

# D1 to D6 Mini Direct Range

- Performance range up to 2.25m<sup>3</sup>/s
- EC Backward curved fans
- Anodised aluminium pentapost frame
- Double skinned panels
- Compact direct drive units
- Internal or external mounting
- 1 Year guarantee



## Mini Direct Drive Units

Updated to incorporate modern energy efficient EC motors these simple Direct Drive Air Handling Units have a neat and compact design. Access can be on the left or right hand side. Units can be internal or external mounting (external specified at time of order).

## Mini Direct Drive Unit - Duties from 0.05m<sup>3</sup>/s to 2.25m<sup>3</sup>/s

A compact and economical range of units with directly driven backward curved EC centrifugal fans. There are five standard unit sizes. All units incorporate speed control via the EC motor for added flexibility. The standard unit consists of a 100mm M5 bag filter, LPHW or electric heating, direct drive centrifugal fan and flexible connectors.

The casing comprises of anodised aluminium frame with high density glass reinforced nylon corners and double skinned Aluzinc panels enclosing 25mm of 60kg/m<sup>3</sup> mineral fibre insulation. All panels are retained by proprietary fixings and sealed by a purpose designed gasket fully retained into the aluminium framework

Suitable for internal mounting as standard. Units supplied as standard are suitable for internal or external mounting, however for external mounting inlet weather cowls are available as an additional cost option.

## Specification

Direct driven backward curved centrifugal fans with energy efficient EC motors statically and dynamically balanced to G6.3 for smooth long life operation. All motors incorporate EC motor controls to provide fully variable speed control.

Motors and control electronics are protected to IP44 as a minimum and suitable for operating in ambient conditions of 40°C and up to 95% RH. Electrical supply is 230/1/50 for units D1-D4, 400/3/50 for units D5,D6.

Standard units contain either an electric heater battery or LPHW heater battery (specified at time of order) and an M5 filter. Units are suitable for internal or external mounting with side access.

Electric heating units include a simple heater control enabling the off coil temperature to be set and either adjusted by external or internal controls (external controls at additional cost). LPHW heating controls are by others.

## Flexible Connectors

The Flexible Connectors are manufactured from PVC coated polyester with 30mm flanges to DW142.

## Bag Filters

Bag Filters are manufactured from fire retardant synthetic material with galvanised steel frames. The filter grade is M5.

