

Advanced Air 



SINGLE DUCT
TERMINALS

Contents

	Page No.
Single Duct Variable or Constant Volume Terminals	
3000 Series	S 1
Model 3001 - Cooling or Heating Only	
Model 30RW - Cooling with Hot Water Re-heat	
Model 30RE - Cooling with Electric Re-heat	
Performance Data	
Recommended Airflow Ranges	S 2
Dimensions	S 3
Discharge Sound Power Levels	S 4
Radiated Sound Power Levels	S 5
Secondary Attenuators	S 6
Hot Water Re-Heat Batteries	S 9
Electric Re-Heat Batteries	S 11
Multiple Outlet Plenums	S 13
Standard Control Sequences	S 14
1 EL - Cooling Only	
2 EL - Heating Only	
3 EL - Cooling/Heating with Auto - Changeover	
4 EL - Cooling with morning warm up	
5 EL - Cooling with Electric Re-Heat plus Minimum Air Volume	
6 EL - Cooling with Electric Re-Heat plus Morning Warm-up	
7 EL - Cooling with On/Off Hot Water Re-Heat	
8 EL - Cooling with Proportional Hot Water Re-Heat	
9 EL - Cooling with Time Proportional Hot Water Re-Heat	
10 EL - Constant Volume Operation	
Suggested Specifications	S 16

**Single Duct Variable or Constant Air Volume
3000 Series**

Models:

- 3001** Cooling or Heating only
- 30RW** Cooling with Hot Water Re-heat
- 30RE** Cooling with Electric Re-heat



Variable Air Volume Systems supply constant temperature air to an area while the volume of air varies as opposed to a conventional HVAC system which has constant volume and varies the air temperature.

Operating costs are greatly reduced compared to the larger conventional HVAC systems by using less fan energy and less refrigeration energy.

Variable Air Volume Systems also cut initial costs since the system capacity is determined from the peak demands of specific zones in lieu of peak demands for the entire building.

The smaller components of a VAV system require less floor space and give the owner the flexibility to adapt to tenant changes as desired at any time during or after construction of the building.

With today's energy conservation needs, **3000 Series** air terminals are designed for and adaptable to any modern VAV requirements.

The latest in control components and options provides maximum flexibility with a wide scope for cost effective innovation.

FEATURES:

- Inclined opposed blade primary air damper is inherently more linear in its flow characteristics than the standard butterfly type damper. More accurate flow control is ensured, which reduces hysteresis for more stable control of the temperature in the zone.
- Available in 12 unit sizes to handle from 100 – 3776 l/s.
- Compact low profile design to accommodate tight ceiling spaces.
- Gauge taps provided for field calibration and balancing.
- The unique blade and jamb seals provide tight closure capabilities while minimising sound generation.

Unit Size	Height mm
4-100 to 6-150	200
6.5-160 to 10-250	300
2-315 to 16-400	450
4 x 16 - 600 x 400	450

- 18 swg (1.2mm thick) zinc coated steel casing, mechanically sealed, low leakage construction.
- 18 swg (1.2mm thick) corrosion-resistant steel inclined opposed blade damper with seals. 45° rotation. 13mm dia. plated steel drive shaft. An indicator mark on the end of the shaft shows damper position. Tight close-off. Damper leakage is less than 2% of nominal flow rate at 750 Pa.
- Rectangular discharge with flanged duct connection.
- Acoustic/thermal lining: the terminal is internally lined with a 25mm thick acoustic/thermally insulating foam which is Melamine based, open cellular construction, having a non woven black tissue facing and complying with class O fire rating. The material is adhered to all internal surfaces and inside box/channel sections.

- Special Indoor Air Quality linings are available.
- Right-hand controls location is standard (shown) when looking in direction of airflow. Damper is clockwise to close. Optional left hand controls mounting is available, when damper is counter clockwise to close.

Low-Leakage Casing

Terminal Size	Max. Leakage, l/s	
	250 Pa	500 Pa
4-100	<4.0	5.5
5-125	<4.0	5.5
5.5-140	<4.0	5.5
6-150	<4.0	5.5
6.5-160	<4.0	5.5
7-180	<4.0	7.0
8-200	<4.0	7.0
10-250	<4.0	7.0
12-315	4.0	7.6
14-355	4.5	8.0
16-400	4.5	8.1
24 x 16 600 x 400	4.5	8.1

**Recommended Airflow Ranges
for Single Duct VAV Terminal Units**



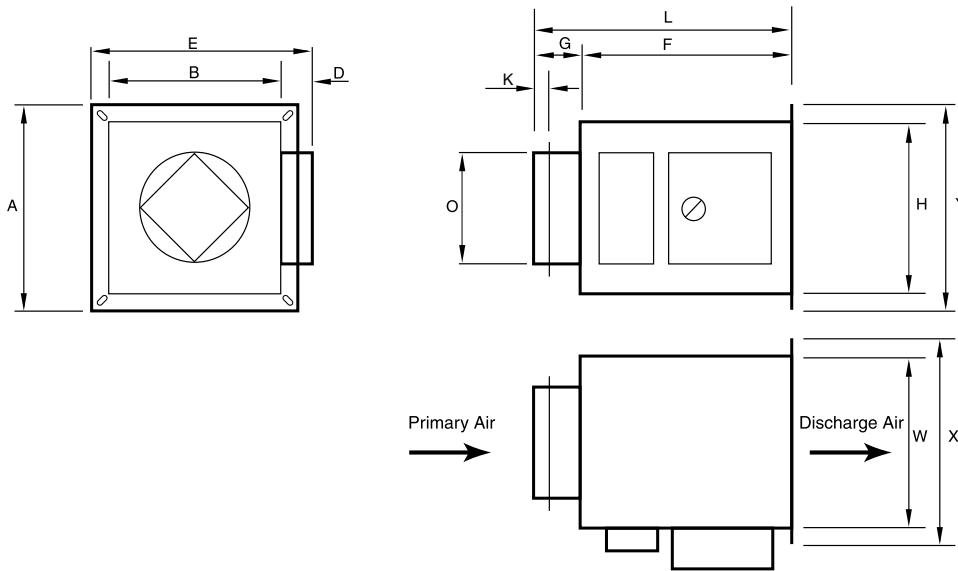
The recommended airflow ranges below are for terminal units with pressure independent controls and are based upon controller sensitivity limits as shown for each control type. For a given unit size, the minimum, auxiliary minimum (where applicable) and the maximum flow settings must be within the range limits to ensure pressure independent operation, accuracy and repeatability. For these reasons, factory settings will not be made outside these ranges. A minimum setting of zero (shut-off) is also available. Where an auxiliary setting is specified, the value must be greater than the minimum setting. When digital or other controls are mounted by Nailor, but supplied by others, these values are guidelines only, based upon experience with the majority of controls currently available. Controls supplied by others for factory mounting are configured and calibrated in the field.

Air Volume Range

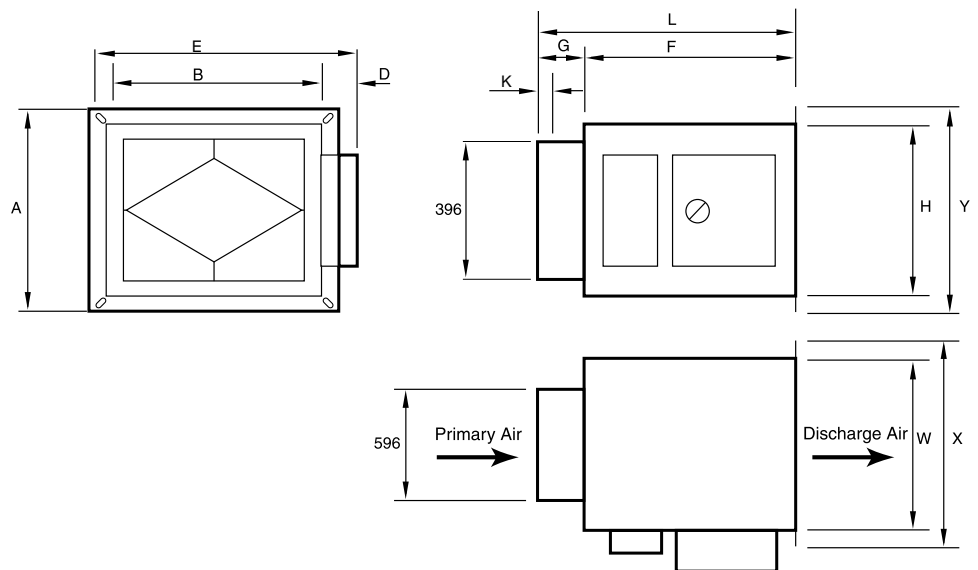
Unit Size	Inlet Spigot dia mm	Min l/s	Max l/s
4	100	30	100
5	125	40	150
5.5	140	50	200
6	150	55	235
6.5	160	60	275
7	180	75	365
8	200	90	470
10	250	150	670
12	315	240	1035
14	355	300	1275
16	400	350	1700
24x16	600 x 400	400	3775

