SfB (56)
Leaflet No. BT3
Issue No. 3

CIRRUS® MK3 UNIT HEATERS

SPC

PUTTING OUR ENERGY INTO YOUR BUSINESS

3 YEAR GUARANTEE

INDEX

INTRODUCTION

The Cirrus Mk3 unit heater is a further development of SPC's successful and proven Cirrus range incorporating a Woods of Colchester, 2100 Series Fan Assembly.

The 2100 Series Fan Assembly is the product of intensive research and development by the World leaders in air movement technology and together with the well proven structural and trouble free performance characteristics of the Cirrus range, ensure the optimum in performance and reliability.

There are both horizontal and vertical models, each of which is available in five sizes, offering outputs of up to 120kW with a choice of different heat exchangers for each heating medium and a range of fan speeds.

To complete the package the Mk3 Cirrus heater casing and fan assembly has a new co-ordinated livery of grey stove enamel with black PVC coated motorside wireguard.

FEATURES/BENEFITS

Guarantee of Quality

THREE YEAR "No-Quibble" Guarantee on all material and workmanship.

Outstanding Performance

Advanced impellor design with asymmetric blade spacing ensure optimum output with low noise.

Safety

Fully enclosed fan assembly provides maximum operative protection.

Durability

Inbuilt motor overheat protection which is self resetting, water and dust protection to IP55 and sealed-for-life bearings give long lasting performance.

Comprehensive Range

A choice of five sizes, three motor speeds and four heating media ensures a comprehensive range with around 150 variations.

Noise Insulation

Anti vibration mountings fully isolate the fan assembly and guard from the unit casing, ensuring low noise levels.

Quality Assured

Fan design and manufacture are quality assured to BS 5750 Part 1. Unit performance is independently tested and certified to BS 4856 and BS 848 Parts 1 and 2 as applicable.

All units comply with PSA Standard Specification (M & E) No. 3 – 1986.

GUARANTEE

Any Cirrus Mk3 unit heater found to be defective due to bad workmanship or materials within three years of its despatch from our works will, at our discretion, be replaced free of charge if returned to our works. No other liability is accepted.

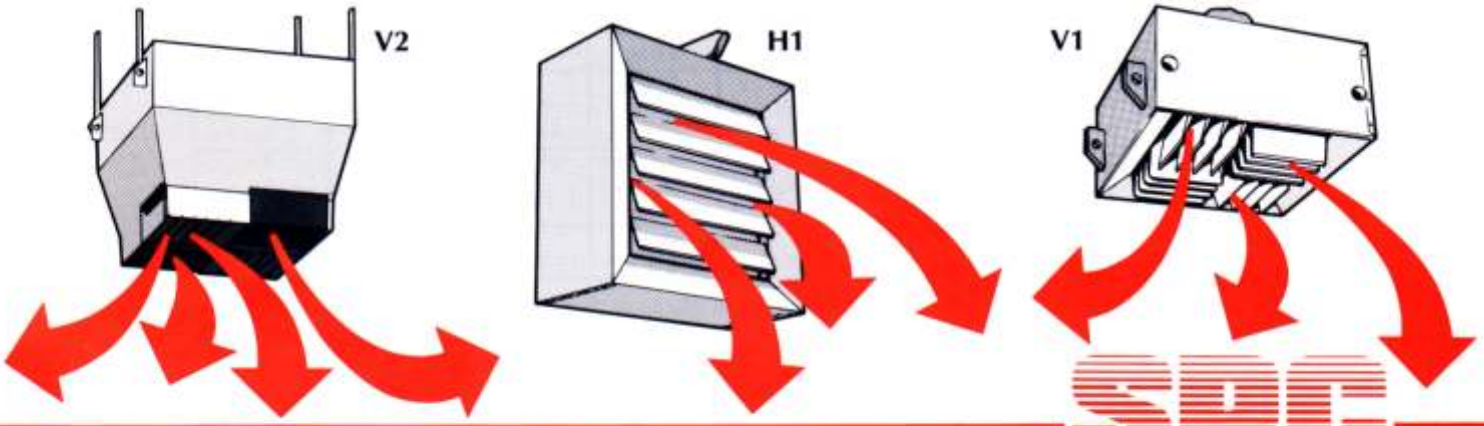
OPTIONS

Three Styles

Style H1 – Horizontal. Giving horizontal air discharge. Motor external to the main casing and provided with motorside wireguard. Suitable for all heating media.

Style V1 – Vertical. Giving a generally vertical downward air discharge. Motor mounted above main casing and provided with motorside wireguard. Suitable for use with low temperature hot water or medium temperature hot water (LTHW or MTHW) up to 120°C flow temperature.

Style V2 – Vertical. Giving a generally vertical downward air discharge. Motor submounted beneath the heater battery, enclosed in a diffuser casing. Suitable for all heating media.



OPTIONS & SPECIFICATION

Heat Exchangers - for all styles and sizes.
1 row - medium and high temperature hot water and steam.
2 row - low, medium and high temperature hot water.
3 row - low and medium temperature hot water.

