ECOSMART BOXER AHU STANDARD CONFIGURATIONS

COMPLETE PACKAGED AIR HANDLING UNITS WITH ALL THE NECESSARY CONTROLS.



TECHNICAL INFORMATION



BENEFITS

VERY QUIET

25mm double skinned panels provide better acoustic and thermal properties over conventional AHU's.

REDUCE INSTALLATION TIME

All components are pre-assembled, wired and tested at the Nuaire manufacturing facility. Units are delivered conveniently in sections for easy site assembly.

SIMPLE PRECISE COMMISSIONING

Minimum and maximum ventilation rates precisely set and limited at AHU requiring no throttling dampers.

ENERGY EFFICIENT

All models have Ecosmart controls built in, which provide the most energy efficient and cost effective solution.

PART LAND ENERGY EFFICIENT

Fan impellers are selected for optimum efficiency and noise characteristics. Motors are IE2 to BS 5000 direct drive and high efficiency belt drive.

IMPROVED LIFE CYCLE/NO SYSTEM OVERLOADS

Ecosmart is pre-programmed to automatically give a soft start function which prevents electrical overloading and minimises mechanical wear.

LONG LASTING

Each section is manufactured from a highly rigid pentapost framework with heavy gauge AluzincY, corrosion resistant steel panels.

CONSTANT PRESSURE CONTROL AVAILABLE

For further information contact Nuaire.

COIL OPTIONS

DX & chilled water coils are available, call Nuaire for further details.

Note: Undressed coils are also available.

WARRANTY

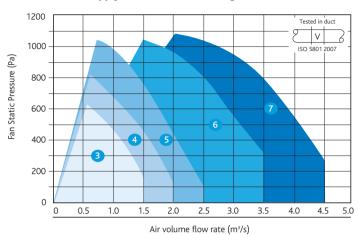
Ecosmart Boxer has a 5 year warranty.



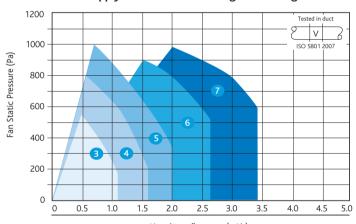


PERFORMANCE - ECOSMART BOXER SIZES 3 - 7

Ecosmart Boxer supply unit filter and heating coil

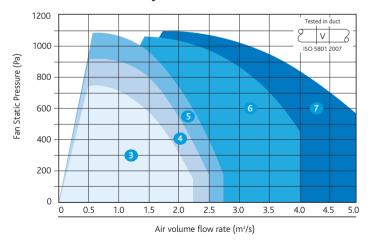


Ecosmart Boxer Supply unit filter and heating and cooling coil



Air volume flow rate (m³/s)

Ecosmart Boxer fan unit only



N.B. Unit air volume flowrates are calculated by component velocity.

Casing



Ecosmart Boxer sizes 3 - 7

Code descriptions



- 1. Ecosmart Boxer range
- 2. S = SupplyEX = Extract
- 3. Size 3 7
- 4. L = Low Pressure hot water heater

LC = Low Pressure hot water heater battery and CHCW chilled water cooling coil

LD = Low Pressure hot water heater battery and DX cooling coil

ED = Electric heater battery and

DX = Direct expansion (refrigerant type coil)

Note: If no Ecosmart control is required example code would be: BHS3NC-LC. If fan control only is required (undressed coils) example code would

Please note: Sizes 3 - 7 do not have filters included as standard.

be: BHS3FC-LC.

AIR HANDLING UNITS (AHU'S)

ECOSMART BOXER

TECHNICAL INFORMATION

PERFORMANCE - ECOSMART BOXER SIZES 3 - 7

ELEC	ELECTRICAL & SOUND														
Curve	Motor Rating (kW)	Electric Coil Data (kW)	Fan Input Power (watts)	RPM	Pole	Phase	Туре	Ducted Data 125	l sound po	ower leve	ls dB re 1	pW 2K	4K	8K	Breakout dBA@ 3m
s s	2.2	27	1.584	1920	4	3	I inlet O outlet	84 87	81 82	82 81	76 75	73 71	67 66	62 62	40
ļ	3	36	2.407	2160	2	3	I inlet O outlet	87 90	84 85	85 84	79 78	76 74	70 69	65 65	43
	4	54	3.132	2340	2	3	I inlet O outlet	89 92	86 87	87 86	81 80	78 76	72 71	67 67	45
	4	54	4.035	1780	4	3	I inlet O outlet	84 84	86 84	83 84	80 85	77 80	72 74	65 66	43
	5.5	54	5.177	1630	4	3	I inlet O outlet	86 87	91 90	85 87	81 86	79 82	74 75	69 70	45

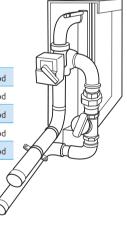
COD	CODING										
Curve	Extract Code	Supply with LPHW Heater Code	Supply with LPHW Heater & Cooling Coil Code	Supply with LPHW Heater & DX Cooling Coil Code	FLC (amps)	SC (amps)					
3	ESBHEX3	ESBHS3-L	ESBHS3-LC	ESBHS3-LD	5	5					
4	ESBHEX4	ESBHS4-L	ESBHS4-LC	ESBHS4-LD	7	7					
5	ESBHEX5	ESBHS5-L	ESBHS5-LC	ESBHS5-LD	8	8					
6	ESBHEX6	ESBHS6-L	ESBHS6-LC	ESBHS6-LD	8.5	8.5					
7	ESBHEX7	ESBHS7-L	ESBHS7-LC	ESBHS7-LD	11	11					