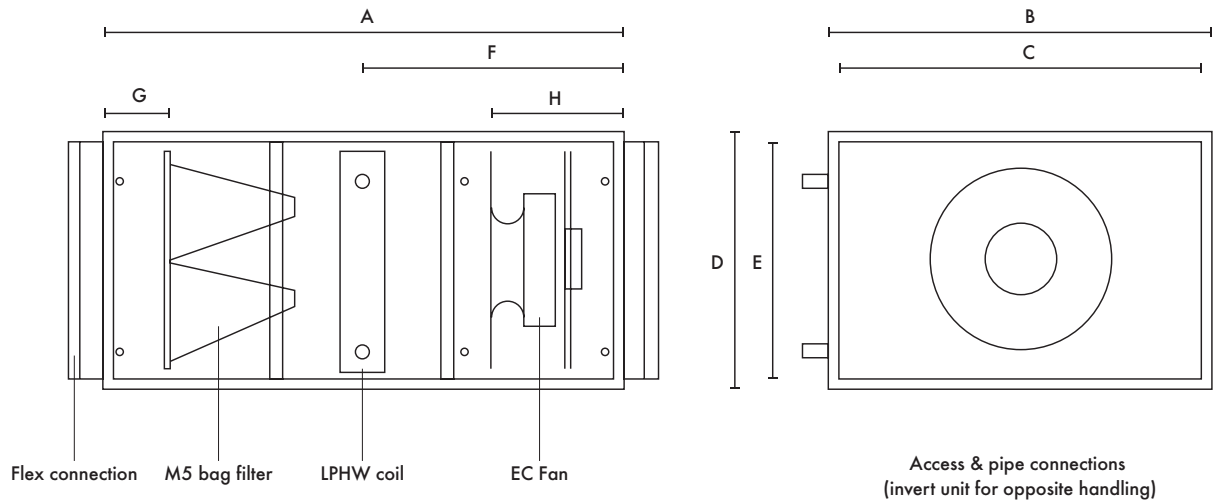
## LPHW Heater Batteries

LPHW Heater Batteries are constructed from copper tube, mechanically bonded to aluminium fins with the complete assembly housed in a galvanised steel casing. The coil headers and return bends are totally enclosed within the air handling unit casing. Flow and return connections are located on the same side of the unit and have male B.S.P. thread. LPHW Heater Batteries are pressure tested under water to 250 p.s.i.

## Electric Heater Batteries

Electric Heater Battery elements are constructed from Nichrome 5 spiral resistance wire surrounded by magnesium oxide powder and sheathed in stainless steel. The elements are carried on a galvanised steel frame. All electric heaters incorporate a thermal cut out device. Electrical connections are via a flush mounted terminal box on the outside of the air handling unit casing. Heater electrical supply is 230/1/50 for size D1 and 400/3/50 for all other sizes.

## Fan Dimensions (mm)



Unit Size	A	B	C	D	E	F	G	H
D1-22	1560	660	600	360	300	758	220	n/a
D3-31	1560	660	600	520	460	780	220	300
D4-31	1560	660	600	720	660	780	220	300
D5-35	1710	960	900	720	660	850	220	450
D6-45	1710	1260	1200	720	660	850	220	450

