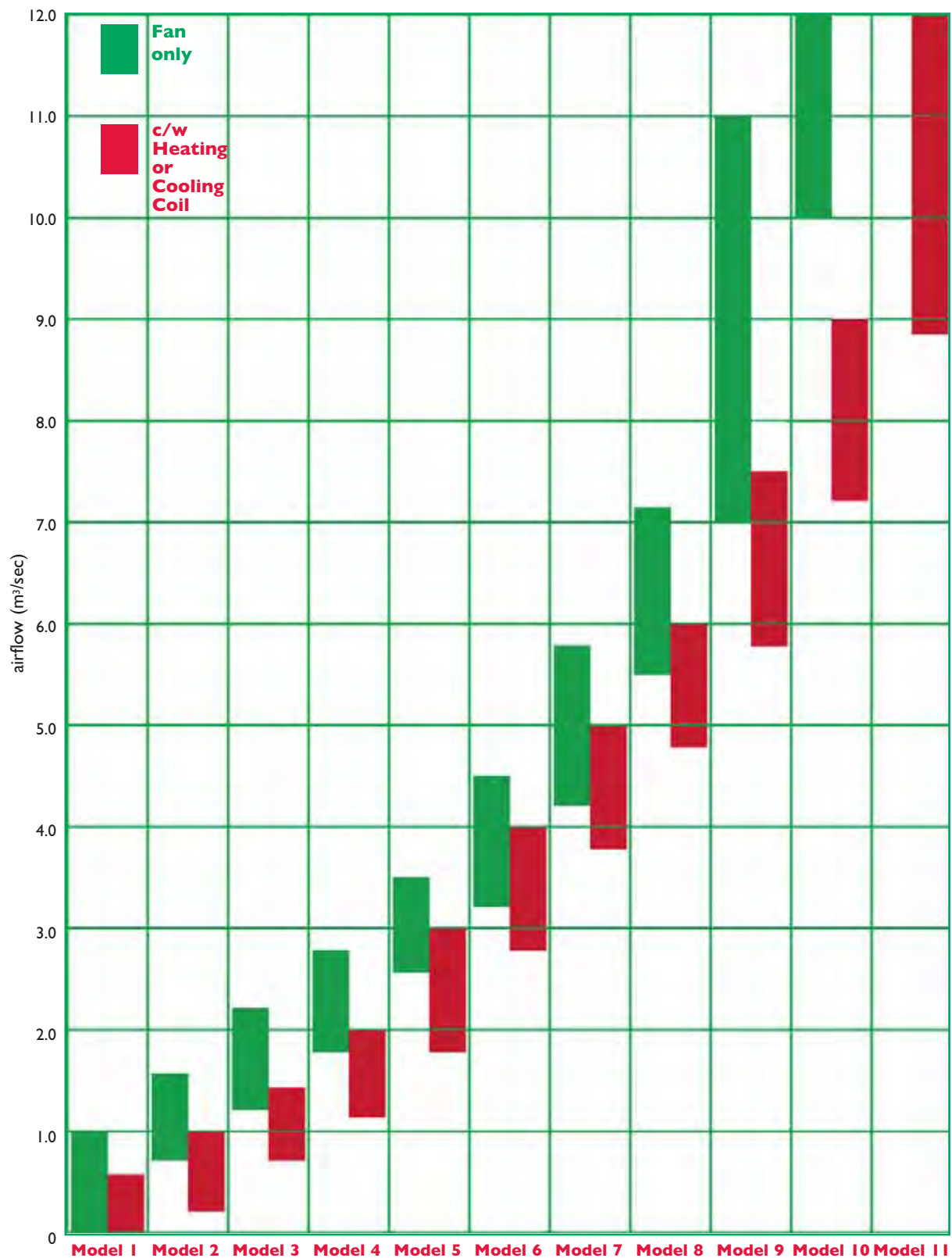
Dimensions

Model	A	B	C	kg
AS1	600	450	1000	48
AS3	825	500	1000	51
AS4	825	650	1000	80
AS6	900	750	1000	105



Belt Driven Air Handling Units

STP - Selection Chart



Belt Driven Air Handling Units *Plant & External*



"STP/STR"