Basic Unit with Controls - Dimensions

Model 3001 Sizes 4-100 to 16-400



Basic Unit with Controller - Dimensions - Model 3001 Size 24 x 16 - 620 x 400



Model 3001 Terminal Dimensions

Terminal Size	O mm	A mm	B mm	D mm	E mm	F mm	G mm	K mm	L mm	W mm	H mm	X mm	Y mm	Wgt kg
4-100	96	360	300	100	430	450	150	40	600	300	200	360	260	9.5
5-125	121	360	300	100	430	450	150	40	600	300	200	360	260	9.5
5.5-140	136	360	300	100	430	450	150	40	600	300	200	360	260	9.5
6-150	146	360	300	100	430	450	150	40	600	300	200	360	260	9.5
6.5-160	156	360	300	100	430	450	150	40	600	300	300	360	360	9.5
7-180	176	360	300	100	430	450	150	40	600	300	300	360	360	9.5
8-200	196	360	300	100	430	450	150	40	600	300	300	360	360	12.5
10-250	246	410	350	100	480	450	150	40	600	350	300	410	360	16.5
12-315	311	510	450	100	580	450	150	40	600	450	450	510	510	20.0
14-355	351	510	450	100	580	450	150	40	600	450	450	510	510	20.0
16-400	396	510	450	100	580	450	150	40	600	450	450	510	510	20.0
24x16-600x400	596x396	770	710	100	840	450	150	40	600	710	450	770	510	30.0

Acoustic Data • Discharge Sound Power Levels

Model 3001, Basic Unit

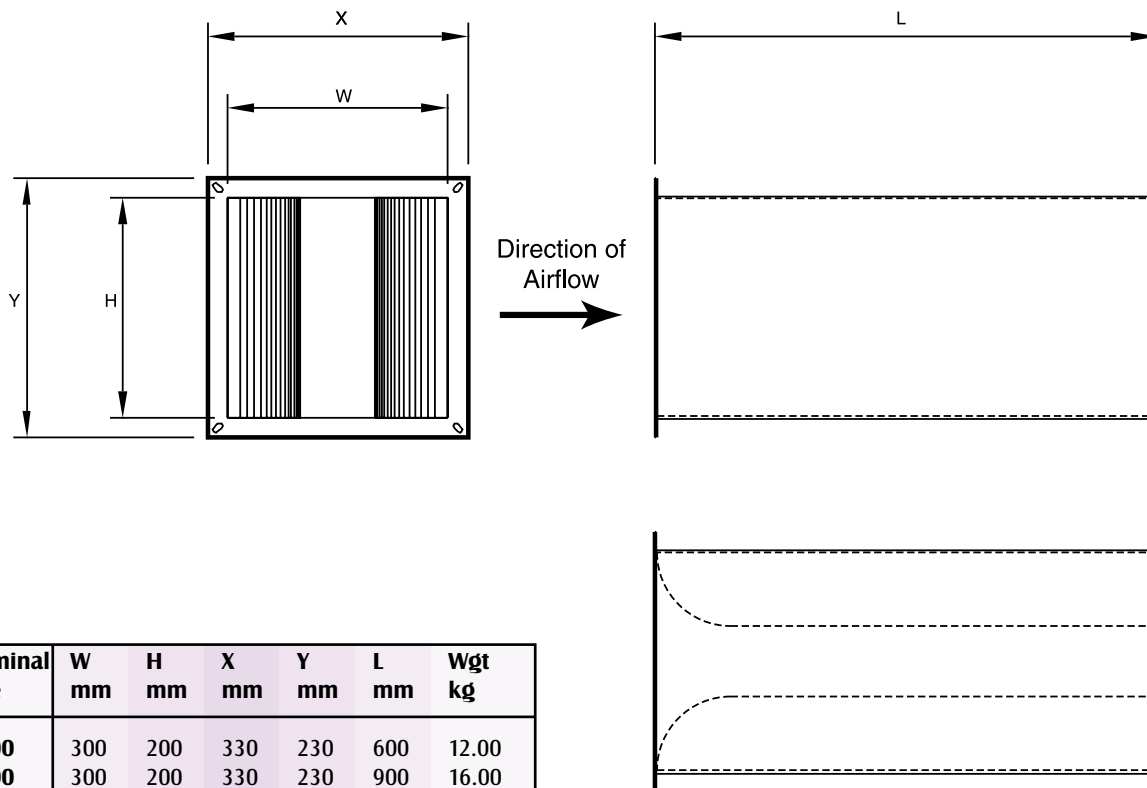
Terminal Size	Air Flow l/s	Min. inlet ΔPs Pa	Fan and 100% Primary Air- Sound Power Octave Bands @ Inlet Pressure Shown																																			
			Min. ΔPs OBCF -Hz.						125 Pa. ΔPs OBCF -Hz.						250Pa ΔPs OBCF -Hz.						375Pa ΔPs OBCF -Hz.						500Pa ΔPs OBCF -Hz.						750Pa ΔPs OBCF -Hz.					
			125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k
4-100	94	27	* 46	52	57	48	43	52	56	58	57	49	44	58	50	62	59	53	49	59	62	63	61	56	53	60	63	65	63	58	55	59	64	68	67	62	58	
	71	15	* 41	46	49	39	35	51	52	54	50	44	38	55	56	57	55	50	47	57	59	60	58	54	51	56	59	63	62	56	53	55	59	66	70	63	58	
	47	7	* *	37	37	27	*	47	47	47	46	41	35	49	51	55	53	47	43	49	52	60	60	53	48	48	52	62	65	58	53	46	50	61	68	66	60	
	35	2	* *	31	28	*	*	* 45	45	43	37	31	* 46	56	56	49	42	* 46	58	62	56	49	* 45	58	64	62	55	* 45	58	65	66	62	62					
	24	2	* *	*	*	*	*	* 43	49	48	40	31	* 42	56	60	55	46	* 41	57	63	60	53	* 40	55	58	60	55	* 40	55	59	58	56	56					
5-125	142	10	48	55	53	57	49	47	55	59	60	59	51	48	47	63	63	61	53	50	60	64	65	64	56	53	62	67	67	65	59	56	62	69	69	67	62	59
	118	7	* 46	48	51	42	40	53	57	56	55	46	42	56	61	60	58	51	48	64	63	62	61	54	51	64	64	63	61	56	53	59	66	66	65	60	57	
	94	5	* 41	43	44	34	32	51	53	52	50	42	37	54	57	56	54	47	44	56	60	59	57	51	49	56	62	61	60	54	52	57	63	65	55	59	56	
	59	2	* *	32	30	*	*	* 46	45	43	36	31	49	53	52	50	43	40	49	54	58	57	51	46	49	54	60	63	56	51	47	52	61	68	64	59		
	47	2	* *	29	25	*	*	* 45	42	40	33	30	* 51	54	52	46	40	* 51	58	60	53	47	* 51	59	65	59	53	* 47	58	67	66	60	60					
6-150	212	22	49	51	52	59	48	45	57	60	61	63	53	48	62	63	65	65	64	51	64	65	67	67	58	54	67	70	72	73	64	60	68	71	73	73	71	61
	189	17	47	48	48	54	44	40	58	59	60	61	51	46	61	62	63	62	62	50	63	65	66	66	57	54	65	67	68	68	59	56	67	70	70	70	62	60
	142	10	* 42	40	46	35	31	56	55	53	53	44	39	59	59	59	58	50	47	61	62	61	61	53	51	62	64	63	63	55	53	63	66	67	66	59	57	
	94	5	* *	29	32	*	*	50	48	47	46	38	34	55	54	53	52	45	43	56	57	57	55	49	48	56	58	59	58	52	50	56	59	63	66	58	56	
	47	2	* *	*	*	*	*	* 43	41	39	33	31	* 47	53	52	55	43	* 48	56	59	52	48	* 48	58	64	58	53	* 48	58	64	58	53	* 48	58	68	65	60	60
7-180	307	2	52	55	62	59	51	48	56	58	61	59	52	48	60	61	64	62	57	54	65	65	68	66	61	59	68	68	70	68	63	61	70	70	71	69	65	63
	260	2	50	51	56	53	46	42	54	55	56	54	49	44	60	59	62	60	55	52	65	64	66	64	60	57	66	67	68	66	62	59	68	70	72	69	66	63
	158	2	46	39	41	38	29	22	52	50	52	50	45	41	57	57	57	56	52	49	58	60	61	59	55	53	59	62	64	61	58	56	60	63	67	65	62	59
	106	2	* *	30	26	*	*	49	46	47	45	41	36	53	54	55	52	48	46	53	56	58	56	52	50	58	56	60	59	55	54	54	57	59	61	59	59	
	52	2	* *	*	*	*	*	* 41	41	38	34	30	* 47	47	46	45	43	* 48	51	49	49	47	* 48	52	52	51	51	* 48	54	55	55	55	56	* 48	54	55	55	55
8-200	378	7	52	53	59	58	51	44	57	60	62	60	52	47	61	63	64	63	57	53	65	65	66	65	60	56	66	66	68	67	62	59	69	70	71	70	66	63
	330	5	51	51	56	56	48	40	55	58	59	57	50	45	59	61	62	61	55	52	63	63	65	64	59	56	65	65	66	66	61	59	67	69	70	69	65	62
	283	5	49	48	51	50	42	32	55	57	57	56	49	47	59	60	61	60	54	51	62	63	64	63	58	55	64	65	66	65	60	57	66	68	69	68	63	61
	189	2	* 38	40	38	29	*	51	50	51	49	42	40	56	56	56	54	50	47	59	60	59	58	54	52	60	62	62	60	56	55	60	64	66	65	60	58	
	83	2	* *	*	*	*	*	* 44	42	40	37	34	* 50	50	48	44	40	48	52	54	53	49	47	48	51	56	64	52	52	48	51	57	58	57	57			
10-250	637	2	51	53	59	59	54	51	62	63	64	64	58	54	65	67	68	67	61	57	67	69	70	70	64	60	74	71	72	72	67	63	71	75	75	75	71	67
	519	2	48	47	52	52	47	43	59	61	60	59	54	49	62	64	64	64	58	54	66	67	67	67	62	58	68	70	69	70	65	61	69	73	72	73	69	66
	*389	2	* 41	45	44	38	33	55	57	55	54	49	43	61	61	61	60	55	52	64	65	64	64	59	56	65	68	66	66	62	59	66	69	70	69	67	63	
	260	2	* *	31	28	*	*	53	51	50	47	44	40	57	58	56	56	52	49	59	61	60	60	56	55	60	62	62	62	59	56	59	62	65	66	62	60	
	130	2	* *	*	*	*	*	* 45	43	42	38	34	* 49	50	50	58	44	47	49	52	52	54	51	47	48	53	55	57	56	48	49	55	58	60	60			
12-315	944	2	57	57	62	61	56	53	64	65	66	66	60	55	67	68	69	70	64	59	69	70	72	72	66	61	71	71	73	74	68	63	74	75	76	78	73	69
	755	2	52	49	54	53	48	44	61	61	61	61	55	49	65	65	65	65	59	54	68	68	69	69	64	59	69	70	70	72	66	62	71	73	74	74	70	67
	566	2	47	43	46	44	38	34	57	57	56	55	49	44	62	62	62	62	56	52	65	65	65	66	60	57	66	68	67	68	63	60	69	71	72	71	68	64
	378	2	44	36	36	33	28	*	54	53	52	51	45	40	60	59	58	58	53	50	62	63	62	62	58	54	63	64	65	64	61	57	63	66	68	68	65	62
	189	2	* *	*	*	*	*	48	47	46	44	39	36	51	51	52	52	49	45	51	52	55	56	55	52	51	51	56	59	59	58	51	51	57	60	63	64	
14-355	1274	2	60	59	66	64	60	54	66	66	69	69	63	57	70	68	71	70	65	59	72	71	73	72	73	65	74	72	74	74	69	67	77	76	77	77	73	70
	991	2	54	55	58	55	51	44	63	61	62	62	56	50	67	65	66	65	60	59	70	68	68	68	63	63	71	70	70	70	65	64	74	73	74	73	70	68
	543	2	48	43	48	46	41	33	58	55	55	54	49	43	63	61	61	60	55	55	66	64	64	63	60	59	68	67	67	66	63	61	69	69	71	69	66	64
	496	2	* 35	36	32	27	*	53	51	50	48	44	40	59	57	56	56	53	51	60	60	60	59	56	54	62	62	63	62	59	57	63	64	66	66	63	61	
	248	2	* *	*	*	*	*	49	45	44	43	40	37	52	50	51	50	48	45	51	50	54	54	53	51	54	53	56	57	56	55	54	54	58	60	60	60	
16-400	1652	2	60	59	66	64	60	54	65	65	70	70	64	58	71	69	72	72	66	59	73	72	73	74	68	64	74	73	75	75	70	66	77	76	77	78	73	70
	1322	2	56	54	56	58	54	48	64	62	64	65	58	53	67	66	67	66	61	56	70	69	70	69	64	61	72	71	72	71	67	63	76	75	75	75	71	68
	991	2	50	46	51	49	44	38	59	57	58	57	51	46	64																							