Motor Speeds - for all styles.
Choice of either normal speed (4 Pole), slow speed (6 Pole) and extra slow speed (8 Pole).
NB- Due to noise limitations normal speed is not available on size 6 models.

Flame Proof Motors - for all styles and sizes.
Flame proof motors are generally available, but may result in some variation in unit specification. Full details on request.

SPECIFICATION

Casing

The casing is manufactured from high grade heavy gauge sheet steel.

Horizontal discharge models are fitted with front facing adjustable louvres in order to vary the projected angle of airstream discharge. The louvres are fixed to the main casing by purpose designed anti-rattle hinges having angular locking positions.

The vertical discharge models are fitted with either Style V1 or V2 diffusers as selected, both being fitted with adjustable four way discharge louvres attached through anti-rattle hinges, which are automatically locked in interrnediate positions when set.

All casings are finished in grey stove enamel with black PVC coated motorside wireguards where applicable.

Heat Exchangers

Heat exchangers are manufactured from solid drawn copper primary tubes expanded into aluminium secondary surface plates. The primary tubes are brazed into copper headers terminating in B.S.P. connections.

All heat exchangers are subject to a test pressure of 22 bar (350 p.s.i.) and are suitable for a maximum working pressure of 10 bar (150 p.s.i.).

Impellers

Impellers are constructed as a one piece moulding in polypropylene with five asymmetrically spaced aerfoil section blades with 20% glass-coupled reinforcement.

Motors

Motors are of the totally enclosed squirrel cage induction type. The carcass is extruded aluminium with die-cast end covers.

Single phase motors include integral overheat protection which is self-resetting. Resetting can be overridden, where required, by connecting a starter coil. Where fitted, capacitors are pre-wired.

The motor assembly is dust and water protected to IP55 or convertible to IPW54 with drain plugs removed.

Sealed-for-life bearings are designed for continuous operation from -40°C to +50°C and for starting down to—20°C. Insulation is to Class F.

Motors are rated to comply with BS 5000, Part 99 (1973) and I.E.C. 34-1.

Flame-proof motors are available by request. In certain cases this may demand a change in motor specification and manufacture.

Electrical

Motors are available for a variety of electrical supplies. These include:

220-240 Volts, 50 Hz. Single Phase.
380-420 Volts, 50 Hz. Three Phase (Also suitable by reconnection at the terminals for 220-240 Volts, 50 Hz. Three Phase). Other voltages available upon request.

ELECTRICAL AND NOISE DATA

	220-240 V / 50 Hz / 1ph.			380-420 V / 50 Hz /3ph.			
MODEL	Motor Rating (kW)	Full Load Current (at 230 V) (A)	Starting Current (at 230V) (A)	Motor Rating (kW)	Full Load Current (at 230V) (A)	Starting Current (at 230V) (A)	Sound Level dB(A)
2 N	0.18	1.4	2.6	0.15	0.5	2.4	57
2 S	0.05	0.46	0.67	0.04	0.24	0.5	47
2 ES	0.032	0.45	0.65	0.032	0.2	0.4	41
3 N	0.31	2.2	5.9	0.31	0.95	3.2	60
3 S	0.083	1	1.8	0.075	0.37	0.8	50
3 ES	0.032	0.45	0.65	0.032	0.2	0.4	41
4 N	0.45	2.8	6	0.45	1.2	4.5	62
4 S	0.19	1.8	3	0.13	0.45	1.1	52
4 ES	0.075	1.1	1.4	0.06	0.3	0.6	43
5 N	1.08	6.7	20	1.08	3.1	13	66
5 S	0.2	2.5	4.4	0.28	1.2	3	54
5 ES	0.12	1.5	2.2	0.12	0.9	13	48
6 S	0.43	3.3	7.5	0.41	1.5	5.3	60
6 ES	0.16	1.9	3.4	0.21	1.25	2.6	51

Sound pressure levels stated are calculated in dB(A) at 3 metres distance over a sphere, under free field conditions and are given for comparative purposes only. In practice the semi-reverberent nature of any installation and directivity affects can give a different level.

SELECTION PROCEDURE

The efficiency of a Unit Heater installation depends upon the correct approach being made to unit selection. The aspects demanding attention in a step by step selection approach are as follows:

1. Style – horizontal or vertical air discharge.
2. Size – determined by the total thermal output and air volumes required.
3. Heating medium – heat exchanger style and size.
4. Fan speed – to achieve acceptable noise level, 'throw', coverage and mounting height of the unit.
5. Number of units – and disposition to ensure proper air circulation.

STYLE

It is appreciated that no hard and fast rules can be applied to meet all possible applications. The very nature of the building construction and process carried on within the building will to a marked degree determine the initial selection approach.

Available mounting locations and clearances required will largely determine unit mounting height and model style, either horizontal or vertical discharge. Broadly speaking, horizontal discharge units (style H1) can be mounted up to 6 metres from floor to underside of unit depending on unit size and motor speed. Thus the tendency is to use horizontal discharge units in lower mounting height applications or in buildings where a horizontal discharge in air circulation pattern is convenient.