COD	ING				
Curve	Supply with Electric Heater & DX Cooling Coil Code	Supply with Electric Heater Code	Supply with Electric Heater & Cooling Coil Code	FLC (amps)	SC (amps)
3	ESBHS3-ED	ESBHS3-E	ESBHS3-EC	5	27
4	ESBHS4-ED	ESBHS4-E	ESBHS4-EC	57	7
5	ESBHS5-ED	ESBHS5-E	ESBHS5-EC	83	8
6	ESBHS6-ED	ESBHS6-E	ESBHS6-EC	83.5	8.5
7	ESBHS7-ED	ESBHS7-E	ESBHS7-EC	86	11

DX COIL DATA

Unit Size	Max Air Flow m³/s	Rating		PD through Coil KPa	Conn size
3	1.0	19	5	18	2x12&22od
4	1.4	27	5	15	2x12&28od
5	1.9	37	5	13	2x22&35od
6	2.5	48	5	11	2x22&35od
7	3.5	68	5	11	2x22&42od





Z FACTORS F	OK AN	ICILLA	KIES				
Casing Module	1	2	3	4	5	6	7
Silencer	102	41	20	11	8	3.1	2
Damper	61	25	12	6.8	4.8	1.9	1.2
Frost coil LPHW	122	50	23	14	9.6	3.8	2.4
Frost coil electric	122	50	23	14	9.6	3.8	2.4
Weather cowl	61	25	12	6.8	4.8	1.9	1.2
Plate heat exchanger	612	148	117	68	48	1.9	12
H or V							

For wiring diagrams refer to pages 110.

Unit	nit Frost Coils		Cooling Co	oils	Heating C	oils
Size	In	Out	In	Out	In	Out
3	1 BSP	1 BSP	1.25BSP	1.25BSP	1.25BSP	1.25BSP
4	1 BSP	1 BSP	1.25BSP	1.25BSP	1.5BSP	1.5BSP
5	1.25BSP	1.25BSP	1.5BSP	1.5BSP	2 BSP	2 BSP
6	1.25BSP	1.25BSP	2 BSP	2 BSP	2 BSP	2 BSP
7	1.5BSP	1.5BSP	2 BSP	2 BSP	2 BSP	2 BSP



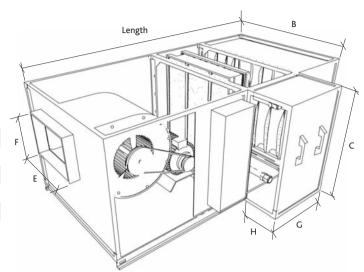
DIMENSIONS AND CONFIGURATIONS

Ecosmart BOXER size 3 - 7

DIMENSIONS (mm) & WEIGHTS (KG)

	ESBH	EX*	ESBH	S*L/E	ESBHS	S*						
					Heati	ng & C	ooling					
Size	L	W	L	W	L	W	В	С	E	F	G	Н
3	1200	199	2400	402	3000	529	800	800	373	403	600	350
4	1200	243	2400	442	3000	590	1000	800	373	535	600	450
5	1200	255	2400	490	3000	600	1000	1000	373	535	600	450
6	1500	390	2700	702	3300	858	1300	1000	557	479	600	500
7	1500	507	2700	913	3300	1115	1300	1300	638	638	600	500

NB: Units are handed left hand side as standard. (L=Length, W=Weight). Right hand side is available on request.







Airflow



Model shown: size 7 (left hand with cooling coil).

Model shown: size 7 (right hand with cooling coil).



Model shown: size 7 (right hand with DX cooling coil).





Model shown: size 7 (right hand supply with electric heater).



Model shown: size 7 (left hand with DX cooling coil).



Model shown: size 7 (left hand supply with electric heater).

ECOSMART BOXER SIZES 3 - 7



Model shown: size 7 (right hand supply with electric heater and cooling coil).



Model shown: size 7 (left hand supply with electric heater and cooling coil).



Model shown: size 7 (right hand supply with electric heater and DX coil).



Model shown: size 7 (left hand supply with electric heater and DX coil).



Model shown: size 7 (right hand supply with LPHW heater).



Model shown: size 7 (left hand supply with LPHW heater).



Model shown: size 7 (right hand supply with LPHW heater and cooling coil).



Model shown: size 7 (left hand supply with LPHW heater and cooling coil).).



ECOSMART BOXER SIZES 3 - 7



Model shown: size 7 (right hand supply with LPHW heater and DX cooling coil).



Model shown: size 7 (left hand supply with LPHW heater and DX cooling coil).



Model shown: size 7 (right hand with extract).

Please note: Sizes 3 - 7 do not have filters included as standard.



Model shown: size 7 (left hand with extract).