Acoustic Data • Radiated Sound Power Levels

Model 3001, Basic Unit

Terminal Size	Air Flow l/s	Min. inlet ΔPs Pa	Fan and 100% Primary Air- Sound Power Octave Bands @ Inlet Pressure Shown																																			
			Min. ΔPs OBCF -Hz.						125 Pa. ΔPs OBCF -Hz.						250Pa ΔPs OBCF -Hz.						375Pa ΔPs OBCF -Hz.						500Pa ΔPs OBCF -Hz.						750Pa ΔPs OBCF -Hz.					
			125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k	125	250	500	1k	2k	4k
4-100	94	27	* 36	33	32	* *	* 39	37	38	29	29	49	46	43	37	30	29	53	52	47	40	32	31	53	53	50	42	33	33	54	55	53	47	37	37			
	71	15	* 35	29	31	* *	* 40	36	30	25	23	47	46	40	34	28	26	49	50	47	39	31	30	47	48	48	43	34	32	48	48	48	50	40	37			
	47	7	* *	* *	* *	* *	* 37	32	27	* *	* 43	42	34	27	23	* 44	45	41	32	29	* 43	46	46	36	32	* 42	44	51	43	38								
	35	2	* *	* *	* *	* *	* 37	31	26	* *	* 41	43	37	29	24	* 42	45	42	32	29	49	38	42	45	40	33	* 36	41	48	44	40							
	24	2	* *	* *	* *	* *	* 37	38	30	* *	* 36	41	40	32	27	* 35	40	43	38	31	* 34	38	40	38	33	* 32	36	37	35	37								
5-125	142	10	47	38	32	32	30	27	50	43	37	37	35	31	54	46	44	37	35	31	57	49	47	39	38	33	59	52	49	40	39	35	59	55	53	43	43	39
	118	7	* 35	31	25	23	*	50	39	36	29	28	25	54	45	42	33	32	28	55	48	45	35	35	30	56	51	48	37	37	32	57	53	51	42	41	35	
	94	5	* *	* *	* *	* *	50	38	34	27	26	*	52	43	39	30	30	25	52	45	43	32	32	28	53	48	46	36	36	30	53	48	48	44	41	34		
	59	2	* *	* *	* *	* *	* 43	29	21	* *	48	40	38	28	27	*	48	42	42	34	33	27	49	42	44	39	38	29	49	42	44	47	46	37				
	47	2	* *	* *	* *	* *	* 33	29	* *	* *	* 39	38	28	26	*	* 40	42	36	34	26	46	40	43	43	41	31	47	41	43	47	46	37						
6-150	212	22	48	44	37	35	30	28	48	47	40	38	32	29	56	50	45	40	34	31	59	53	48	44	36	33	61	55	50	43	39	37	64	58	54	46	42	41
	189	17	* 42	33	33	28	26	49	46	39	35	30	28	56	49	44	38	32	29	59	52	47	40	36	33	62	54	49	42	39	36	65	58	54	45	42	41	
	142	10	* 34	27	26	* *	47	42	35	29	25	*	55	46	40	33	30	28	58	49	44	36	33	32	59	51	47	38	36	34	60	55	51	43	39	39		
	94	5	* *	* *	* *	* *	47	36	30	24	* *	53	43	38	30	29	28	53	45	43	32	31	30	53	47	44	36	32	32	55	49	46	43	37	37			
	47	2	* *	* *	* *	* *	* 34	27	* *	* *	* 35	38	33	29	24	45	39	40	37	31	28	47	39	40	42	37	32	46	40	40	46	44	38					
7-180	307	2	48	45	46	38	31	30	49	48	45	37	31	29	54	50	47	40	34	32	60	54	50	44	37	35	64	58	54	48	40	38	67	63	58	51	44	43
	260	2	49	43	41	33	27	25	48	44	40	32	28	26	55	49	45	38	32	30	61	54	49	43	36	33	64	58	52	45	38	36	65	61	57	50	42	40
	158	2	* *	28	33	* *	* 40	35	29	24	*	58	48	42	36	30	28	57	51	46	40	32	30	57	52	48	42	34	32	57	53	50	47	39	38			
	106	2	* *	* *	* *	* *	* 39	33	28	* *	50	45	40	34	28	25	52	47	43	38	31	29	51	47	43	41	33	31	52	48	45	42	35	36				
	52	2	* *	* *	* *	* *	* *	28	25	* *	* 37	33	32	27	24	* 36	32	31	27	26	* 38	35	34	29	29	* 38	35	35	32	36								
8-200	378	7	51	46	40	33	31	28	55	48	44	35	33	29	57	51	48	38	36	32	61	54	50	41	40	35	64	56	53	43	43	38	66	58	55	46	47	41
	330	5	50	43	37	31	29	25	51	47	42	33	31	28	57	51	47	37	36	32	61	53	50	40	39	35	63	55	51	42	41	37	64	59	56	45	44	40
	283	5	* 39	33	29	26	*	50	45	40	31	30	26	57	49	45	35	34	31	60	53	49	38	38	33	61	55	51	40	40	36	63	59	56	46	43	40	
	189	2	* 35	26	* *	* *	49	41	36	28	27	24	54	47	41	32	31	30	57	52	46	35	34	32	57	52	47	37	36	34	59	54	51	41	40	39		
	83	2	* *	* *	* *	* *	* 36	31	23	23	*	48	41	35	29	29	27	48	42	37	31	31	30	49	42	39	33	33	33	49	42	40	35	37	38			
10-250	637	2	53	42	41	36	30	23	55	47	46	39	34	29	58	53	50	44	38	34	60	56	53	48	42	37	63	57	54	50	46	41	65	61	57	54	48	45
	519	2	51	37	35	30	25	*	53	46	42	35	31	27	55	50	47	41	35	31	60	54	50	45	39	36	61	66	51	47	42	39	64	61	55	51	45	43
	389	2	* 33	29	25	* *	50	43	38	32	29	25	55	48	43	38	33	30	58	52	47	42	37	34	59	54	49	44	38	36	61	57	53	49	43	40		
	260	2	* *	* *	* *	* *	* 38	33	29	25	*	51	44	38	34	30	28	53	47	42	38	32	34	56	50	45	41	36	33	57	52	48	45	39	37			
	130	2	* *	* *	* *	* *	* 35	29	26	* *	* 39	33	31	28	*	* 40	36	34	31	29	* 40	36	36	33	32	48	43	40	40	36	36							
12-315	944	2	54	50	49	44	37	33	58	55	51	46	39	35	61	59	53	49	43	37	64	61	56	52	45	41	65	62	58	55	48	44	68	66	61	58	51	49
	755	2	52	45	41	36	30	27	56	52	45	40	34	30	59	56	49	46	38	35	61	58	53	49	42	39	62	60	55	51	44	42	65	64	58	55	48	46
	566	2	47	39	33	29	24	*	52	48	40	36	30	27	55	52	45	41	34	32	58	55	49	45	38	36	60	58	51	48	41	39	61	61	55	52	45	44
	378	2	* *	* *	* *	* *	50	41	34	30	26	*	52	48	41	37	31	30	53	52	45	42	35	33	54	53	47	44	37	36	56	55	50	48	42	42		
	189	2	* *	* *	* *	* *	* 37	31	28	* *	* 42	36	33	29	28	47	45	40	37	32	31	48	47	42	40	35	34	47	44	40	43	40	42					
14-355	1274	2	57	54	50	46	42	36	59	57	52	48	44	38	61	60	54	49	46	38	64	63	56	51	49	45	65	66	59	53	50	48	69	69	63	57	53	51
	991	2	54	48	44	39	35	30	56	53	45	40	37	31	61	57	50	44	41	38	63	61	55	48	44	43	64	63	57	50	46	44	66	66	60	55	50	48
	543	2	46	40	35	30	28	*	51	48	40	33	31	27	57	55	48	40	36	35	60	58	52	45	40	39	60	60	53	47	43	41	62	63	57	52	47	45
	496	2	* 32	24	* *	* *	49	46	38	31	28	24	52	51	43	37	33	31	54	55	47	41	37	35	55	58	50	45	40	38	56	58	52	48	43	42		
	248	2	* *	* *	* *	* *	* 39	31	27	24	*	* 45	38	32	30	28	* 45	39	35	31	32	48	48	42	39	37	36	49	49	44	42	40	42					
16-400	1652	2	57	57	53	49	43	36	59	60	55	50	45	38	63	62	57	52	46	37	66	65	59	54	48	43	68	68	61	56	50	48	71	71	64	59	53	48
	1322	2	54	51	49	43	37	32	59	55	50	44	38	32	62	59	53	47	41	35	65	63	57	50	44	39	66	65	59	52	46	41	68	69	62	56	50	46
	991	2	49	44	41	34	28	*	54	50	44	37	32	28	59	57	50	42	37	32	61	60	53	45	40	35	63	63	56	49	43	39	64	65	58	53	47	44
	661	2	* 34	31	* *	* *	50	47	39	32	29	26	54	53	46	38	35	31	56	57	49	42	38	35	57	59	51	45	40	38	58	61	54	49	44	42		
	330	2	* *	* *	* *	* *	* 40	33	28	25																												