By contrast vertical discharge units (Style V1 and V2) are generally employed in buildings where a downward discharge would be preferable to achieve a more efficient coverage and where higher mounting heights are desirable. The alternative vertical styles V1 and V2 will be primarily determined by heating media temperature. Style V1 is suitable for use with flow temperatures up to 120 deg C. Style V2 is suitable for all heating media.

SIZE

Building heat losses should be calculated in accordance with current practice and as demanded by building requirements and conditions. Thermal and air volume requirements can be calculated once the heat losses are known and the size and number of unit heaters required can be determined. See output tables on page 7 (S.I. units).

NB – for conditions other than the standard conditions shown, the correction factors must be applied as shown on Page 8.

HEAT EXCHANGER – No. of rows

The wide range of CIRRUS heat exchangers has been designed to permit correct selection for practically any heating medium and operating condition. In general, the selection will be:

	Heat Exchanger Style	
Heating Medium	Fresh Air inlet	Recirculated air
Low Temperature Hot Water	W3	W2 or W3
Medium Temperature Hot Water	W2 or W3	W1 or W2
High Temperature Hot Water	W1 or W2	W1
Steam	S1	S1

W1 = 1 row water coil
W2 = 2 row water coil
W3 = 3 row water coil
S1 = 1 row steam coil

The most important factor to take into consideration is the leaving air temperature. It must be high enough to obviate troubles from cold draughts and not too high, otherwise difficulties will be experienced in getting the warm air down to working level, especially with low speed units.

The suggested leaving air temperature range is 38 degrees C to 52 degrees C, with the lower leaving air temperature suitable for lower air velocities (slow and extra slow speed fans) and the higher leaving air temperature suited to higher air velocities.

SELECTION PROCEDURE

ENTERING AIR TEMPERATURE

The thermal output of a Unit Heater is directly proportional to the temperature difference between the heating medium mean temperature and the entering air temperature. It is important therefore that the CORRECT entering air temperature is taken. This should be:

a. When operating with fresh air.
The outside air temperature, generally −1 degree C in the U.K.

NB – Considerably lower temperatures will be encountered under extreme conditions, and due allowance should be made for operating under these extremes.

b. When operating with recirculated air.
Due to stratification the actual temperature of the air entering the unit can be higher than the design air temperature.

AIR TEMPERATURE RISE

The rise in air temperature may be calculated by the use of the following formulae:

$$\text{Temperature Rise (Degrees C)} = \frac{\text{Output (kW)}}{\text{Air Volume (m}^3\text{/sec)} \times \text{Air Factor}}$$

Air factor is dependant upon the air inlet temperature to the unit, as below

S.I. UNITS

Inlet Air Temp °C	Air Factor
0	1.30
5	1.28
10	1.26
15	1.23
20	1.21
25	1.19

Example – Model 3W2S

Output 12.7 kW
Air Volume 0.57 m^3/sec
Inlet Air Temp 18 degrees C

$$\text{Temperature Rise} = \frac{12.7}{0.57 \times 1.22}$$

$$= 18.26 \text{ Degrees C}$$

Thus leaving air temperature = 18 + 18.26 = 36 Degrees C

FAN SPEED

Basically the fan speed will be determined by two factors:

A. Acceptable noise level.

NB – Due to their higher noise levels, normal speed (4 pole) machines are usually only suitable for industrial use.

B. The "Throw" or coverage of the unit and the maximum recommended mounting height.

The mounting height, discharge, throw and effective coverage applicable to each unit is obtainable from the diagrams and tables on page 9, which will to a degree control the location of the units within the building. Horizontal discharge units are frequently positioned at an angle along the perimeter walls or in wider buildings in herring-bone pattern. The distance apart should be such that an airstream discharge relay effect is achieved. With vertical discharge units the coverage at listed mounting height will indicate the location of the unit so as to provide a merged coverage area with adjacent units throughout the building.

NUMBER SELECTION

As a guide to number selection:

A. Generally speaking a minimum of two units is preferable in order to promote air circulation. The units should be so spaced that a relay effect of air discharge is provided from unit to unit around or across the building.

B. Whilst in general, smaller and more units provide better conditions, the tendency should generally be towards smaller units for smaller buildings and larger units for larger areas.

MODEL REFERENCE

The full model reference required for ordering purposes can be built up as follows:

Cirrus Unit Heater	Unit Size	Coil Designation	Motor Speed	Casing Style	Electrical Supply
eg. Cirrus	2	W2	S	H1	240V/1/50

Therefore model reference: Cirrus 2/W2/S/H1/240/1/50 describes a size 2 horizontal unit fitted with a two row water coil and a 240 volt, 50Hz single phase motor running at slow speed (6 pole).

SELECTION DATA

S.I.