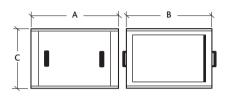
ECOSMART BO Air Volume Flow rat	2		1.7	2 R	ow		1.3				1			n size
Air On	Heat Output	Air Off C	Water flow rate	Water dp	Heat Output		Water flow rate	Water dp	Heat Output	Air Off C	Water flow rate	Water dp		Connection size
С	(kW)	С	(l/s)	(kPa)	(kW)	С	(l/s)	(kPa)	(kW)	С	(l/s)	(kPa)		6
-3 3	60 55	26 29	1.32	11	54 50	31 35	1.2	9.4	46	35 38	1	7.4 6.6		
9	55 50	33	1.22 1.1	9.6 8.2	46	35 38	1.1 1	8.3 7.2	43 40	38 41	0.96 0.88	5.8		1.25"
15	45	37	0.97	7	41	41	0.92	6.2	36	44	0.8	5		
-3	50	21	0.61	3.4	45	26	0.56	2.9	39	29	0.48	2.33		
3	45	25	0.55	2.83	41	29	0.5	2.42	36	32	0.48	2.07		
9	40	28	0.49	2.37	37	32	0.45	2.06	32	35	0.39	1.72		1"
15	35	32	0.43	1.93	33	36	0.4	1.71	28	38	0.35	1.45		
-3	32	12	0.39	1.66	29	15	0.35	1.39	25	17	0.3	1.14		
3	27	16	0.33	1.28	25	19	0.3	1.10	21	20	0.26	0.92		
9	22	20	0.27	0.94	20	22	0.24	0.78	17	23	0.21	0.66		1"
15	17	23	0.2	0.59	15	24	0.19	0.54	14	26	0.16	0.43		
ECOSMART BO	YER Sizo 5			2 0	OW									gų.
Air Volume Flow rat			2.1	21	CVV		1.8				1.4			Siz
7 70	Heat	Air Off	Water flow	Water dp	Heat	Air Off	Water flow	Water dp	Heat	Air Off	Water flow	Water dp		ë
Air On	Output	С	rate		Output	С	rate		Output	С	rate	•		e G
С	(kW)	С	(l/s)	(kPa)	(kW)	С	(l/s)	(kPa)	(kW)	С	(l/s)	(kPa)		Connection size
-3	94	34	2.1	12.9	86	36	1.9	11	72	39	1.6	8.2		
3	87	37	1.9	11.3	79	39	1.77	9.7	67	42	1.48	7.3		2"
9 15	80 73	40 43	1.78 1.62	9.8 8.4	73 67	42 45	1.63 1.48	8.5 7.3	61 56	45 48	1.36 1.24	6.4 5.5		
-3 3	81 74	29 32	0.99 0.91	3.9 3.4	74 68	31 34	0.91 0.83	3.4 3.05	62 57	34 37	0.76 0.69	2.59 2.23		
9	67	35	0.82	3.00	61	3 4 37	0.85	2.60	51	39	0.63	1.93		1.25"
15	60	38	0.73	2.51	55	40	0.67	2.19	46	42	0.56	1.61		1.23
-3	54	18	0.66	2.15	49	19	0.6	1.84	41	21	0.5	1.35		
-5 3	47	21	0.57	1.71	43	22	0.52	1.48	36	24	0.3	1.07		
9	39	24	0.48	1.31	36	25	0.43	1.10	30	26	0.36	0.81		1.25"
15	32	27	0.38	0.91	29	28	0.35	0.80	24	29	0.29	0.58		1.25
ECOCMADT DO														
	XER Size 6			2 R	ow									ize
Air Volume Flow rat	e (m ³ /s)		3.9				3				2			on size
Air Volume Flow rat	e (m ³ /s) Heat	Air Off	Water flow	2 R Water dp	Heat	Air Off	Water flow	Water dp	Heat	Air Off	Water flow	Water dp		ction size
Air Volume Flow rat	e (m ³ /s) Heat Output	С	Water flow rate	Water dp	Heat Output	С	Water flow rate		Output	С	Water flow rate			nnection size
Air Volume Flow rat	e (m ³ /s) Heat		Water flow		Heat		Water flow	Water dp (kPa) 9.9			Water flow	Water dp (kPa) 6.6		Connection size
Air Volume Flow rat Air On C	e (m ³ /s) Heat Output (kW)	C C	Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	C C	Water flow rate (l/s)	(kPa)	Output (kW)	C C	Water flow rate (l/s)	(kPa)		Connection size
Air Volume Flow rat Air On C -3	e (m ³ /s) Heat Output (kW)	C C 30	Water flow rate (l/s) 3.5	Water dp (kPa) 11.8	Heat Output (kW)	C C 35 38 41	Water flow rate (l/s) 3.1	(kPa) 9.9 8.8 7.7	Output (kW) 106	C C 40	Water flow rate (l/s) 2.35	(kPa) 6.6		N Connection size
Air Volume Flow rat Air On C -3 3	e (m ³ /s) Heat Output (kW) 157 144	C C 30 34	Water flow rate (l/s) 3.5 3.2	(kPa) 11.8 10.4	Heat Output (kW) 139 128	C C 35 38	Water flow rate (l/s) 3.1 2.85	(kPa) 9.9 8.8	Output (kW) 106 98	C C 40 43	Water flow rate (I/s) 2.35 2.17	(kPa) 6.6 5.9		
Air Volume Flow rate Air On C -3 3 9	te (m ³ /s) Heat Output (kW) 157 144 132	C C 30 34 37	Water flow rate (I/s) 3.5 3.2 2.9	(kPa) 11.8 10.4 9.1	Heat Output (kW) 139 128 117	C C 35 38 41	Water flow rate (l/s) 3.1 2.85 2.61	(kPa) 9.9 8.8 7.7	Output (kW) 106 98 90	C C 40 43 46	Water flow rate (l/s) 2.35 2.17 1.99	(kPa) 6.6 5.9 5.3		
Air Volume Flow rate Air On C -3 3 9 15 -3 3	e (m ³ /s) Heat Output (kW) 157 144 132 119 131	C C 30 34 37 40 25 28	Water flow rate (I/s) 3.5 3.2 2.9 2.6 1.6 1.44	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4	Heat Output (kW) 139 128 117 106 116 105	C C 35 38 41 44 29 32	Water flow rate (l/s) 3.1 2.85 2.61 2.36 1.42 1.28	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87	Output (kW) 106 98 90 81 89 81	C C 40 43 46 48 33 36	Water flow rate (l/s) 2.35 2.17 1.99 1.8 1.1 0.99	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97		
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9	e (m³/s) Heat Output (kW) 157 144 132 119 131 118 106	C C 30 34 37 40 25 28 31	Water flow rate (I/s) 3.5 3.2 2.9 2.6 1.6 1.44 1.29	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92	Heat Output (kW) 139 128 117 106 116 105 94	C C 35 38 41 44 29 32 35	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47	Output (kW) 106 98 90 81 89 81 72	C C 40 43 46 48 33 36 38	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67		
Air Volume Flow rat Air On C -3 3 9 15 -3 3 9 15	e (m ³ /s) Heat Output (kW) 157 144 132 119 131 118 106 93	C C 30 34 37 40 25 28 31 35	Water flow rate (I/s) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42	Heat Output (kW) 139 128 117 106 116 105 94 83	C C 35 38 41 44 29 32 35 38	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03	Output (kW) 106 98 90 81 89 81 72 64	C C 40 43 46 48 33 36 38 41	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67		2"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3	Heat (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93	C C 30 34 37 40 25 28 31 35	Water flow rate (<i>Vs</i>) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04	Heat Output (kW) 139 128 117 106 116 105 94 83 73	C C 35 38 41 44 29 32 35 38	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03	Output (kW) 106 98 90 81 89 81 72 64	C C 40 43 46 48 33 36 38 41	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41		2"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15	Heat (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70	C C 30 34 37 40 25 28 31 35	Water flow rate (<i>Vs</i>) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62	C C 35 38 41 44 29 32 35 38 17	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36	Output (kW) 106 98 90 81 89 81 72 64	C C 40 43 46 48 33 36 38 41 20 22	Water flow rate (<i>Vs</i>) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91		2"
Air Volume Flow rat Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15	e (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56	C C C 30 34 37 40 25 28 31 35 14 18 21	Water flow rate (Vs) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50	C C S S S S S S S S S S S S S S S S S S	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02	Output (kW) 106 98 90 81 89 81 72 64 56 47 37	C C C 40 43 46 48 33 36 38 41 20 22 24	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65		2"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15	Heat (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70	C C 30 34 37 40 25 28 31 35	Water flow rate (<i>Vs</i>) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62	C C 35 38 41 44 29 32 35 38 17	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36	Output (kW) 106 98 90 81 89 81 72 64	C C 40 43 46 48 33 36 38 41 20 22	Water flow rate (<i>Vs</i>) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91		1.5"