Secondary Attenuators Dimensions
Models 30FB and 30FG Series



Terminal Size	W mm	H mm	X mm	Y mm	L mm	Wgt kg
4-100	300	200	330	230	600	12.00
4-100	300	200	330	230	900	16.00
4-100	300	200	330	230	1200	12.00
5-125	300	200	330	230	600	12.00
5-125	300	200	330	230	900	16.00
5-125	300	200	330	230	1200	20.00
5.5-140	300	200	330	230	600	12.00
5.5-140	300	200	330	230	900	16.00
5.5-140	300	200	330	230	1200	20.00
6-150	300	200	330	230	600	12.00
6-150	300	200	330	230	900	16.00
6-150	300	200	330	230	1200	20.00
6.5-160	300	200	330	330	600	15.00
6.5-160	300	300	330	330	900	19.00
6.5-160	300	300	330	330	1200	24.00
7-180	300	300	330	330	600	15.00
7-180	300	300	330	330	900	19.00
7-180	300	300	330	330	1200	24.00
8-200	300	300	330	330	600	15.00
8-200	300	300	330	330	900	19.00
8-200	300	300	330	330	1200	24.00
10-250	350	300	380	330	600	16.00
10-250	350	300	380	330	900	21.00
10-250	350	300	380	330	1200	26.00
12-315	450	450	480	480	600	24.00
12-315	450	450	480	480	900	31.00
12-315	450	450	480	480	1200	38.00
14-355	450	450	480	480	600	24.00
14-355	450	450	480	480	900	31.00
14-355	450	450	480	480	1200	38.00
16-400	450	450	480	480	600	24.00
16-400	450	450	480	480	900	31.00
16-400	450	450	480	480	1200	38.00

Secondary Attenuators

All terminal units are available with attached secondary attenuators

Casing:

Manufactured from 18 swg. (1.2mm thick) folded galvanised mild steel sheet, formed into a rectangular casing, all longitudinal casing joints are mechanically sealed.

Flanges:

Intake and discharges incorporate rectangular flanges, which are mechanically fixed to the main body of the attenuator.

Splitters:

Arranged within the casing are vertical attenuating splitter sections manufactured from 21 swg. (0.8mm thick) Galvanised Mild Steel, fixed to the casing by rivets. Splitters are fitted at inlet and discharge with aerodynamically shaped bullnose fairings. Splitters are fitted with 22 swg. (0.7mm thick) expanded or perforated metal facings. Horizontal splitters are also available if required.

Acoustic infill:

Splitters and side linings are filled with an inert, non combustible, non hygroscopic, vermin and rot proof mineral fibre slab which will not support bacterial growth. Usually faced with a glass fibre tissue (FB), however hermetically sealed Melinex membrane bags (FG) are available wherever indoor air quality conditions demand.

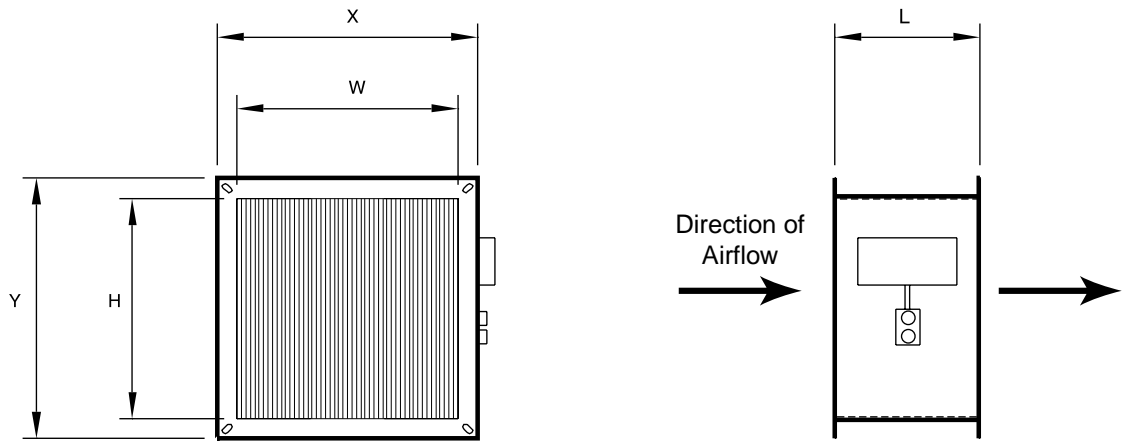
**Acoustic Performance Data - Secondary Attenuator Static Insertion Loss dB
Models 30FB and 30FG**