CIRRUS Mk3 UNIT HEATER – NOMINAL OUTPUTS ENTERING AIR TEMPERATURE 18°C

MODEL	AIRVOL l/sec	LPHW 75°C MEAN kW	10°C DROP LAT deg C	HYD RES kPa	MPHW 115°C MEAN kW	20°C DROP LAT deg C	HYD RES kPa	HPHW 150°C MEAN kW	30°C DROP LAT deg C	HYD RES kPa	STEAM 2 BAR kW	LAT deg C
2W1N	760	6·6	25	0·09	12·3	31	0·08	17·1	36	0·06	21·2	41
2W1S	490	5·4	27	0·06	9·8	34	0·05	14·0	41	0·05	17·2	47
2W1ES	355	4·6	29	0·04	8·4	37	0·04	12·1	46	0·03	14·7	52
2W2N	615	11·1	33	0·43	19·3	44	0·33	26·7	54	0·28		
2W2S	400	8·8	36	0·28	15·5	50	0·22	21·4	62	0·19		
2W2ES	285	7·3	39	0·20	13·0	55	0·16	17·9	70	0·14		
2W3N	520	14·4	41	1·01	24·9	57	0·77	34·2	72	0·65		
2W3S	330	11·2	46	0·64	19·3	66	0·49	26·4	84	0·41		
2W3ES	235	9·1	50	0·44	15·8	73	0·34	21·7	94	0·29		
3W1N	1130	9·9	25	0·16	17·5	31	0·13	24·5	36	0·11	30·4	40
3W1S	695	7·7	27	0·10	14·1	35	0·09	19·6	41	0·07	24·1	46
3W1ES	505	6·6	29	0·08	12·2	38	0·07	16·9	46	0·06	20·7	52
3W2N	920	16·2	32	0·73	28·1	43	0·56	38·7	53	0·47		
3W2S	570	12·7	36	0·47	22·0	50	0·36	30·3	62	0·31		
3W2ES	415	10·8	39	0·35	18·7	55	0·27	25·7	69	0·23		
3W3N	770	19·9	39	1·59	34·4	55	1·22	47·3	68	1·02		
3W3S	485	15·4	44	1·00	26·6	63	0·77	36·5	80	0·64		
3W3ES	345	12·7	48	0·71	21·8	70	0·54	30·0	89	0·45		
4W1N	1640	14·8	25	0·28	26·2	31	0·22	36·4	36	0·19	44·4	40
4W1S	1080	12·3	27	0·20	21·7	34	0·16	30·1	41	0·14	36·4	46
4W1ES	800	10·5	29	0·15	18·9	37	0·12	26·2	45	0·11	31·5	50
4W2N	1340	24·1	33	1·11	41·9	44	0·86	57·6	53	0·73		
4W2S	880	19·5	36	0·76	33·8	49	0·59	46·5	61	0·49		
4W2ES	640	16·5	39	0·56	28·6	55	0·43	39·3	68	0·36		
4W3N	1090	29·4	40	2·49	50·8	56	1·91	69·7	70	1·60		
4W3S	700	23·0	45	1·60	39·6	64	1·22	54·3	82	1·02		
4W3ES	510	19·1	49	1·15	32·9	71	0·88	45·2	91	0·73		
5W1N	2350	22·8	26	0·58	40·0	32	0·46	55·5	37	0·39	66·1	41
5W1S	1490	18·5	28	0·40	32·5	36	0·32	45·0	43	0·27	53·1	47
5W1ES	1150	16·5	30	0·33	28·8	39	0·25	40·0	46	0·22	47·0	51
5W2N	2040	37·8	33	2·04	65·5	44	1·58	90·0	54	1·32		
5W2S	1280	29·8	37	1·33	51·5	51	1·02	70·8	63	0·86		
5W2ES	950	25·5	40	1·00	44·0	56	0·77	60·5	70	0·65		
5W3N	1740	47·4	40	4·55	81·7	56	3·48	112·0	71	2·91		
5W3S	1080	36·2	46	2·80	62·4	65	2·14	85·6	83	1·79		
5W3ES	830	31·1	49	2·13	53·5	71	1·62	73·4	90	1·36		
6W1S	2100	28·0	29	0·60	49·0	37	0·47	67·9	44	0·40	76·3	48
6W1ES	1520	24·2	31	0·46	42·3	41	0·36	58·4	50	0·31	65·4	53
6W2S	1820	44·7	38	2·10	77·2	53	1·61	106·1	66	1·35		
6W2ES	1280	37·1	42	1·50	64·1	59	1·15	88·0	74	0·97		
6W3S	1640	57·8	47	5·00								
6W3ES	1110	45·8	52	3·29								

N.B. When ordering Steam Units, the model reference should read e.g. 251N rather than 2W1N to designate steam operation.

The Hydraulic resistance figures shown are given to allow proper application of relevant conversion factors. In practice a minimum figure of 3 kpa should be used.

Selection Example:

Having selected unit style and knowing the required unit output and design water (or steam) conditions, apply this data to the basic performance table and select the most suitable unit arrangement. i.e. If the room heat requirements are 45 kW and the layout requires 3 units with air on 18 deg C and water at 80 deg C flow, 70 deg C return, then either 3 off size 3W2N at 16.2 kW each or 3W3S at 15.4 kW will meet the required load, the choice depending on desired "off" temperature and spread.