Air Volume Flow rat Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15	e (m ³ /s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42	C C C 30 34 37 40 25 28 31 35 14 18 21	Water flow rate (Vs) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50	C C S S S S S S S S S S S S S S S S S S	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02	Output (kW) 106 98 90 81 89 81 72 64 56 47 37	C C C 40 43 46 48 33 36 38 41 20 22 24	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65	Ear further assistance	1.5"
Air Volume Flow rat Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 XXER Size 7	C C C 30 34 37 40 25 28 31 35 14 18 21 24	Water flow rate (<i>I</i> (<i>I</i>)s) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37	C C S S S S S S S S S S S S S S S S S S	Water flow rate (Us) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66	Output (kW) 106 98 90 81 89 81 72 64 56 47 37	C C C 40 43 46 48 33 36 38 41 20 22 24 25	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65	For further assistance	1.5"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42	C C 30 34 37 40 25 28 31 35 14 18 21 24	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37	C C C 35 38 41 44 29 32 35 38 17 20 23 25	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25	C C C 40 43 46 48 33 36 38 41 20 22 24 25	Water flow rate (Us) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65	please call Nuaire. Note:	1.5"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 XER Size 7 ie (m³/s) Heat Output	C C C 30 34 37 40 25 28 31 35 14 18 21 24	Water flow rate (<i>Vs</i>) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 COW	C C C 35 38 41 44 29 32 35 38 17 20 23 25 Air Off C	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 Water flow rate	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39		1.5"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 Expression of the control of the c	C C C 30 34 37 40 25 28 31 35 14 18 21 24 Air Off C C C	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us)	(kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa)	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37	C C C 35 38 41 44 29 32 35 38 17 20 23 25 Air Off C C C	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s)	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C C	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s)	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa)	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double	1.5"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 XER Size 7 Te (m³/s) Heat Output (kW) 201	C C C 30 34 37 40 25 28 31 35 14 18 21 24 Air Off C C 31	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5	(kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 ROW Heat Output (kW) 189	C C C 35 38 41 44 29 32 35 38 17 20 23 25 Air Off C C C 34	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.47 1.36 1.02 0.66 Water dp (kPa) 11.7	Output (kW) 106 98 90 81 89 81 72 64 56 47 25 Heat Output (kW)	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40	Water flow rate (Us) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (Us) 3.7	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 0.91 0.65 0.39 Water dp (kPa) 9.6	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	Connection size
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 Expression of the control of the c	C C C 30 34 37 40 25 28 31 35 14 18 21 24 Air Off C C C	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us)	(kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa)	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37	C C C 35 38 41 44 29 32 35 38 17 20 23 25 Air Off C C C	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s)	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C C	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s)	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa)	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double	1.5"
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 5 C Air Volume Flow rate Air On C -3 3 Air On C -3 3	e (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 XER Size 7 e (m³/s) Heat Output (kW)	C C C 330 344 377 40 255 288 311 355 144 Air Offf C C C 331 355	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 ROW Heat Output (kW) 189 174	C C C 355 38 41 44 42 29 32 35 38 17 20 23 25 Air Off C C C 34 37	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25 Heat Output (kW) 166 153	C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40 42	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	Connection size
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3 3 9 15	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 EXER Size 7 To (m³/s) Heat Output (kW) 201 184 168 151	C C C 330 344 377 440 25 28 311 35 144 18 224 Air Off C C 311 35 38 41	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7 3.4	(kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8 8.4	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 COW Heat Output (kW) 189 174 158 143	C C C 355 388 441 444 29 32 35 388 17 20 23 25 Air Off C C 344 37 40 43	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5 3.2	(kPa) 9,9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9 7.7	Output (kW) 1006 1006 1008 98 90 81 89 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139 125	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40 42 45 47	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4 3.1 2.8	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 7.5 6.4	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	Connection size
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3 3 9 9	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 EXER Size 7 To (m³/s) Heat Output (kW) 201 184 168	C C C 330 334 337 40 25 28 31 35 14 18 21 24 Air Off C C 31 35 38	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7	(kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 COW Heat Output (kW) 189 174 158	C C C 35 38 41 44 42 29 32 35 38 17 720 23 25 Air Off C C C 34 37 40	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40 42 45	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4 3.1	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 7.5	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	Connection size
Air Volume Flow rat Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rat Air On C -3 3 9 15 -3 -3 -3 -3 -3 -3 -3 -3 -3 -	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 EXER Size 7 19 184 168 151 161	C C C 30 34 37 40 25 28 31 35 14 18 21 24 Air Off C C 31 35 38 41 25	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7 3.4 1.97	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8 8.4	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 8OW Heat Output (kW) 189 174 158 143	C C C S S S S S S S S S S S S S S S S S	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5 3.2	(kPa) 9.9 8.8 7.7 6.7 6.7 3.3 2.87 2.47 2.47 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9 7.7	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139 125	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40 42 45 47 32	Water flow rate (Us) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.67 0.57 0.45 0.31 3.2 Water flow rate (Us) 3.7 3.4 3.1 2.8	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 7.5 6.4	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	1.5" 1.5" 2."