Terminal size	Air vol. l/s.	Air vol. m3/h	Press. drop Pa.	width mm.	height mm.	length mm.	O.B.C.F.-Hz					
							125	250	500	1k	2k	4k
4-100	24	86	neg.	300	200	600	6	10	17	22	18	16
4-100	94	338	60	300	200	600	6	10	17	22	18	16
4-100	24	86	neg.	300	200	900	8	14	26	33	27	22
4-100	94	338	65	300	200	900	8	14	26	33	27	22
4-100	24	86	neg.	300	200	1200	9	18	34	43	36	27
4-100	94	338	70	300	200	1200	9	18	34	43	36	27
5-125	47	169	neg.	300	200	600	6	10	17	22	18	16
5-125	142	511	60	300	200	600	6	10	17	22	18	16
5-125	47	169	neg.	300	200	900	8	14	26	33	27	22
5-125	142	511	65	300	200	900	8	14	26	33	27	22
5-125	47	169	neg.	300	200	1200	9	18	34	43	36	27
5-125	142	511	70	300	200	1200	9	18	34	43	36	27
6-150	45	162	neg.	300	200	600	6	10	17	22	18	16
6-150	210	756	60	300	200	600	6	10	17	22	18	16
6-150	45	162	neg.	300	200	900	8	14	26	33	27	22
6-150	210	756	65	300	200	900	8	14	26	33	27	22
6-150	45	162	neg.	300	200	1200	9	18	34	43	36	27
6-150	210	756	70	300	200	1200	9	18	34	43	36	27
8-200	80	288	neg.	300	300	600	6	10	17	22	18	16
8-200	375	1350	75	300	300	600	6	10	17	22	18	16
8-200	80	288	neg.	300	300	900	8	14	26	33	27	22
8-200	375	1350	80	300	300	900	8	14	26	33	27	22
8-200	80	288	neg.	300	300	1200	9	18	34	43	36	27
8-200	375	1350	85	300	300	1200	9	18	34	43	36	27
10-250	130	468	neg.	350	300	600	6	7	13	17	13	8
10-250	635	2286	60	350	300	600	6	7	13	17	13	8
10-250	130	468	neg.	350	300	900	9	12	20	25	19	12
10-250	635	2286	70	350	300	900	9	12	20	25	19	12
10-250	130	468	neg.	350	300	1200	12	14	26	34	26	15
10-250	635	2286	80	350	300	1200	12	14	26	34	26	15
12-315	190	684	neg.	450	450	600	2	5	8	10	7	4
12-315	945	3402	60	450	450	600	2	5	8	10	7	4
12-315	190	684	neg.	450	450	900	4	7	12	15	11	5
12-315	945	3402	65	450	450	900	4	7	12	15	11	5
12-315	190	684	neg.	450	450	1200	5	10	16	19	14	7
12-315	945	3402	70	450	450	1200	5	10	16	19	14	7
14-355	235	846	neg.	450	450	600	2	5	8	10	7	4
14-355	1275	4590	60	450	450	600	2	5	8	10	7	4
14-355	235	846	neg.	450	450	900	4	7	12	15	11	5
14-355	1275	4590	65	450	450	900	4	7	12	15	11	5
14-355	235	846	neg.	450	450	1200	5	10	16	19	14	7
14-355	1275	4590	70	450	450	1200	5	10	16	19	14	7
16-400	330	1188	neg.	450	450	600	2	5	8	10	7	4
16-400	1652	2549	60	450	450	600	2	5	8	10	7	4
16-400	330	1188	neg.	450	450	900	4	7	12	15	11	5
16-400	1652	2549	65	450	450	900	4	7	12	15	11	5
16-400	330	1188	neg.	450	450	1200	5	10	16	19	14	7
16-400	1652	2549	70	450	450	1200	5	10	16	19	14	7

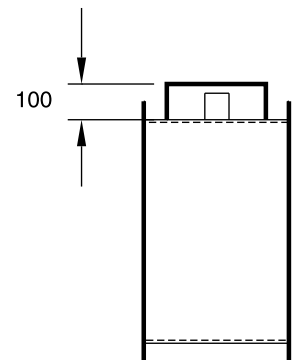
**Acoustic Performance Data - Secondary Attenuator Static Insertion Loss dB
Models 30FB and 30FG**

Terminal size	Air vol. l/s.	Air vol. m3/h	Press. drop Pa.	width mm.	height mm.	length mm.	O.B.C.F.-Hz					
							125	250	500	1k	2k	4k
24 x 16 600x400	595	2142	6	750	450	600	8	12	17	28	26	20
	595	2142	7	750	450	900	11	16	23	37	34	24
	595	2142	9	750	450	1200	13	20	28	46	42	28
24 x 16 600x400	1200	4320	25	750	450	600	8	12	17	28	26	20
	1200	4320	26	750	450	900	11	16	23	37	34	24
	1200	4320	28	750	450	1200	13	20	28	46	42	28
24 x 16 600x400	595	2142	7	900	450	600	9	14	19	32	31	23
	595	2142	7	900	450	900	12	18	25	42	41	29
	595	2142	8	900	450	1200	14	22	31	50	50	35
24 x 16 600x400	1600	5760	47	900	450	600	9	14	19	32	31	23
	1600	5760	50	900	450	900	12	18	25	42	41	29
	1600	5760	55	900	450	1200	14	22	31	50	50	35
24 x 16 600x400	595	2142	4	900	600	600	9	14	19	32	31	23
	595	2142	4	900	600	900	12	18	25	42	41	29
	595	2142	5	900	600	1200	14	22	31	50	50	35
24 x 16 600x400	2200	7920	50	900	600	600	9	14	19	32	31	23
	2200	7920	54	900	600	900	12	18	25	42	41	29
	2200	7920	58	900	600	1200	14	22	31	50	50	35
24 x 16 600x400	595	2142	2	900	750	600	9	14	19	32	31	23
	595	2142	2	900	750	900	12	18	25	42	41	29
	595	2142	3	900	750	1200	14	22	31	50	50	35
24 x 16 600x400	2600	9468	45	900	750	600	9	14	19	32	31	23
	2600	9468	48	900	750	900	12	18	25	42	41	29
	2600	9468	52	900	750	1200	14	22	31	50	50	35
24 x 16 600x400	595	2142	1	1200	750	600	9	14	19	32	31	23
	595	2142	1	1200	750	900	12	18	25	42	41	29
	595	2142	2	1200	750	1200	14	22	31	50	50	35
24 x 16 600x400	3600	12960	48	1200	750	600	9	14	19	32	31	23
	3600	12960	50	1200	750	900	12	18	25	42	41	29
	3600	12960	55	1200	750	1200	14	22	31	50	50	35
24 x 16 600x400	595	2142	1	1500	750	600	9	14	19	32	31	23
	595	2142	1	1500	750	900	12	18	25	42	41	29
	595	2142	1	1500	750	1200	14	22	31	50	50	35
24 x 16 600x400	3800	13590	34	1500	750	600	9	14	19	32	31	23
	3800	13590	37	1500	750	900	12	18	25	42	41	29
	3800	13590	40	1500	750	1200	14	22	31	50	50	35

Low Pressure Hot Water Re-heat Batteries - Dimensions
Model 30RW



Terminal Size	W mm	H mm	L mm	X mm	Y mm	Wgt kg
4-100	300	200	200	370	270	10
5-125	300	200	200	370	270	10
5.5-140	300	200	200	370	270	10
6-150	300	200	200	370	270	10
6.5-160	300	200	200	370	370	10
7-180	300	300	200	370	370	13
8-200	300	300	200	370	370	13
10-250	350	200	200	420	370	14
12-315	450	450	200	520	520	15
14-355	450	450	200	520	520	15
16-400	450	450	200	520	520	15
2x16-600x400	750	450	200	820	520	20



All terminal units are available with factory installed low pressure hot water re-heat batteries.

Casing:

Manufactured from 18 swg. (1.2mm thick) folded galvanised mild steel sheet, formed into a rectangular casing, all casing joints are mechanically sealed.

Inlets and outlets incorporate rectangular flanges, which are mechanically fixed to the main body of the casing.

Water Tubes:

Manufactured from 10mm diam. copper tube to BS 1278 table Y.

Pipe Connections:

Plain male ends suitable for solder jointing.

Heat Exchange Fins:

Manufactured from 0.13mm thick rectangular aluminium plates, mechanically bonded to the copper tubes. Fins are spaced at 2.5mm intervals.

All low pressure hot water supplementary heater batteries incorporate an air vent and drain point.

Pressure Testing:

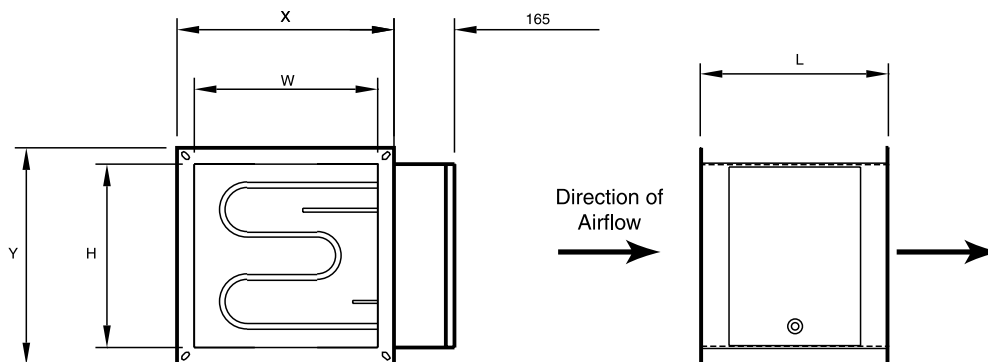
All low pressure hot water supplementary heater batteries are air pressure tested under water to a pressure of 3,000 kPa.