If the heating medium is at other conditions, then first choose an approximate unit size and pick the appropriate correction factor. Divide your required unit load by this factor and then apply the corrected load to the basic performance table. e.g. a room requires 30 kW from two units with water at 135/115 deg C. Say, size 4 is preferred, so divide 15 kW by the factor .....0·7..... then apply the results .....21·42 kW..... to the MTHW section of basic output and we find that 4W1S will meet the requirement. To find the corrected LAT then **multiply** the basic temperature rise by the correction factor.

CORRECTION FACTORS

CORRECTION FACTORS FOR VARYING MEAN WATER TEMPERATURE AND WATER TEMPERATURE DROPS – S.I.

MEAN WATER TEMPERATURE	ENTERING AIR TEMPERATURE	SIZE 2			SIZE 3			SIZE 4			SIZE 5			SIZE 6		
LTHW		Water 5°C	Temp 10°C	Drop 20°C	Water 5°C	Temp 10°C	Drop 20°C	Water 5°C	Temp 10°C	Drop 20°C	Water 5°C	Temp 10°C	Drop 20°C	Water 5°C	Temp 10°C	Drop 20°C
55 DEG C	–1	1·14	0·87	0·41	1·15	0·84	0·46	1·14	0·80	0·51	1·04	0·93	0·58	1·06	0·94	0·55
	18	0·66	0·29	0·23	0·66	0·33	0·27	0·66	0·36	0·29	0·65	0·52	0·29	0·66	0·51	0·32
	21	0·58	0·26	0·21	0·58	0·30	0·24	0·58	0·32	0·26	0·59	0·45	0·26	0·59	0·41	0·29
65 DEG C	–1	1·40	1·18	0·51	1·41	1·18	0·58	1·43	1·18	0·63	1·26	1·17	0·95	1·27	1·19	0·95
	18	0·95	0·69	0·33	0·95	0·65	0·37	0·94	0·49	0·41	0·87	0·76	0·39	0·88	0·77	0·44
	21	0·87	0·60	0·30	0·86	0·42	0·34	0·87	0·45	0·37	0·80	0·70	0·36	0·82	0·71	0·41
75 DEG C	–1	1·67	1·49	1·03	1·68	1·47	0·91	1·69	1·48	0·76	1·47	1·39	1·21	1·49	1·41	1·22
	18	1·21	1·00	0·43	1·22	1·00	0·48	1·23	1·00	0·53	1·08	1·00	0·80	1·09	1·00	0·78
	21	1·13	0·92	0·40	1·14	0·92	0·45	1·15	0·92	0·49	1·02	0·94	0·73	1·03	0·94	0·70
85 DEG C	–1	1·93	1·76	1·39	1·94	1·78	1·38	1·96	1·80	1·37	1·69	1·61	1·47	1·71	1·63	1·47
	18	1·47	1·31	0·86	1·48	1·29	0·60	1·49	1·30	0·66	1·29	1·22	1·05	1·30	1·23	1·06
	21	1·39	1·23	0·74	1·40	1·21	0·57	1·41	1·22	0·62	1·23	1·15	0·99	1·24	1·17	0·99
MTHW		10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C
95 DEG C	–1	1·10	0·92	0·73	1·12	0·93	0·70	1·12	0·93	0·51	1·05	0·97	0·88	1·04	0·98	0·88
	18	0·85	0·66	0·31	0·87	0·67	0·35	0·87	0·65	0·39	0·82	0·75	0·65	0·82	0·73	0·64
	21	0·81	0·62	0·29	0·83	0·62	0·34	0·83	0·60	0·37	0·78	0·71	0·61	0·78	0·70	0·60
105 DEG C	–1	1·24	1·10	0·92	1·27	1·10	0·93	1·27	1·10	0·91	1·17	1·10	1·04	1·17	1·10	1·02
	18	0·99	0·83	0·64	1·01	0·84	0·61	1·02	0·84	0·45	0·94	0·87	0·79	0·94	0·88	0·79
	21	0·95	0·78	0·59	0·97	0·80	0·53	0·98	0·79	0·43	0·91	0·84	0·75	0·91	0·84	0·75
115 DEG C	–1	1·38	1·24	1·09	1·41	1·28	1·11	1·41	1·28	1·10	1·30	1·23	1·16	1·29	1·23	1·17
	18	1·13	1·00	0·83	1·16	1·00	0·84	1·16	1·00	0·82	1·07	1·00	0·94	1·06	1·00	0·92
	21	1·09	0·96	0·79	1·12	0·96	0·79	1·12	0·96	0·77	1·03	0·96	0·91	1·03	0·96	0·89
125 DEG C	–1	1·09	0·99	0·91	1·09	0·99	0·89	1·08	0·99	0·88	1·03	0·98	0·94	1·02	0·98	0·94
	18	0·91	0·82	0·71	0·91	0·82	0·71	0·90	0·82	0·70	0·86	0·81	0·77	0·86	0·81	0·77
	21	0·88	0·79	0·68	0·88	0·79	0·68	0·88	0·79	0·67	0·84	0·79	0·75	0·83	0·79	0·75
HTHW		20°C	30°C	50°C	20°C	30°C	50°C	20°C	30°C	50°C	20°C	30°C	50°C	20°C	30°C	50°C
135 DEG C	–1	1·10	1·02	0·83	1·10	1·02	0·81	1·09	0·99	0·79	1·07	1·03	0·95	1·07	1·03	0·94
	18	0·92	0·84	0·63	0·92	0·82	0·60	0·92	0·81	0·54	0·90	0·86	0·77	0·90	0·87	0·77
	21	0·90	0·82	0·60	0·89	0·79	0·56	0·89	0·79	0·40	0·88	0·84	0·74	0·88	0·84	0·74
145 DEG C	–1	1·20	1·12	0·94	1·20	1·12	0·94	1·19	1·12	0·93	1·16	1·12	1·05	1·16	1·12	1·05
	18	1·03	0·95	0·76	1·02	0·95	0·75	1·02	0·92	0·73	0·99	0·95	0·88	0·99	0·95	0·87
	21	1·00	0·92	0·73	0·99	0·92	0·71	0·99	0·90	0·69	0·97	0·93	0·86	0·97	0·93	0·84
155 DEG C	–1	1·31	1·23	1·09	1·30	1·22	1·05	1·30	1·22	1·05	1·25	1·21	1·14	1·25	1·21	1·14
	18	1·13	1·05	0·88	1·12	1·05	0·87	1·12	1·05	0·86	1·08	1·05	0·98	1·08	1·04	0·98
	21	1·10	1·02	0·85	1·10	1·02	0·84	1·09	1·02	0·83	1·06	1·02	0·95	1·05	1·02	0·95
165 DEG C	–1	1·41	1·33	1·20	1·40	1·33	1·16	1·40	1·32	1·16	1·34	1·30	1·23	1·34	1·30	1·23
	18	1·23	1·15	1·02	1·23	1·15	0·99	1·22	1·15	0·98	1·17	1·14	1·07	1·17	1·13	1·07
	21	1·20	1·13	0·96	1·20	1·13	0·96	1·19	1·12	0·95	1·15	1·11	1·04	1·14	1·11	1·04