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 -3 3 9 15	Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42	C C C 330 344 377 400 255 288 311 355 388 411 255 288	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7 3.4	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8 8.4 4 3.5	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 ROW Heat Output (kW) 189 174 158 143 152 137	C C C 355 38 41 44 42 29 32 35 38 17 20 23 25 Air Off C C C 34 40 43 27 30	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5 3.2 1.86 1.67	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9 7.7 3.8 3.3	Output (kW) 1006 98 90 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139 125	C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40 42 45 47 32 34	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4 3.1 2.8 1.64 1.48	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 7.5 6.4 3.2 2.66	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	Connection size "2.1
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15	Re (m ³ /s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 EXER Size 7 Re (m ³ /s) Heat Output (kW) 201 184 168 151 161 145 128	C C C 330 344 377 440 255 288 311 355 144 188 211 224 Air Off C C 311 355 388 411 255 288 311	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7 3.4 1.97 1.77	(kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8 8.4 4 3.5 2.95	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 COW Heat Output (kW) 189 174 158 143 152 137 121	C C C 355 388 441 299 322 355 388 177 200 23 255 Air Off C C 344 377 400 43 277 300 333	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5 3.2 1.86 1.67 1.48	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9 7.7 3.8 3.3 2.72	Output (kW) 106 106 108 98 90 81 89 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139 125 134 121	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40 42 45 47 32 34 37	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4 3.1 2.8 1.64 1.48 1.31	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 7.5 6.4 3.2 2.66 2.24	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	1.5" Connection size 2."
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 -3 3 9 15 -3 3 9 15	Meter (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42	C C C 30 34 37 40 25 28 31 35 14 18 21 24 Air Off C C C 31 35 38 41 25 28 31 34 16	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7 3.4 1.97 1.77 1.56 1.36 1.16 0.96	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8 8.4 4 3.5 2.95 2.43 1.95 1.49	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 ROW Heat Output (kW) 189 174 158 143 152 137 121 106 91 75	C C C 355 38 41 44 42 29 32 35 38 17 20 23 25 Air Off C C C 34 37 40 43 27 30 33 36 15 18	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5 3.2 1.86 1.67 1.48 1.29 1.1	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9 7.7 3.8 3.3 2.72 2.24 1.79 1.37	Output (kW) 106 98 90 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139 125 134 121 107 93 80 66	C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C C 40 42 45 47 32 34 37 39 18 20	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4 3.1 2.8 1.64 1.48 1.31 1.14 0.97 0.8	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 7.5 6.4 3.2 2.66 2.24 1.85 1.47 1.12	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	1.5" Connection size 2."
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15	Re (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42 EXER Size 7 Re (m³/s) Heat Output (kW) 201 184 168 151 161 145 128 111	C C C 330 344 377 440 255 288 311 35 144 188 221 224 Air Off C C 331 355 38 411 255 288 31 334 13 166 19	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7 3.4 1.97 1.77 1.56 1.36 1.16 0.96 0.74	(kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8 8.4 4 3.5 2.95 2.43 1.95 1.49 1.04	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 COW Heat Output (kW) 189 174 158 143 152 137 121 106 91 75 58	C C C 355 388 441 444 29 32 355 388 177 20 23 25 Air Off C C 344 377 40 43 27 30 33 36 15 18 20	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5 3.2 1.86 1.67 1.48 1.29 1.1 0.91	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9 7.7 3.8 3.3 2.72 2.24 1.79 1.37 0.95	Output (kW) 106 98 90 81 89 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139 125 134 121 107 93 80 66 50	C C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C 40 42 34 47 32 34 37 39 18 20 22	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4 3.1 2.8 1.64 1.48 1.31 1.14 0.97 0.8 0.61	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 6.4 3.2 2.66 4 3.2 1.85 1.47 1.12 0.77	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	1.5" 1.5" 2."
Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 ECOSMART BO Air Volume Flow rate Air On C -3 3 9 15 -3 3 9 15 -3 3 9 15 -3 3 9 15 -3 3 9 15	Meter (m³/s) Heat Output (kW) 157 144 132 119 131 118 106 93 83 70 56 42	C C C 30 34 37 40 25 28 31 35 14 18 21 24 Air Off C C C 31 35 38 41 25 28 31 34 16	Water flow rate (Us) 3.5 3.2 2.9 2.6 1.6 1.44 1.29 1.13 1 0.85 0.68 0.51 4.8 Water flow rate (Us) 4.5 4.1 3.7 3.4 1.97 1.77 1.56 1.36 1.16 0.96	Water dp (kPa) 11.8 10.4 9.1 7.9 3.9 3.4 2.92 2.42 2.04 1.63 1.19 0.80 2 R Water dp (kPa) 13 11.2 9.8 8.4 4 3.5 2.95 2.43 1.95 1.49	Heat Output (kW) 139 128 117 106 116 105 94 83 73 62 50 37 ROW Heat Output (kW) 189 174 158 143 152 137 121 106 91 75	C C C 355 38 41 44 42 29 32 35 38 17 20 23 25 Air Off C C C 34 37 40 43 27 30 33 36 15 18	Water flow rate (I/s) 3.1 2.85 2.61 2.36 1.42 1.28 1.15 1 0.89 0.75 0.61 0.45 4.2 Water flow rate (I/s) 4.2 3.9 3.5 3.2 1.86 1.67 1.48 1.29 1.1	(kPa) 9.9 8.8 7.7 6.7 3.3 2.87 2.47 2.03 1.73 1.36 1.02 0.66 Water dp (kPa) 11.7 10.3 9 7.7 3.8 3.3 2.72 2.24 1.79 1.37	Output (kW) 106 98 90 81 72 64 56 47 37 25 Heat Output (kW) 166 153 139 125 134 121 107 93 80 66	C C 40 43 46 48 33 36 38 41 20 22 24 25 Air Off C C C 40 42 45 47 32 34 37 39 18 20	Water flow rate (I/s) 2.35 2.17 1.99 1.8 1.1 0.99 0.88 0.78 0.67 0.57 0.45 0.31 3.2 Water flow rate (I/s) 3.7 3.4 3.1 2.8 1.64 1.48 1.31 1.14 0.97 0.8	(kPa) 6.6 5.9 5.3 4.6 2.28 1.97 1.67 1.41 1.14 0.91 0.65 0.39 Water dp (kPa) 9.6 8.5 7.5 6.4 3.2 2.66 2.24 1.85 1.47 1.12	please call Nuaire. Note: dp figures do not include 3 port valve. Approximately double these figures when valves	1.5" Connection size 2."