Features

- larger sizes for plant and external installation
- can be with electric or LPHW heater batteries
- 11 standard sizes
- airflow to 12 m³/sec
- wide selection of control panels available

Cases - Plant Models

- robust 30 x 30 (30 x 50 on larger units) extruded aluminium frame
- black plastic corner joints
- finished in galvanised, double skinned steel with 25mm thick mineral wool slab insulation of 45 kg/m³ density (providing high degree of acoustic insulation) (50mm panels with high density mineral wool and barrier matt also available for lower sound levels)
- steel channel base running full length of unit with cross members at suitable locations
- flush fitting panels
- filter and access section panels fitted with easy access fasteners - other removable panels retained via roofing bolts

Cases - Weatherproof Models

CASE CONSTRUCTION AS PLANT MODELS, EXCEPT:

- outer skin with plastic coated finish (grey to BS10A05 as standard)

- weatherproof lid fitted
- air intake or discharge via weather cowl or louvre fitted with birdmesh guard

Specification

- fan options of forward curved belt driven, backward curved belt driven, or backward curved direct drive plug style impellers.
- fan impellers are statically and dynamically balanced in accordance with VDI2060 and ISO 1940/1. Supplied as standard with pre-greased sealed for life bearings having L10 life of 20,000 hours at peak performance
- standard motors of squirrel cage induction type, totally enclosed, fan cooled, suitable for 3ph, 50Hz electricity supply
- motors with IP55 protection and Class F rating
- high efficiency EC motors available as an option, depending on duty requirement
- fan and motor connected via vee belt drive, prealigned and tensioned
- fan and motor are mounted on a common chassis frame isolated from casing via open coil spring anti-vibration mounts and flexible connector fitted to fan discharge. Transit bolt fitted to prevent damage during transport
- LPHW batteries are constructed from copper tubes mechanically bonded onto aluminium fins supplied with

Belt Driven Air Handling Units

STP/STR - *Features*

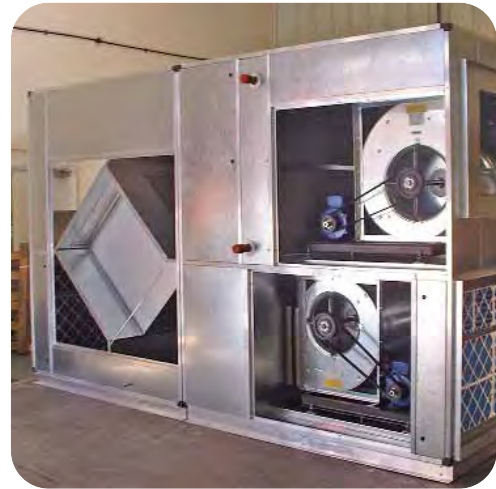


standard BSP male connectors. Option of vinyl coating (copper and electro-tinned copper also available). The coil casing is in galvanised sheet steel

- moisture eliminator plates manufactured from polypropylene fitted where necessary. Coils are mounted on slide-in channels to aid removal
- electric heater batteries for single and 3 phase operation are manufactured from sheathed rod elements with an integral manual reset thermal cut-out for wiring into control unit. It is recommended that fan run-on timer is incorporated in controls to prevent possible heat damage
- panel filters to G4 grade mounted in slide-in channels. Bag filters of F5 and above are mounted in purpose made front withdrawal holding frames and retained by spring loaded clips
- mixing box/intake dampers of opposed blade, multi-leaf type fitted aerofoil section blades.

Extended shaft for fitting of suitable motor is provided as standard

- the cross flow type heat exchangers have UPVC exchange plate, UPVC casework with maximum pressure differential of 1000 Pa and operating envelope of 20-60°C. Provides winter heating and summer cooling. Bypass damper fitted where required. Stainless steel drain pan provided on the exhaust side
- attenuators manufactured with galvanised sheet steel case fitted with "Mez" type flange at each end. Splitter design shall be of such as to reach required noise criteria. Splitters formed using 65kg/m³ density mineral wool slab with glass tissue facing airway. Attenuators designed to bolt directly to end of unit shall have splitters set back to allow even air distribution
- **manufactured in UK to ISO 9001**