**LPHW Re-Heat Battery Performance 82°C Flow, 71°C Return, 10 fpi
Model 30RW**

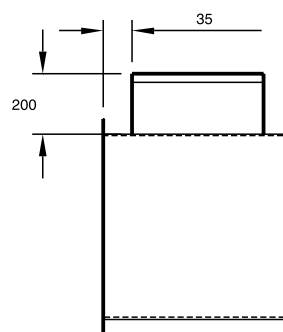
Terminal Size	Air Vol. l/s	Air Vol. m³/h	Dimensions Width mm	Dimensions Height mm	Face Vel m/s	Air On C	1 Row Duty kW	Air Off C	Water Pd kPa	Water kg/s	Air Pd Pa	2 Row Duty kW	Air Off C	Water Pd kPa	Water kg/s	Air Pd Pa
4-100	24	87	300	200	0.40	16	0.8	43.6	0.7	17.3	1	1.3	60	3.0	28.1	2
4-100	47	170	300	200	0.78	16	1.6	43.4	2.4	34.6	4	2.4	59	1.7	52.6	7
4-100	71	256	300	200	1.18	16	2.2	42.0	4.6	47.6	8	3.5	57	3.4	75.8	13
4-100	94	338	300	200	1.57	16	2.7	46.1	6.7	58.4	12	4.4	55	5.0	95.2	21
5-125	47	170	300	200	0.78	16	2.2	42.0	4.6	47.6	8	3.5	57	3.4	75.8	13
5-125	94	338	300	200	1.57	16	2.7	46.1	6.7	58.4	12	4.4	55	5.0	95.2	21
5-125	118	425	300	200	1.97	16	3.2	38.9	9.0	69.3	18	5.2	53	6.9	112.6	32
5-125	142	511	300	200	2.32	16	3.4	35.6	1.8	73.6	25	6.0	51	8.9	129.9	43
5.5-140	46	166	300	200	0.77	16	1.5	43.5	2.8	32.9	4	2.7	59	2.0	58.4	64
5.5-140	92	331	300	200	1.53	16	2.7	40.2	7.9	57.6	12	4.3	55	2.9	92.9	21
5.5-140	139	500	300	200	2.32	16	3.3	35.8	2.1	71.6	24	5.7	50	4.0	123.2	42
5.5-140	185	666	300	200	3.08	16	4.0	34.0	3.0	86.6	39	7.0	47	5.9	151.5	68
6-150	45	162	300	200	0.75	16	1.5	43.4	2.2	32.5	4	2.4	60	10.0	51.9	6
6-150	115	414	300	200	1.92	16	3.1	38.6	6.7	67.1	17	5.1	53	6.7	110.4	30
6-150	185	666	300	200	3.08	16	4.0	33.9	2.5	86.6	39	6.7	46	4.5	145.0	68
6-150	210	756	300	200	3.50	16	4.5	33.6	3.1	97.4	48	7.4	45	5.5	160.2	84
6.5-160	60	216	300	300	0.67	16	2.0	44	5.7	43.3	3	3.1	60	4.0	68.2	5
6.5-160	120	432	300	300	1.33	16	3.5	40.5	2.7	75.8	9.3	5.8	56	4.7	124.9	16
6.5-160	181	652	300	300	2.01	16	4.7	37.7	4.7	102.6	19	8.0	53	8.4	172.1	33
6.5-160	241	868	300	300	2.68	16	5.8	36	6.8	124.7	31	9.8	42	9.8	213.2	53
7-180	76	274	300	300	0.84	16	2.6	44	8.7	55.4	4.3	4.0	60	6.0	86.1	7.5
7-180	153	551	300	300	1.70	16	4.2	38.9	3.8	91.3	14	7.0	54	6.6	151.5	25
7-180	229	824	300	300	2.54	16	5.6	36.2	6.4	120.6	28	9.3	48	6.7	200.4	49
7-180	305	1098	300	300	3.39	16	6.9	39.7	9.4	149.1	46	11.6	48	10.2	251.1	80
8-200	80	288	300	300	0.89	16	2.7	43.9	9.6	58.4	5	4.2	60	6.6	90.9	8
8-200	190	684	300	300	2.11	16	4.9	31.4	5.0	106.1	20	8.2	52	9.0	177.5	36
8-200	280	1008	300	300	3.11	16	6.5	35.2	8.4	140.7	39	6.9	48	9.0	149.4	69
8-200	375	1350	300	300	4.17	16	7.5	32.6	5.0	162.3	65	11.3	41	7.2	244.6	113
10-250	130	468	350	300	1.24	16	3.7	39.9	3.0	80.1	11	6.1	55	5.2	132.0	19
10-250	350	1260	350	300	3.33	16	7.2	33.0	4.5	155.8	57	10.7	41	6.5	231.6	101
10-250	520	1872	350	300	4.95	16	8.8	30.0	6.7	190.5	113	15.4	41	10.9	333.3	197
10-250	635	2236	350	300	6.05	16	9.0	27.9	7.0	194.8	156	16.1	37	11.9	348.5	273
12-315	190	684	450	450	0.94	16	5.7	40.8	7.8	123.4	10	9.1	56	7.3	197.0	18
12-315	565	2034	450	450	2.79	16	11.5	33.0	8.1	249.6	65	19.6	45	15.1	425.3	114
12-315	750	2700	450	450	3.70	16	13.4	30.8	10.8	289.2	105	21.7	40	16.1	469.9	185
12-315	945	3402	450	450	4.67	16	12.8	27.2	7.0	276.8	156	22.9	36	17.8	496.1	273
14-355	235	846	450	450	1.16	16	7.1	41.1	5.7	154.5	9	10.2	52	7.0	220.6	16
14-355	800	2680	450	450	3.95	16	15.0	32.7	9.7	321.2	64	25.6	45	22.2	553.9	112
14-355	1035	3726	450	450	5.11	16	17.6	30.1	13.1	380.5	112	30.8	41	31.7	666.0	196
14-355	1275	4590	450	450	6.30	16	18.0	27.7	13.8	390.5	160	32.3	37	34.7	699.6	279
16-400	320	1152	450	450	1.58	16	8.3	37.4	5.6	178.8	12	13.6	51	9.0	293.9	22
16-400	780	2808	450	450	3.85	16	12.3	29.0	7.1	265.6	57	26.0	44	25.0	562.8	99
16-400	1240	4464	450	450	6.12	16	19.0	28.6	14.7	409.1	129	33.4	38	40.4	722.3	218
16-400	1700	6120	450	450	8.40	16	19.5	25.5	15.7	423.2	213	35.6	33	45.8	771.2	372
600 x 400	1890	6804	710	450	5.92	16	13.3	21.8	7.6	288.5	118	25.0	27	25.2	541.1	207
600 x 400	2360	8496	710	450	7.39	16	13.5	20.7	7.8	291.6	173	25.8	25	24.0	558.7	303
600 x 400	3300	11880	710	450	10.33	16	13.6	19.4	8.0	295.2	305	26.4	23	25.1	572.3	535
600 x 400	3775	13590	710	450	11.82	16	13.7	19.0	8.0	296.3	384	26.6	22	25.5	576.8	623

Electric Re-Heat Batteries - Dimensions

Model 30RE



Terminal Size	W mm	H mm	L mm	X mm	Y mm	Weight kg
4-100	300	200	370	370	270	5.00
5-125	300	200	370	370	270	5.00
5.5-140	300	200	370	370	270	5.00
6-150	300	200	370	370	270	5.00
6.5-160	300	200	370	370	370	6.50
7-180	300	300	370	370	370	6.50
8-200	300	300	370	370	370	6.50
10-250	350	200	370	420	370	7.50
12-315	450	450	370	520	520	13.50
14-355	450	450	370	520	520	13.50
16-400	450	450	520	520	520	13.50
2x16-600x400	750	450	370	820	520	25.00



All terminal units are available with factory installed electric re-heat batteries.

Casing:

Manufactured from 18 swg. (1.2mm thick) folded galvanised mild steel sheet, formed into a rectangular casing, all casing joints are mechanically sealed.

Intake and discharges incorporate rectangular flanges, which are mechanically fixed to the main body of the casing.

Electric Elements:

Manufactured from stainless steel tubing with copper resistance wire and magnesium oxide insulation.

High Temperature Cut-Out:

All electric supplementary heater batteries incorporate automatic and manual high temperature cut-out safety devices, which disconnect the electrical power in the event that the air temperature exceeds a pre set maximum.

Pressure Switch:

All electric supplementary heater batteries incorporate a positive pressure switch which does not permit the heating elements to be energised unless there is positive air pressure (indicating airflow) available.

Selection

Table 1 opposite provides guidance as to the input voltage, output rating and number of stages available for electric re-heat batteries.