^{*}Please note: above tables are based on indicative selections. For more specific selection, contact Nuaire.



SILENCER MODULES

Splitters are faced with perforated sheet lined to prevent particle migration and filled with high density mineral wool.



Unit Code	Α	В	С	Weight (Kg)
ESBSIL3	900	800	800	95
ESBSIL4	900	1000	800	96
ESBSIL5	900	1000	1000	124
ESBSIL6	900	1300	1000	150
ESBSIL7	900	1300	1300	192

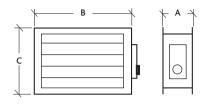
DYNAMIC ATTENUATION VALUES (at maximum velocity)

Length	125	250	500	1K	2K	4K	8K
900	6	8	18	22	20	16	15
1200	7	11	26	31	30	23	20

Note: silencer cross sectional area matches the Ecosmart Boxer unit.

MOTORISED DAMPERS

Opposed blade design with quick fit flanges. 240V Open/Shut model (B) for efficient back draught protection and 24V modulating version (M) for balancing and control.



Unit	Α	Weight (Kg)
ESBD3	165	19
ESBD4	165	23
ESBD5	165	28
ESBD6	165	30
ESBD7	165	34

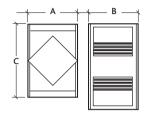
Note: Dimensions B & C are to suit unit supplied. Also available: motor open/spring return option. Code: ESBD* MO/SR.

FROST COIL = LPHW & ELECTRIC

600mm long section to suit unit size selected. For details contact Nuaire.

VERTICAL HEAT EXCHANGER

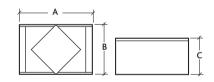
A plate exchanger core assembly providing efficient heat transfer between supply and extract air streams. An integral drip tray is incorporated with a 22mm drain connection. The tray is insulated to prevent secondary condensation.



	Length	Width	Height	
Unit	Α	В	С	Weight (Kg)
ESBHX3	1200	800	1600	210
ESBHX4	1400	1000	1600	263
ESBHX5	2200	1000	2000	360
ESBHX6	2200	1300	2000	440
ESBHX7	2500	1300	2600	594

HORIZONTAL HEAT EXCHANGER

Heat exchanger complete with integral drop tray with a 22mm drain connection.



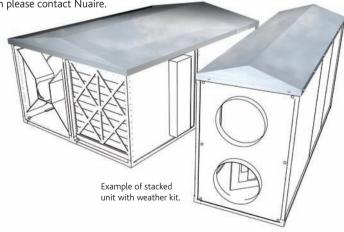
	Length	Width	Height	
Unit	Α	В	С	Weight (Kg)
ESBHX3H	1200	1600	800	200
ESBHX4H	1625	2000	800	280
ESBHX5H	2000	2000	1000	360
ESBHX6H	2200	2600	1000	600
ESBHX7H	2200	2600	1300	594

ESBBF2* - Available in a variety of lengths to suit unit sizes 1 - 7.

WEATHER ROOF FOR ECOSMART BOXER

For further information please contact Nuaire.

Example of horizontal unit with weather kit.

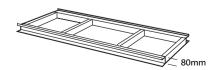


Z FACTORS FOR ANCILLARIES							
Casing Module	3	4	5	6	7		
Silencer	20	11	8	3.1	2		
Damper	12	6.8	4.8	1.9	1.2		
Frost coil LPHW	23	14	9.6	3.8	2.4		
Frost coil electric	23	14	9.6	3.8	2.4		
Weather cowl	12	6.8	4.8	1.9	1.2		
Plate heat exchanger	117	68	48	1.9	12		

For further ancillaries please refer to Ducting and Ancillaries section or call Nuaire.

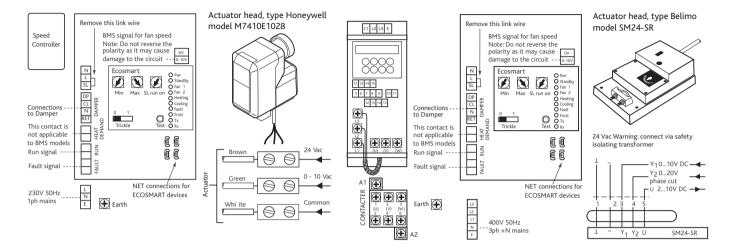
BASE FRAME

(Please contact Nuaire for further details). Provided as standard on sizes 3 - 7. Optional extras on sizes 1 and 2.