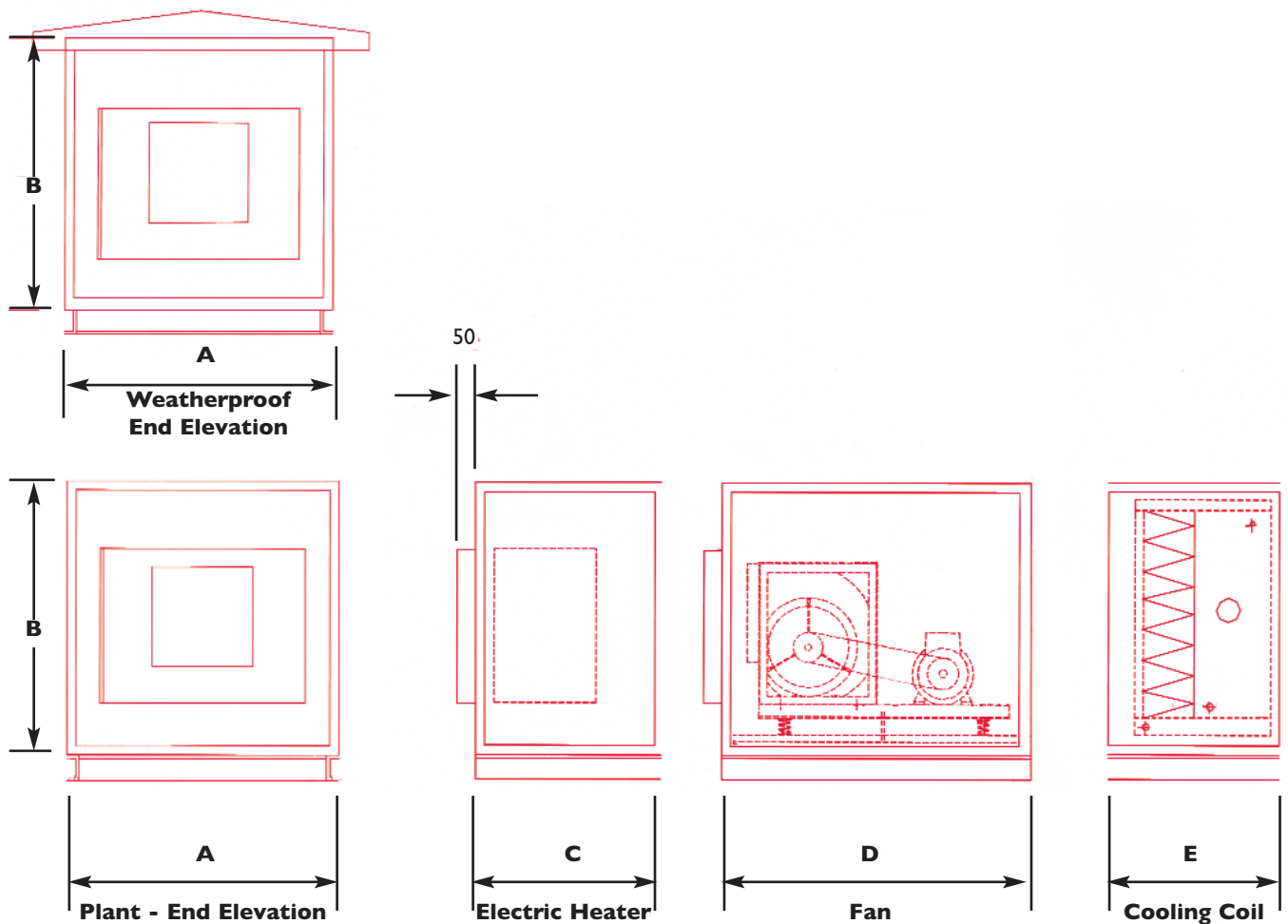


Belt Driven Air Handling Units

STP/STR - *Features and Dimensions*

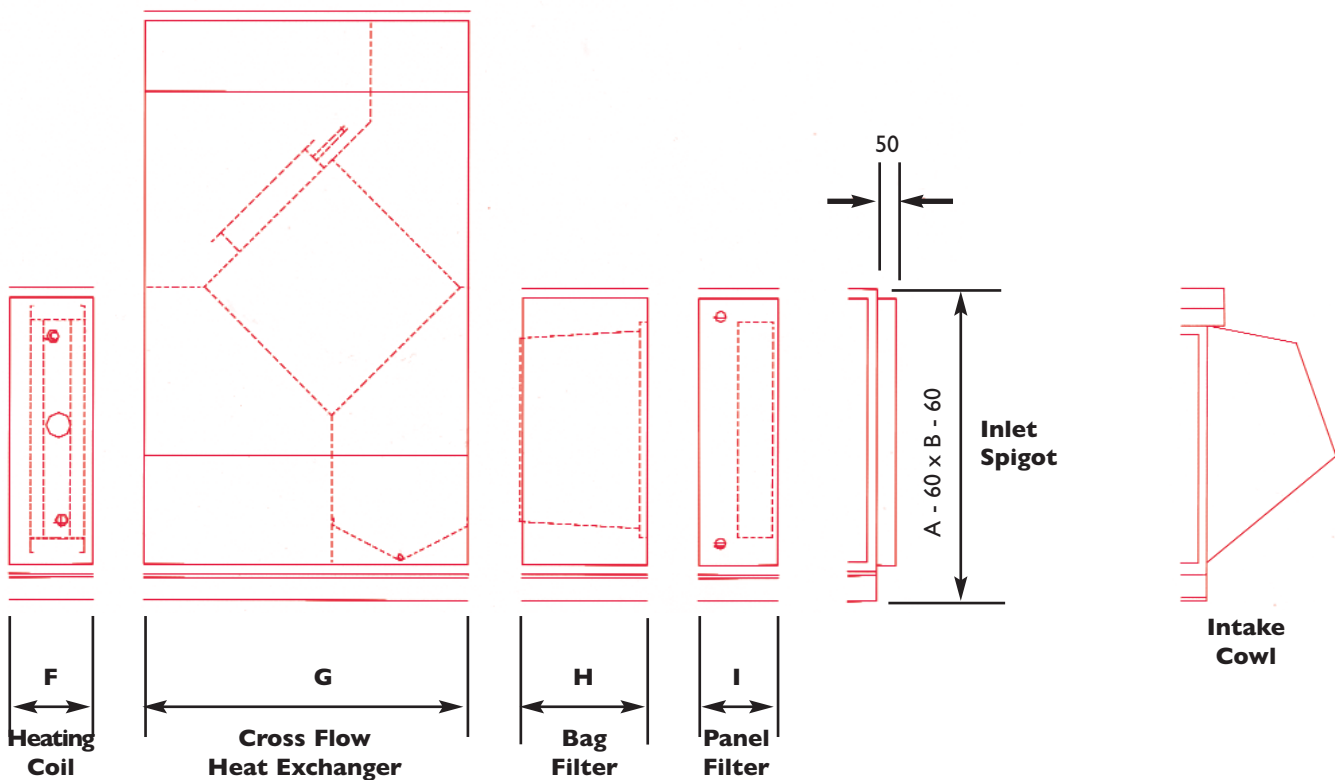
Size - mm

Model	1	2	3	4	5	6	7	8	9	10	11
A mm	800	800	1075	1350	1350	1400	1675	1950	1950	1950	2550
B mm	500	800	800	800	1100	1450	1450	1450	1750	2100	2100
C mm	400	500	500	500	500	600	600	-	-	-	-
D mm	810	910	1010	1060	1185	1260	1360	1500	1750	1750	2000
E mm	400	500	500	500	500	600	600	700	700	700	700
F mm	250	250	250	250	250	250	280	200	300	300	350
G mm	900	1000	1000	1000	1150	available upon application					
H mm	500	500	500	500	500	500	500	500	500	500	500
I mm	200	200	200	200	200	200	250	250	250	250	300



Weight - kg

Model	1	2	3	4	5	6	7	8	9	10	11
Electric Heater	61	74	85	110	130	173	208	247	298	361	476
Fan Section	101	111	127	139	160	193	329	261	317	356	427
Cooling Coil	88	109	121	151	179	220	265	308	361	420	508
Heating Coil	41	50	60	70	79	88	103	122	147	263	320
Heat Exchanger	137	151	167	194	235	available upon application					
Bag Filter	52	63	71	87	110	140	165	188	221	260	328
Panel Filter	21	25	30	35	39	43	48	52	57	63	70



Air Handling Units

Custom Built



General

AVT offers an extensive range of supply/extract units and associated ancillary equipment. Fans are available which cater for air volumes up to 20 m³/sec, for both internal and external applications. Most design parameters can be accommodated, and among the many variants we are able to provide are the following.