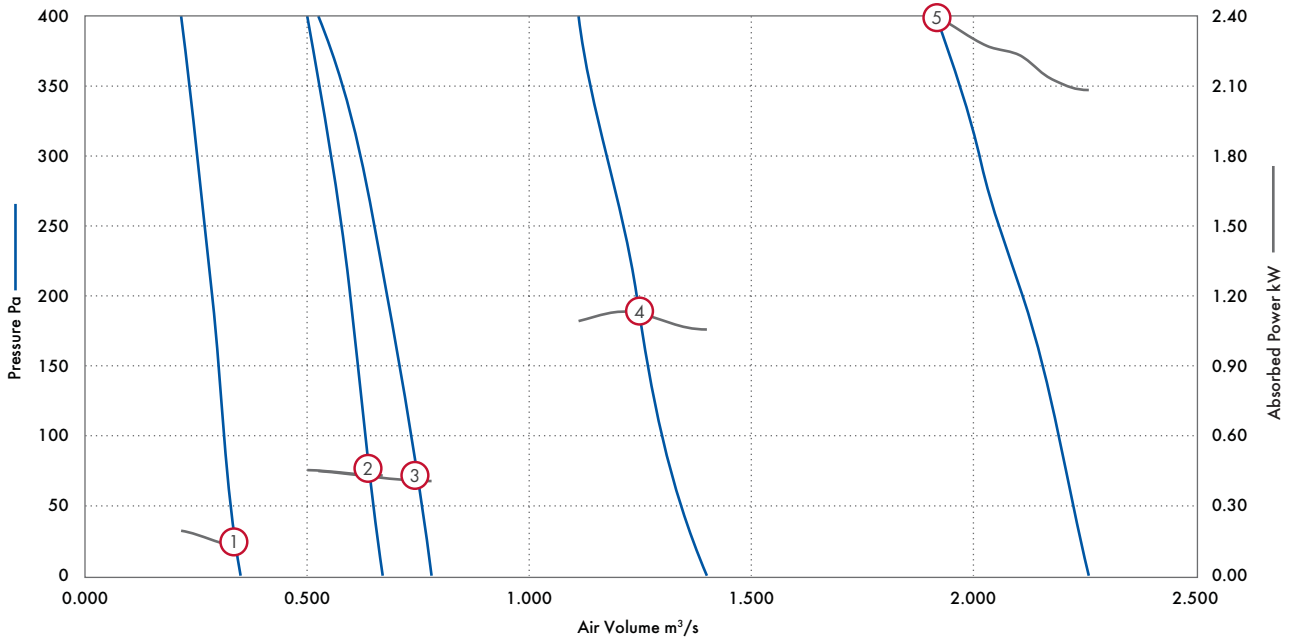
## Electrical / Heating Data

Stock Ref.	Fan Supply	Speed	Max Fan Input W	LPHW Heater max Flow l/s/min	Temperature Rise at Max Airflow
D1-22LPHW	230/1/50	3220	230	5.8	22
D3-31LPHW	230/1/50	2600	450	8.6	22
D4-31LPHW	230/1/50	2600	430	12.9	22
D5-35LPHW	400/3/50	2460	1090	19.4	22
D6-45LPHW	400/3/50	2080	2360	32.4	22

Stock Ref.	Fan Supply	Speed	Max Fan Input W	Heater Supply	Max Heater KW (Electric)	Heater Current Amps	Temperature Rise at Max Airflow
D1-22EHB	230/1/50	3220	230	230/1/50	9	34	22
D3-31EHB	230/1/50	2600	450	400/3/50	12	17	22
D4-31EHB	230/1/50	2600	430	400/3/50	18	25	22
D5-35EHB	400/3/50	2460	1090	400/3/50	27	38	22
D6-45EHB	400/3/50	2080	2360	400/3/50	45	63	22

# D1 to D6 Mini Direct Drive Range

Performance Curve



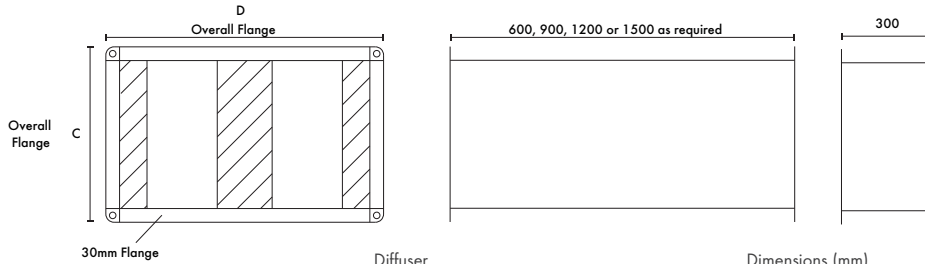
Performance Guide

Model	Curve Ref	Airflow, m <sup>3</sup> /s @ Pa									
		0	50	100	150	200	250	300	350	400	
D1-22	①	m <sup>3</sup> /s	0.350	0.322	0.317	0.300	0.286	0.266	0.255	0.236	0.216
		kW	0.13	0.13	0.14	0.15	0.17	0.18	0.18	0.19	0.19
		SFP	0.36	0.39	0.43	0.49	0.59	0.66	0.71	0.79	0.89
D3-31	②	m <sup>3</sup> /s	0.670	0.647	0.639	0.619	0.597	0.580	0.555	0.528	0.500
		kW	0.43	0.43	0.43	0.44	0.45	0.45	0.45	0.45	0.45
		SFP	0.64	0.66	0.68	0.71	0.75	0.77	0.81	0.86	0.91
D4-31	③	m <sup>3</sup> /s	0.780	0.760	0.736	0.711	0.680	0.653	0.630	0.589	0.525
		kW	0.41	0.41	0.42	0.42	0.42	0.43	0.44	0.44	0.45
		SFP	0.52	0.53	0.57	0.59	0.62	0.66	0.70	0.75	0.86
D5-35	④	m <sup>3</sup> /s	1.400	1.333	1.294	1.264	1.242	1.216	1.183	1.130	1.111
		kW	1.06	1.06	1.09	1.11	1.13	1.14	1.13	1.10	1.09
		SFP	0.75	0.79	0.84	0.88	0.91	0.93	0.96	0.97	0.98
D6-45	⑤	m <sup>3</sup> /s	2.260	2.222	2.194	2.152	2.111	2.050	2.014	1.972	1.916
		kW	2.08	2.08	2.12	2.14	2.23	2.26	2.29	2.35	2.40
		SFP	0.92	0.94	0.97	0.99	1.05	1.10	1.14	1.19	1.25