WIRING - ECOSMART BOXER SIZES 3 - 7

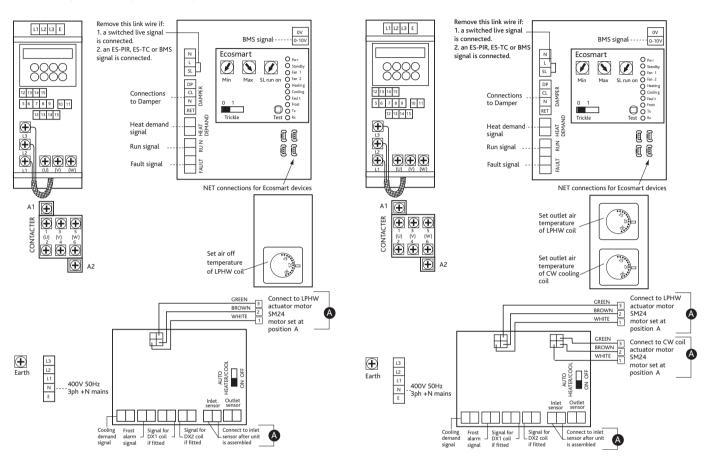
BMS MODES 1 AND 2 BMS MODES 3 TO 7





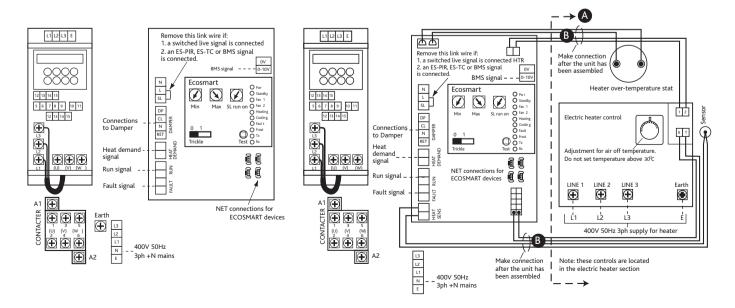
WIRING - ECOSMART BOXER SIZES 3 - 7 ESBHS3-L,ESBHS4-L, ESBHS5-L, ESBHS6-L AND ESBHS7, ESBHS3-LD, ESBHS4-LD, ESBHS5-LD, ESBHS6-LD AND ESBHS7-LD

WIRING - ECOSMART BOXER SIZES 3 - 7 ESBHS3-LC, ESBHS4-LC, ESBHS5-LC, ESBHS6-LC **AND ESBHS7-LC**

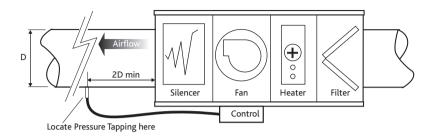


ESBHEX3, ESBHEX4, ESBHEX6 AND ESBHEX7

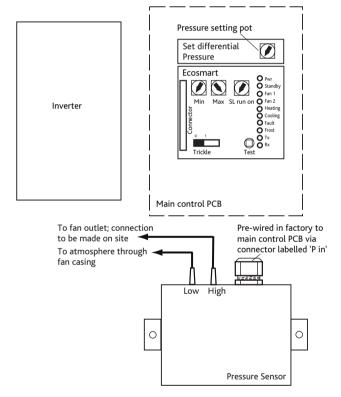
ESBHS3-E, ESBHS4-E, ESBHS5-E, ESBHS6-E AND ESBHS7-E



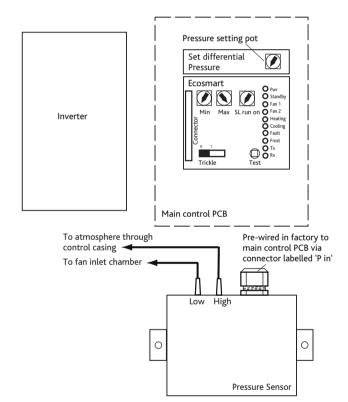
ECOSMART BOXER WITH CONSTANT PRESSURE CONTROLS



SUPPLY FANS SIZE 3 AND ABOVE



EXTRACT FANS SIZE 3 AND ABOVE





ECOSMART BOXER FAN CONTROL ONLY

Power requirements

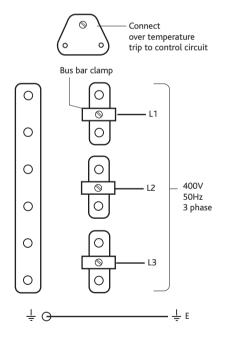
Model	Flc fan only (1)	Electric heater max Kw	Flc heater (2)
BHSEX3FC, BHS3FC-L	4.6A		
BHS3FC-E	4.6A	27	38A
BHSEX4FC, BHS4FC-L	6.1A		
BHS4FC-E	6.1A	36	50A
BHSEX5FC, BHS5FC-L	7.8A		
BHS5FC-E	7.8A	54	75A
BHSEX6FC, BHS6FC-L	8.2A		
BHS6FC-E	8.2A	54	75A
BHSEX7FC, BHS7FC-L	11.4A		
BHS7FC-E	11.4A	54	75A

Note: (1) Sizes 1 and 2 fans are rated at 230V ac, 50Hz single phase. All other sizes are rated at 400V ac 50 Hz 3 phase.

(2) All electric heaters are rated at 400V ac 50 Hz 3 phase.

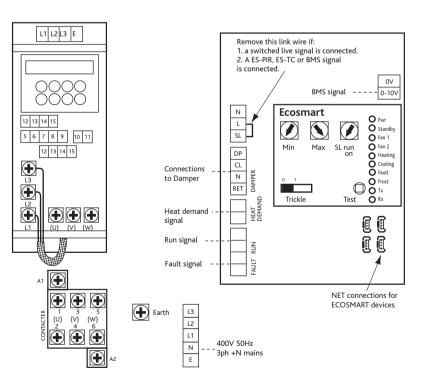
- i There are no inrush starting currents quoted because the Ecosmart control incorporates a soft starting speed control feature.
- ii. The inverters are preset to match the fan requirements. Under normal circumstances it should not be necessary to adjust them.
- iii. Pay particular attention to the model type, recorded on the product rating plate and connect as follows.