Cases

- single or double skinned with 25mm or 50mm thick panels.
- different panel infill, including a combination of high-density mineral wool and barrier matt to give high noise reduction.
- differing panel skin materials including stainless steel, aluminium and plastic coated sheet steel.
- powder coat paint finish to any BS or RAL number to either internal, external or both surfaces.
- casings supplied in "flat pack" form to facilitate site assembly.

Components

- The following components can be readily catered for:
 - **filters**
 - CARBON
 - HEPA
 - GREASE
 - WASHABLE
 - run-a-round coil systems
 - thermal wheels
 - gas fired heaters - indirect and direct
 - **fans**
 - SISW
 - DUPLEX (FOR LOW PROFILE)
 - TWIN MOTORS
 - SINGLE PHASE
 - 2 SPEED
 - MOUNTED OUT OF AIR STREAM
 - FITTED WITH STANDBY

Specifications

- units can be designed to meet the requirements of the following:
 - HTM03/01
 - CO4

Controls

- any variation of control package can be supplied:
 - simple pre-wiring of motor to an external isolator
 - an in-built control panel pre-wired to motors, damper motors, sensors etc

Air Handling Units

Custom Built



direct drive - belt drive - custom built ***Air Handling Units***



Contracts Completed

Luton Hoo Hotel
Aston Martin
Burger King
Neville Hall Hospital
RAF Odiham
RAF Benson
RNAS Clyde
Lyreco
HP Foods
Calypso Soft Drinks
Disney Stores
Princess of Wales Hospital



Royal Yacht Britannia
BUPA Hospital, Leicester
Warner Holiday Camp
Bass Inns
Livingstone FC
Hambden Park
Blackburn Rovers FC
Waitrose
Sandwell Hospital
Domino Pizza
Kentucky Fried Chicken
Featherstone Technical College

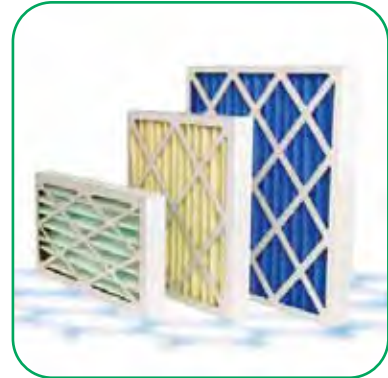


Air Handling Units

Components/Accessories



**Bag
Filters**



**Panel
Filters**



**Pressure
Switch**



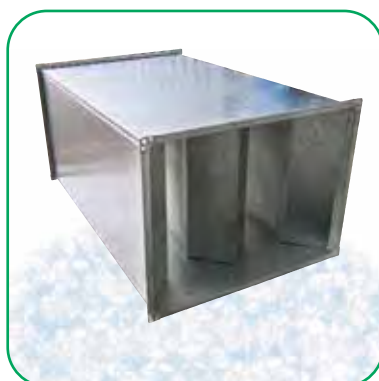
Port Holes



**Speed
Controller**



Manometer



Silencer

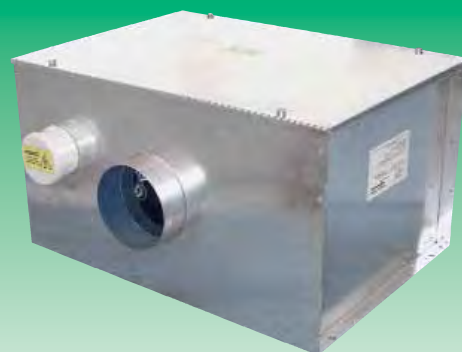


**Anti
Vibration
Mounts**

Other Air Vent Technology Ventilation Units



**"QSS"
SUPER SILENT
Acoustic Cabinet Fans**



**"QST"
Twin, Slimline
Acoustic Fans**



**"QMF"
Square Cased
Mixed Flow Fans**



Heat Recovery Units

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Certificate No: GB9455