Terminal units incorporating analogue controls should be limited to a maximum of two stages.

Thyristor controls are recommended for output ratings in excess of those indicated in table 1.

In order to prevent stratification of the discharge air, a maximum recommended discharge temperature of 39°C should not be exceeded

Input Voltage Vac.	Phase	Freq. Hz.	Output kW.	Stages
230	1	50	0.1-4.5	1
415	3	50	0.1 - 13.0	1, 2, 3

Table 1

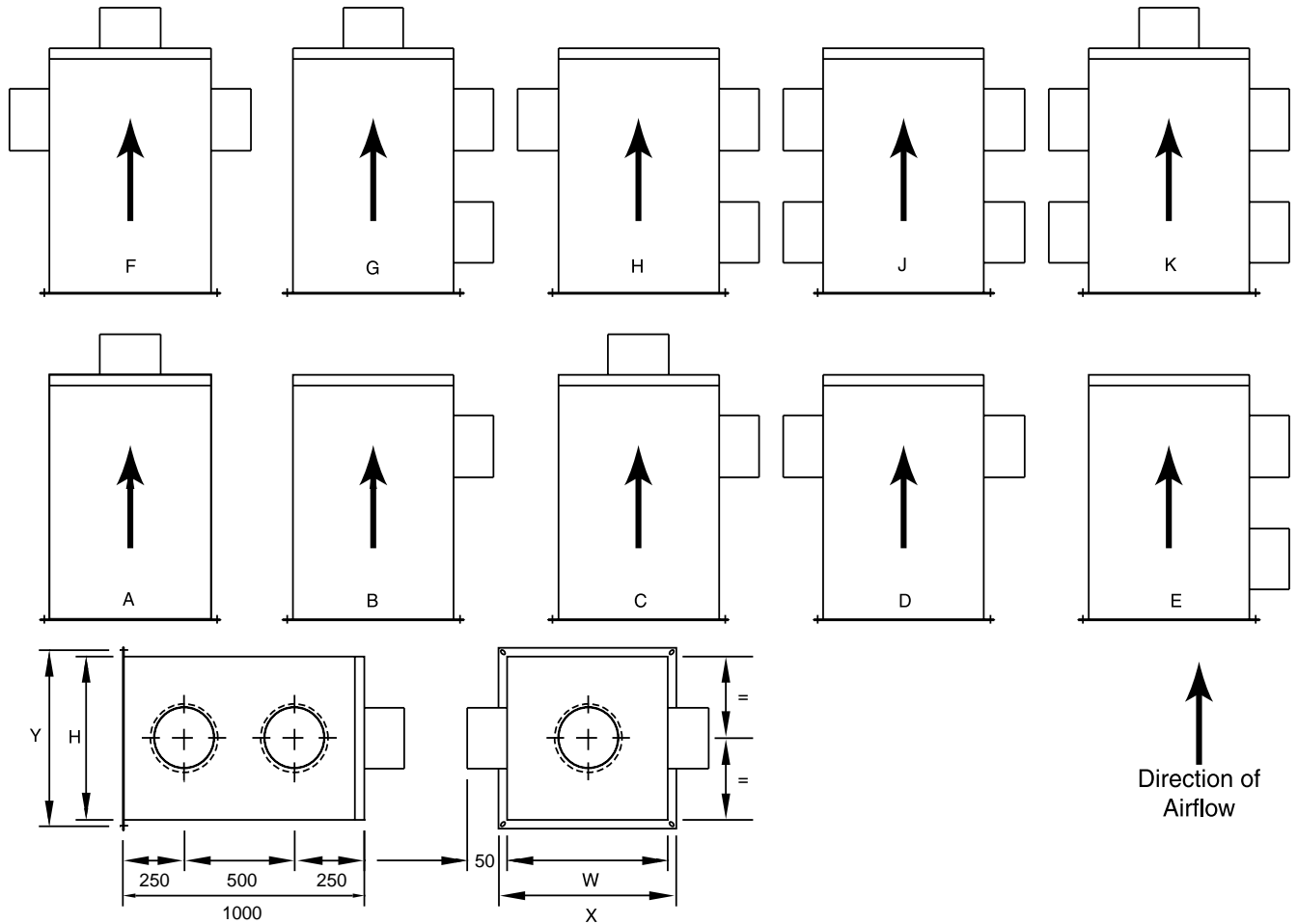
Air Temp Rise °C = $\frac{\text{kW}}{1.2 \times 1.02 \times \text{m}^3/\text{s}}$

Options

- 24Vac control transformer.
- Isolator
- Door interlocked isolator
- Power circuit fusing.
- Dust tight construction.

Multiple Outlet Plenums - Dimensions

Models 30GB and 30GG



Model 30GB - Insulation faced with non woven tissue as standard.

Model 30GG - Insulation covered with hermetically sealed Melinex membrane bags for indoor air quality applications.

Terminal Size	W mm	H mm	X mm	Y mm	Spigot diam mm	Spigot qty	Spigot diam mm	Spigot qty	Spigot diam mm	Spigot qty	Spigot diam mm	Spigot qty	Spigot diam mm	Spigot qty	Spigot diam mm	Spigot qty	Wgt kg
4-100	300	200	370	270	150	A-K	200	n/a.	250	n/a.	315	n/a.	355	n/a.	400	n/a.	10.0
5-125	300	200	370	270	150	A-K	200	n/a.	250	n/a.	315	n/a.	355	n/a.	400	n/a.	10.0
5.5-140	300	200	370	270	150	A-K	200	n/a.	250	n/a.	315	n/a.	355	n/a.	400	n/a.	10.0
6-150	300	200	370	270	150	A-K	200	n/a.	250	n/a.	315	n/a.	355	n/a.	400	n/a.	10.0
6.5-160	300	300	370	370	150	A-K	200	A-K	250	A-K.	315	n/a.	355	n/a.	400	n/a.	12.0
7-180	300	300	370	370	150	A-K	200	A-K	250	A-K.	315	n/a.	355	n/a.	400	n/a.	12.0
8-200	300	300	370	370	150	A-K	200	A-K	250	A-K.	315	n/a.	355	n/a.	400	n/a.	12.0
10-250	350	300	420	370	150	A-K	200	A-K	250	A-K	315	n/a.	355	n/a.	400	n/a.	12.0
12-315	450	450	520	520	150	A-K	200	A-K	250	A-K	315	A-K	355	A-K	400	A-K	15.0
14-355	450	450	520	520	150	A-K	200	A-K	250	A-K	315	A-K	355	A-K	400	A-K	15.0
16-400	450	450	520	520	150	A-K	200	A-K	250	A-K	315	A-K	355	A-K	400	A-K	15.0
24x16-600x400	750	450	820	520	150	A-K	200	A-K	250	A-K	315	A-K	355	A-K	400	A-K	25.5

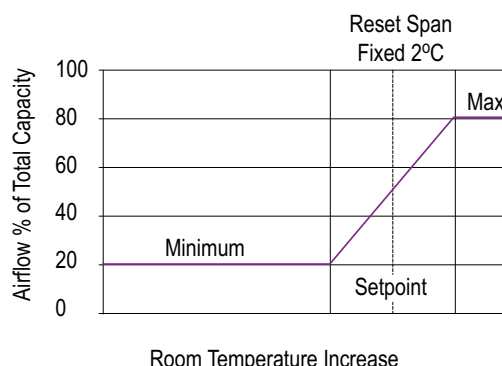
Standard Control Sequences

Single Duct • Analogue Electronic • Pressure Independent

Control Package 1 EL • Cooling Only

The operating sequence for a cooling application is as follows:

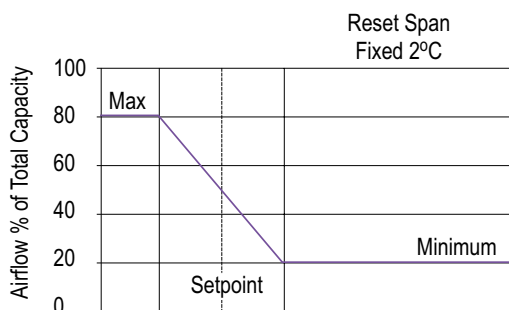
1. On a rise in space temperature, the thermostat regulates the controller/actuator to increase the airflow.
2. At a space temperature of 1°C above thermostat setpoint, the maximum airflow is maintained at a preselected setting.
3. On a decrease in space temperature, the thermostat regulates the controller/actuator to reduce airflow.
4. At a space temperature of 1°C below thermostat setpoint, the minimum airflow is maintained at a preselected setting.
5. Airflow is held constant in accordance with thermostat demand. Any changes in duct air velocity due to static pressure fluctuations are sensed and compensated for, resulting in pressure independent control.