TYPICAL ELECTRIC HEATER WIRING



SIZES 3 TO 7

Note: Inter connections between circuit boards and inverter/contactor are made in the factory.



TECHNICAL INFORMATION

CONSULTANTS SPECIFICATION

ECOSMART BOXER UNITS SIZE 3 TO 7

AIR HANDLING UNIT SPECIFICATION

The Air Handling Unit shall be configured and arranged as detailed on the drawings and in accordance with the schedule of equipment. The units shall be manufactured from a highly rigid pentapost framework with 25mm double skinned infill panels. The panels shall contain inert high density infill. Panel materials are heavy gauge Aluzinc corrosion resistant steel. The units shall provide exceptional thermal and acoustic insertion. The general construction is to class A leakage.

The fan impeller and motor shall be selected to provide the most energy efficient solution conforming to part L regulations and shall be direct or belt drive with IE2 high efficiency motors to BS5000 as standard. The fan impeller shall be a high efficiency forward or backward curved centrifugal design, manufactured in galvanised steel.

The Fan unit shall have a 5 year warranty.

The unit and ancillaries shall be of the Ecosmart Boxer type as manufactured by Nuaire Ltd.

All other components shall be in accordance with the manufacturer's specification.

CONTROL SPECIFICATION

The Air Handling Unit shall be supplied with one of the following control options:-

1. ECOSMART CONTROLS -

The compact Ecosmart control system complete with all necessary controls to facilitate the operation of the ventilation system. It shall be come complete with an integral factory fitted Ecosmart PCB which will control the fan unit within the desired design parameters and provide the interface between all external control devices and the unit itself.

The Air Handling Unit shall have the following energy saving components integrally mounted, pre-wired to interface with the purpose made PCB, all components pre-wired, configured and factory fitted by the manufacturer: -

- Integral Frequency inverter/speed controller.
- · Integral maximum and minimum speed adjustment for commissioning.
- Integral adjustable run on timer.
- Integral BMS interfaces summer/winter switching, heating control, 0-10V speed adjustment.
- · Volt free failure and status indication.
- · Integral air off temperature adjustment.
- Facility for remote temperature control.
- Integral background ventilation switch (trickle switch).
- Multiple IDC sockets for interconnection of sensors or fans using pre-plugged 4-core low voltage cable.
- Volt free frost alarm/heat demand interface.
- · Frost protection/hold off stat.

ECOSMART SYSTEM OPERATION

The Ecosmart controls will enable the unit to automatically vary its speed as it receives signals from one of the interconnected sensors. When the signal is received the fan shall either increase speed gradually until the required level is achieved or it will work on a trickle and boost principle. This will then and move the fan duty point from trickle/background ventilation rate to the required boost ventilation rate. Both the trickle and boost rates are infinitely variable, easy to adjust and remove the need of a main balancing damper.

2. BMS INTERFACES

The fan unit shall be provided with the following integrated BMS interfaces

- 0 10 volt contacts to provide a full BMS interface. This will enable the following functions:-
 - Switch the unit on/off.
- Switch from low speed to high speed.
- Full speed control facility.
- Switch the heating function on/off.
- Switch the cooling function on/off.
- 2 No. Volt free contacts to provide fan run and failure indication to provide system status.
- An integrated commissioning/speed control to accurately commission the system, with minimum and maximum speeds easily adjusted via a miniature dial, as recommended in Part L. This will enable the unit to be configured to run between set parameters thus saving motor power and limiting noise.
- Commissioning set up The fan unit shall be provided with an integrated commissioning/speed control to accurately commission the system, as recommended in Part L, minimum and maximum speeds easily adjusted via miniature dial. The commissioning set up facility directly controls the integrated speed control/frequency inverter.

3. NO CONTROL IS AVAILABLE

(Example code BHS7NC-E).

COIL TYPES, HX AND CONTROLS

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature. The system shall have frost protection which shall, at temperatures below 4 degrees C, fully open the 3-port valve and only start the fan when the temperature at the filter has risen above the designated set point. Unit to have contacts which will act as frost alarm and/or signal boiler to switch on.

TECHNICAL INFORMATION



CONSULTANTS SPECIFICATION

HEATING COILS - LOW PRESSURE HOT WATER

The Low Pressure Hot Water heating coil shall be manufactured from copper tubing with high efficiency aluminium fins contained within a galvanised steel frame, shall be factory fitted with a 3-port motorised diverting valve assembly comprising the 3-port valve, double regulating valve, drain cocks aactuator controlling the 3-port valve shall be control via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

HEATING COILS - ELECTRIC

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. The heat output can be configured on site to suit the specific requirements.

COOLING COILS - CHILLED WATER

The Chilled Water Coil shall be manufactured from copper tubing with high efficiency aluminium fins contained within a galvanised steel frame, it shall be factory fitted with a 3-port motorised diverting valve assembly comprising the 3-port valve, drain cocks and air vents. The actuator controlling the 3-port valve shall be control via the on-board PCB by the off coil temperature sensor. Coil supplied complete with an insulated condensate tray and moisture eliminator. All components pre-piped, assembled and tested by the manufacturer.

COOLING COILS – DX COILS

The DX Coil shall be manufactured from copper tubing with high efficiency aluminium fins and droplet eliminator contained within a galvanised steel frame. The coil shall be filled with dry nitrogen with the pipe connections capped. It shall be factory fitted and tested by the AHU manufacturer. Note: Fan control only example code is BHS7FC-LD.

HEAT EXCHANGER

The cross flow heat exchanger shall be complete with a motorised summer bypass; this will be activated when the heating, cooling or ventilation switch on the user control is switched to the ventilation position.

The Ecosmart controlled fan unit shall have a 5 year warranty. Non Ecosmart fan controlled units will have a 3 year warranty.

All equipment shall be as manufactured by Nuaire Ltd. *Suitable for 95% RH non condensing.