STEAM CORRECTION FACTORS

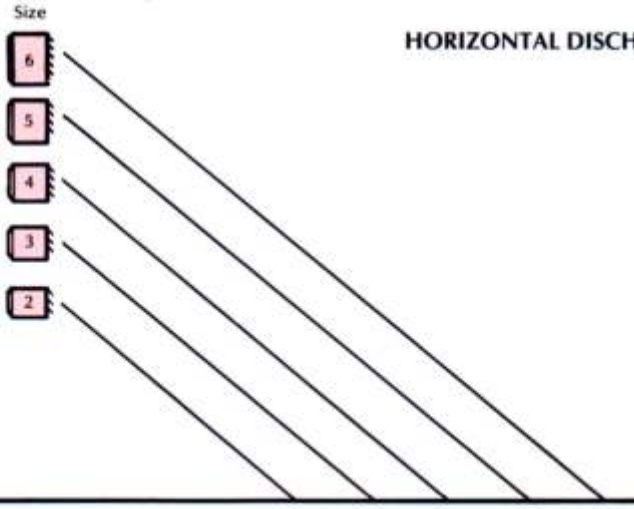
PRESSURE	1 BAR	2 BAR	3 BAR	4 BAR	5 BAR	6 BAR
ENTERING AIR TEMPERATURE						
–1 DEG C	1·05	1·16	1·25	1·31	1·37	1·46
18 DEG C	0·8	1·0	1·08	1·16	1·22	1·29
21 DEG C	0·86	0·97	1·06	1·13	1·19	1·27

MOUNTING HEIGHTS

Dimensions in metres
Dimensions in (feet)

MOUNTING HEIGHT					
8 pole		6 pole		4 pole	
min	max	min	max	min	max
3·3 (11)	4·3 (14)	4·3 (14)	5·2 (17)		
3·0 (10)	4·0 (13)	4·0 (13)	4·9 (16)	5·5 (18)	6·4 (21)
2·7 (9)	3,6 (12)	3·6 (12)	4·6 (15)	5·5 (18)	6·4 (21)
2·7 (9)	3·3 (11)	3·3 (11)	4·0 (13)	4·6 (15)	5·2 (17)
1·8 (6)	2·4 (8)	2·1 (7)	2·7 (9)	3·0 (10)	3·6 (12)