Control Package 2 EL • Heating Only

The operating sequence for a heating application is as follows:

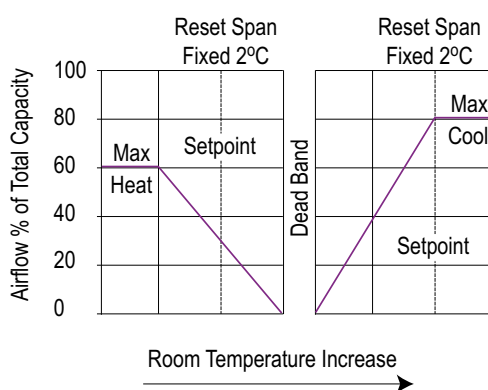
1. On a decrease in space temperature, the thermostat regulates the controller/actuator to increase the airflow.
2. At a space temperature of 1°C below thermostat setpoint, the maximum airflow is maintained at a preselected setting.
3. On a rise in space temperature, the thermostat regulates the controller/actuator to reduce airflow.
4. At a space temperature of 1°C above thermostat setpoint, the minimum airflow is maintained at a preselected setting.
5. Airflow is held constant in accordance with thermostat demand. Any changes in duct air velocity due to static pressure fluctuations are sensed and compensated for, resulting in pressure independent control.



Control Package 3 EL • Cooling/Heating with Auto - Changeover

The heating/cooling thermostat features separate temperature setpoints and separate min./max. velocity limits for heating and cooling operation. The automatic changeover relay energises either the heating or cooling mode of the thermostat in response to the duct temperature. The operating sequence for a heating/cooling application is as follows:

1. At a duct temperature above 24°C, the heating side of the thermostat is energised.
2. On a decrease in space temperature, the thermostat regulates the controller/actuator to increase the airflow.
3. At a space temperature of 1°C below thermostat heating setpoint, the maximum airflow is maintained at a preselected setting.
4. On a rise in space temperature, the thermostat regulates the controller/actuator to increase the airflow.
5. At a space temperature of 1°C above thermostat heating setpoint, the minimum airflow is maintained at a preselected setting.
6. At a duct temperature below 18°C the cooling side of the thermostat is energised.
7. On a rise in space temperature, the thermostat regulates the controller/actuator to increase the airflow.
8. At a space temperature of 1°C above thermostat cooling setpoint, the maximum airflow is maintained at a preselected setting.
9. On a decrease in space temperature, the thermostat regulates the controller/actuator to reduce the airflow.
10. At a space temperature of 1°C below thermostat cooling setpoint, the minimum airflow is maintained at a preselected setting.
11. During both the heating and cooling cycle, airflow is held constant in accordance with thermostat demand. Any changes in duct air velocity due to static pressure fluctuations are sensed and compensated for, resulting in pressure independent control.



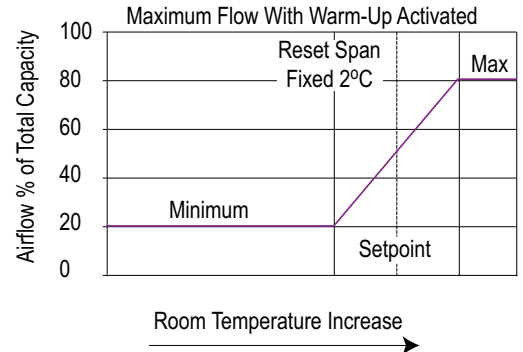
Standard Control Sequences

Single Duct • Analogue Electronic • Pressure Independent

Control Package 4 EL • Cooling With Morning Warm-Up

The operating sequence for a cooling application is as follows:

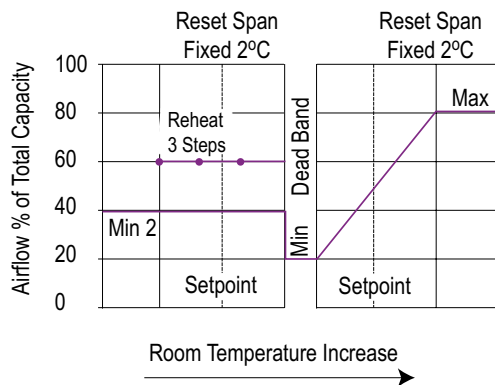
1. On a rise in space temperature, the thermostat regulates the controller/actuator to increase the airflow.
2. At a space temperature of 1°C above thermostat setpoint, the maximum airflow is maintained at a preselected setting.
3. On a decrease in space temperature, the thermostat regulates the controller/actuator to reduce airflow.
4. At a space temperature of 1°C below thermostat setpoint, the minimum airflow is maintained at a preselected setting.
5. Airflow is held constant in accordance with thermostat demand. Any changes in duct air velocity due to static pressure fluctuations are sensed and compensated for, resulting in pressure independent control.
6. When duct airflow temperature is above 24°C (warm-up cycle), the inlet sensor switches a relay module and the actuator will open the box damper for maximum airflow.



Control Package 5 EL • Cooling with Electric Reheat Plus Auxiliary Minimum Air Volume

The reheat thermostat features a separate temperature setpoint and a separate auxiliary velocity limit for reheat control. The reheat relay energises up to three stages of electric reheat in response to the thermostat. The operating sequence for a reheat application is as follows:

1. On a rise in space temperature, the thermostat regulates the controller/actuator to increase the airflow.
2. At a space temperature of 1°C above thermostat setpoint, the maximum airflow is maintained at a preselected setting.
3. On a decrease in space temperature, the thermostat regulates the controller/actuator to reduce the airflow.
4. At a space temperature of 1°C below thermostat setpoint, the minimum airflow is maintained at a preselected setting.



5. On a further decrease in space temperature the heating side of the thermostat is activated, automatically initiating the auxiliary velocity limit. Airflow is maintained at the preselected auxiliary setting.
6. The three stages of reheat are energised in sequence in response to the thermostat. The first stage is energised 0.5°C above the heating setpoint. The second stage is energised 0.5°C below the heating setpoint. The third stage is energised 1°C below the heating setpoint.
7. Airflow is held constant in accordance with thermostat demand. Any changes in duct air velocity due to static pressure fluctuations are sensed and compensated for, resulting in pressure independent control.

The Following Additional Control Sequences are Also Available:

- 6 EL • Cooling with Electric Re-heat Plus Morning Warm-up.
- 7 EL • Cooling with On/Off Hot Water Re-heat.
- 8 EL • Cooling with Proportional Hot Water Re-heat (controls 0 – 10 Vdc proportional hot water valve supplied by others).
- 9 EL • Cooling with Time Proportional Hot Water Re-heat (requires the use of a time proportional water valve (optional or by others).
- 10 EL • Constant Volume Operation.

Suggested Specifications

Single Duct Variable or Constant Volume Terminals - 3000 Series

- 1.01 Supply and install single duct variable or constant volume terminal units of the sizes and capacities as indicated on the drawings. Units shall be pressure independent with analogue electronic, (or digital electronic) controls. Units shall be as manufactured by Advanced Air (UK) Ltd.
- 1.02 The entire terminal shall be designed and built as a single unit. The units shall be provided with a primary variable air volume damper that controls the air quantity in response to electronic temperature sensor. The space limitations shall be reviewed carefully to ensure that all units will fit into the space allowed.
- 1.03 Unit casings shall be manufactured from 18swg. (1.2 mm. thick) galvanised mild steel sheet. Acoustic/thermal lining: the terminal is internally lined with a 25 mm. thick acoustic/thermally insulating foam which is Melamine based, open cellular construction, having a non-woven black tissue facing and complying with class O fire rating. This material is adhered to all internal surfaces.
- 1.04 Units shall be rated to operate in left hand or right hand mode by turning the unit over. Casing leakage shall not exceed 2% of terminal rated airflow at 125 Pa interior casing pressure. All high pressure side casing joints shall be sealed with an approved sealant and high pressure side casing leakage shall not exceed 2% of terminal rated airflow at 750 Pa.
- 1.05 Units shall have round inlets for the primary air connections and shall have a 150 mm. deep inlet spigot for field connection. The outlets shall be rectangular and suitable for flanged duct connections. Casing shall have mounting brackets for hanging from concrete slab.
- 1.06 The damper shall be of rectangular, multiple inclined opposed blade construction and designed to operate on a 45° arc. Blades shall be minimum 18swg. (1.2 mm. thick) galvanised mild steel, single thickness construction with heavy duty gasket glued to the blades. The blades shall be screwed through the damper shaft to ensure that no slippage occurs. Blade shafts shall pivot on corrosion free bearings. Damper leakage shall not exceed 2% of the rated terminal air volume at 750 Pa. inlet static pressure.
- 1.07 Entire terminal unit shall be factory assembled with (electronic) controls. All components, including all controls except the room mounted temperature sensor and (field wiring) shall be factory installed and mounted with the unit.
- 1.08 Provide a (analogue electronic, digital electronic) flow control device that will limit the maximum and minimum airflow to that scheduled on the drawings. Airflow limits shall be factory set. Temperature sensor signal shall reset the flow control device to adjust primary airflow to match load requirements. Control of the terminal unit shall be pressure independent.
- 1.09 The terminal unit shall be capable of operation as described herein with inlet static pressure of 12 Pa. at full cooling.
- 1.10 Units shall incorporate a single point electrical connection for the entire unit. All electrical components shall be CE marked. All electrical components shall be mounted in a control box.
- 1.11 All sound data shall be compiled in an independent laboratory.