Sound Data

Model		dBW re 10 <sup>-12</sup> W								dBA @ 3.0m
		63	125	250	500	1000	2000	4000	8000	
D1-22	Inlet	64	59	69	62	59	54	52	48	35
	Outlet	66	61	73	65	65	63	57	55	
	Breakout	58	53	57	35	35	30	24	24	
D3-31	Inlet	62	65	70	69	60	63	59	56	40
	Outlet	65	68	73	72	69	66	62	59	
	Breakout	57	60	57	42	39	33	29	26	
D4-31	Inlet	62	65	70	69	60	63	59	56	40
	Outlet	65	68	73	72	69	66	62	59	
	Breakout	57	60	57	42	39	33	29	26	
D5-35	Inlet	73	75	77	79	74	68	67	61	50
	Outlet	73	76	81	82	83	79	73	66	
	Breakout	67	70	65	50	53	46	50	35	
D6-45	Inlet	77	80	82	82	77	76	73	66	50
	Outlet	73	76	81	82	83	79	73	66	
	Breakout	67	70	65	50	53	46	40	35	

## Silencer Dimensions (mm)



Outlet Diffusers for Connection to Silencer

This item is essential when connecting a silencer directly to the discharge side of a fan section. The flanges at either end match the AHU and silencer dimension.

Unit Size	Diffuser Stock Ref	Dimensions (mm) C	D	Approx Wgt kg
D1	54BC1	360	660	18
D3	54BC3	520	660	32
D4	54BC4	720	660	40
D5	54BC5	720	960	46
D6	54BC6	720	1260	50

## Insertion loss for standard silencers

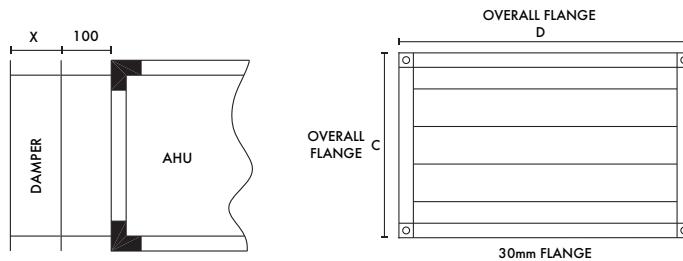
Unit Size	Octave band mid frequency Hz								Length mm
	63	125	250	500	1k	2k	4k	8k	
D1	-4	-6	-12	-20	-27	-27	-20	-16	600
D3	-5	-9	-17	-28	-37	-37	-29	-24	900
D4	-5	-9	-17	-28	-37	-37	-29	-24	900
D5	-5	-9	-17	-28	-37	-37	-29	-24	900
D6	-5	-9	-17	-28	-37	-37	-29	-24	900

N.B. For data on other silencer lengths please enquire

## Standard length silencer resistance (Pa)

Unit Size	Pressure Drop (Pa) Air Volume m <sup>3</sup> /sec															
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	1.2	1.4	1.6	1.8	2	2.4
D1	2	8	18	-	-	-	-	-	-	-	-	-	-	-	-	-
D3	1	4	8	14	21	31	41	54	-	-	-	-	-	-	-	-
D4	1	2	4	7	10	15	20	26	32	40	58	-	-	-	-	-
D5	1	1	2	4	5	7	10	13	16	20	29	39	51	65	80	-
D6	1	1	2	2	3	5	6	8	10	12	18	24	31	29	48	70

## Inlet Damper Dimensions (mm)



Dampers are supplied with extended spindles suitable for motorisation by others. When using a damper, a rigid connector will be required.

Unit Size	Connectors			Dimensions (mm)			Approx Wgt kg
	Inlet Damper Stock Ref.	Rigid Connector Stock Ref	Flexible Connector Stock Ref.	C	D	X	
D1	57CD-66	54MC1	68FC-1	360	660	165	6
D3	57CD-3	54MC3	68FC-3	520	660	165	7
D4	57CD-4	54MC4	68FC-4	720	660	165	9
D5	57CD-5	54MC5	68FC-5	720	960	165	12
D6	57CD-6	54MC6	68FC-6	720	1260	165	25