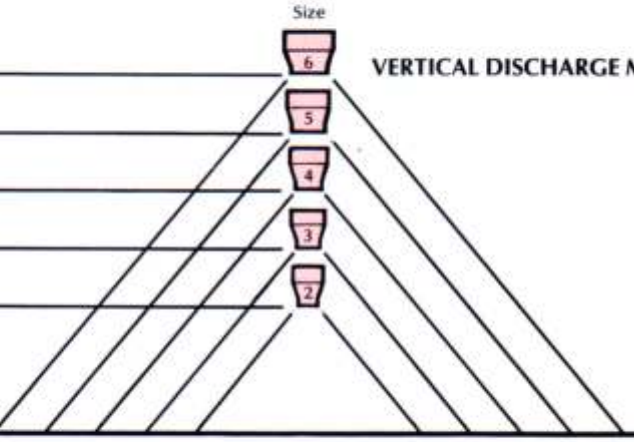
HORIZONTAL DISCHARGE MODEL – STYLES H1



7·6 (25)	10·7 (35)	13·7 (45)	15·2 (50)	16·8 (55)	8 pole	Coverage at Minimum Mounting Height
9·1 (30)	13·7 (45)	16·8 (55)	18·3 (60)	21·3 (70)	6 pole	
13·7 (45)	19·8 (65)	25·9 (85)	27·4 (90)		4 pole	

2·7 (9)	4·6 (15)	3·6 (12)	5·8 (19)	
2·4 (8)	4·3 (14)	3·3 (11)	5·2 (17)	4·9 (16)	7·6 (25)
2·7 (9)	4·3 (14)	3·6 (12)	5·2 (17)	5·2 (17)	7·6 (25)
2·4 (8)	3·6 (12)	3·0 (10)	4·6 (15)	4·3 (14)	6·4 (21)
1·8 (6)	2·7 (9)	2·1 (7)	3·3 (11)	3·3 (11)	4·6 (15)

VERTICAL DISCHARGE MODEL – STYLES V1 and V2



6·1 (20)	9·1 (30)	12·2 (40)	12·2 (40)	15·2 (50)	8 pole	Coverage at Minimum Mounting Height
7·6 (25)	12·2 (40)	15·2 (50)	15·2 (50)	19·8 (65)	6 pole	
12·2 (40)	18·3 (60)	24·4 (80)	25·9 (85)		4 pole	

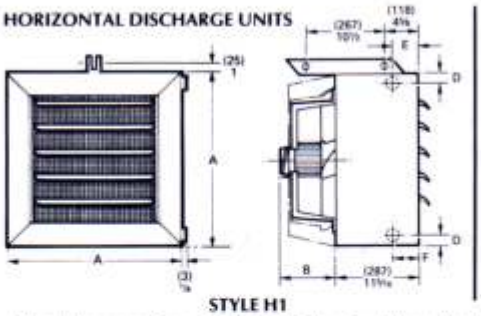
Note 1. The above mounting heights for horizontal and vertical discharge models are for units fitted with two row coils and are applicable when leaving air temperature is between 38°C and 49°C.
For one row coil units the mounting heights may be increased by 12% and decreased by 8% for units fitted with three row coils.
For leaving air temperatures below 38°C the mounting heights may abe increased by 1% per 2°C less in leaving air temperature.
Conversely for leaving air temperatures above 49°C the mounting heights should be decreased by 1% per 2°C increase in leaving air temperature.
Under no circumstances should vertical discharge units be used with leaving air temperatures in excess of 60°C.

Note 2. The above maximum mounting heights for vertical discharge models are for styles V2 and V1. Minimum mounting heights are for style V2 only. For minimum style V1 mounting heights, the figures given may be increased by 10%.

Note 3. The figures given for effective throw and coverage are approximate only and will depend on unit location. The mounting heights may be varied according to location conditions – minimum mounting heights would indicate higher range leaving air temperatures and maximum mounting heights, lower range leaving air temperatures.

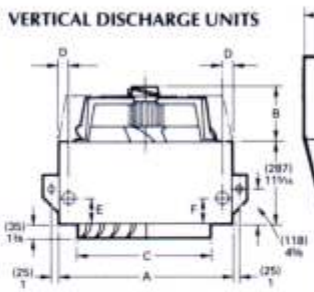
DIMENSIONS

HORIZONTAL DISCHARGE UNITS

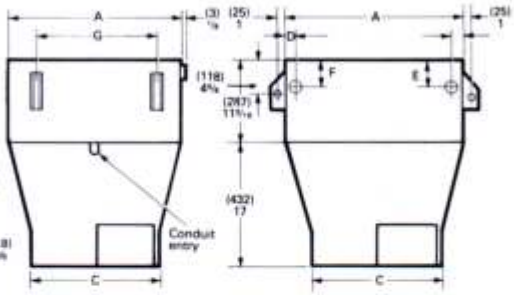


STYLE H1

VERTICAL DISCHARGE UNITS



STYLE V1



STYLE V2

Note: All connections right-hand side viewed from front.

Casing Size & Coil Type		Flow & Return Conns (Female)	METRIC Dimensions in mm A	B	C	D	E	F	G	Net weight kg Style H1	Style V1	Style V2
2	W1	1	540	245	384	113	89	89	349	32	32	39
	W2	1	540	245	384	113	89	122	349	34	34	41
	W3	1	540	245	384	113	89	159	349	39	39	45
	S1	1	540	245	384	55	89	89	349	32	32	39
3	W1	1	603	245	448	122	89	89	413	36	36	45
	W2	1	603	245	448	122	89	122	413	41	41	50
	W3	1	603	245	448	122	89	159	413	45	45	54
	S1	1	603	245	448	55	89	89	413	36	36	45
4	W1	1¼	667	245	511	116	89	89	476	45	45	57
	W2	1¼	667	245	511	116	89	122	476	52	52	63
	W3	1¼	667	245	511	116	89	159	476	59	59	70
	S1	1¼	667	245	511	55	89	89	476	45	45	57
5	W1	1¼	762	245	606	123	89	89	572	54	54	65
	W2	1¼	762	245	606	123	89	122	572	61	61	75
	W3	1¼	762	245	606	123	89	159	572	70	70	82
	S1	1¼	762	245	606	55	89	89	572	54	54	65
6	W1	1¼	857	245	702	110	89	89	667	73	73	86
	W2	1¼	857	245	702	110	89	122	667	82	82	95
	W3	1¼	857	245	702	110	89	159	667	93	93	109
	S1	1¼	857	245	702	55	89	89	667	73	73	86

Casing Size & Coil Type		Flow & Return Conns (Female)	IMPERIAL Dimensions in inches A	B	C	D	E	F	G	Net weight lb Style H1	Style V1	Style V2
2	W1	1	21¼	9⅛	15⅛	4⁷⁄₁₆	3½	3½	13¾	70	70	85
	W2	1	21¼	9⅛	15⅛	4⁷⁄₁₆	3½	4⅞	13¾	75	75	90
	W3	1	21¼	9⅛	15⅛	4⁷⁄₁₆	3½	6¼	13¾	85	85	100
	S1	1	21¼	9⅛	15⅛	2⅛	3½	3½	13¾	70	70	85
3	W1	1	23¾	9⅛	17⅛	4⅞	3½	3½	16¼	80	80	100
	W2	1	23¾	9⅛	17⅛	4⅞	3½	4⅞	16¼	90	90	110
	W3	1	23¾	9⅛	17⅛	4⅞	3½	6¼	16¼	100	100	120
	S1	1	23¾	9⅛	17⅛	2⅛	3½	3½	16¼	80	80	100
4	W1	1¼	26¼	9⅛	20⅛	4⅛	3½	3½	18¾	100	100	125
	W2	1¼	26¼	9⅛	20⅛	4⅛	3½	5½	18¾	115	115	140
	W3	1¼	26¼	9⅛	20⅛	4⅛	3½	6¼	18¾	130	130	155
	S1	1¼	26¼	9⅛	20⅛	2⅛	3½	3½	18¾	100	100	125
5	W1	1¼	30	9⅛	23⅞	4¹³⁄₁₆	3½	3½	22½	120	120	145
	W2	1¼	30	9⅛	23⅞	4¹³⁄₁₆	3½	5½	22½	135	135	165
	W3	1¼	30	9⅛	23⅞	4¹³⁄₁₆	3½	6¼	22½	155	155	180
	S1	1¼	30	9⅛	23⅞	2⅛	3½	3½	22½	120	120	145
6	W1	1¼	33¼	9⅛	27⅛	4⅛	3½	3½	26¼	160	160	190
	W2	1¼	33¼	9⅛	27⅛	4⅛	3½	5½	26¼	180	180	210
	W3	1¼	33¼	9⅛	27⅛	4⅛	3½	6¼	26¼	205	205	240
	S1	1¼	33¼	9⅛	27⅛	2⅛	3½	3½	26¼	160	160	190

N.B. Above Scheduled weights are for Styles H1 and V1 only.
For Style V2 add 20%.
On Style V1, Coil Types W2 and W3 are only available on sizes 2 and 3.

PRODUCT RANGE

WE MANUFACTURE

HEAT RECOVERY EQUIPMENT. Including runaround coils and heat pipes.

HEAT EXCHANGERS. Coils for heating, refrigeration, cooling, air-conditioning and process applications.

HEATING/COOLING EQUIPMENT. Including Warm Air Curtains, Unit Heaters, Fan Convectors, Natural Draught Convectors, Fan Coil Units, Overdoor Warm Air Heaters and Electric Fan-assisted Heaters.

Heating/Cooling Equipment	Leaflet No.
Belgravia Fan Coil Units	FC3
Belgravia Fan Convectors	601
Cirrus Unit Heaters	BT3
Airdor Warm Air Curtains	DC1
Hanovia Turboflo Electric Fan-assisted Heaters	HAN 2
Hanovia Turboscreen Overdoor Heaters	HAN 1

Coils and Heat Exchange Products

Coils for Air Heating and Cooling
Heat Pipes for Dehumidification and Heat Recovery

Energy Saving Equipment

Eliturbo Destratification Fan

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