

## XBOXER THERMAL WHEEL HEAT RECOVERY UNITS

HIGH EFFICIENCY ROTARY WHEEL - HELPING TO SAVE ENERGY AND  
REDUCE CARBON EMISSIONS.



## BENEFITS

### HIGH EFFICIENCY

Up to 85% efficient wheel combined with high efficiency motors and backward curved impellers.

### OPTIONAL ENERGY EFFICIENT CONTROLS

Full Ecosmart control compatibility provides a simple 'plug & go' control solution with BMS interface and trickle and boost as standard.

### DUAL FANS/MOTORS

Lower profile units with more uniform air distribution over heater batteries/ exchangers.

### NO CONTROL OPTION

For control integration by others.

### SPACE SAVING SOLUTION

Stacked configuration reduces overall space requirements and is ideal for plant room, or roof top applications.

### QUIETEST SOLUTION

The range has 25mm double skinned infill panels, helping to keep breakout noise to the lowest possible levels.

### HIGH PERFORMANCE RANGE

3 case options available as standard with performance up to 2m<sup>3</sup>/s. Contact Nuair for other duties or refer to AHU catalogue.

### QUICK COMMISSIONING\*

Integrated supply and extract fan control allows precise system duty adjustment and can be quickly and accurately set \*Ecosmart models only.

### EASY MAINTENANCE

The unit provides access to both right and left sides. It is recommended that clear space left be the full width of the stacked unit.

### INTEGRATED REGENERATION CONTROL

Operates automatically by shutting the wheel rotation down.

### WEATHERPROOF DETAIL

Can be factory fitted or fitted on site, please refer to page 88 for details.

### FILTER OPTIONS

G4 fitted as standard. Higher grade integrated filters available or as a duct mounted ancillary. Contact Nuair for details.

### CONSTANT PRESSURE CONTROL AVAILABLE

For further information contact Nuair.

### DX COIL & CHILLED WATER COOLING OPTIONS

Please refer to pages 00 to 00.

### FLEXIBLE RANGE

Models 1, 2 and 3 include LPHW, no heater and electric heater options. For further details please refer to AHU catalogue.

### ANCILLARIES

A range of ancillaries are available including manometers, bulkhead lights, view ports, drain trays and traps.

For further details please contact Nuair.

### WARRANTY

Models with Ecosmart control have a 5 year warranty.

No control models have a 2 year warranty\*.

\*Contact Nuair for further details.

Note: Thermal wheels have specific maintenance requirements.

Refer to installation and maintenance manual.

### FEATURES INCLUDE:



With LPHW.



Constant Pressure control option.



Pressure independent balancing control (T1 & T2 LPHW models only).



Filter options.



Frost coil option. (See page 87).

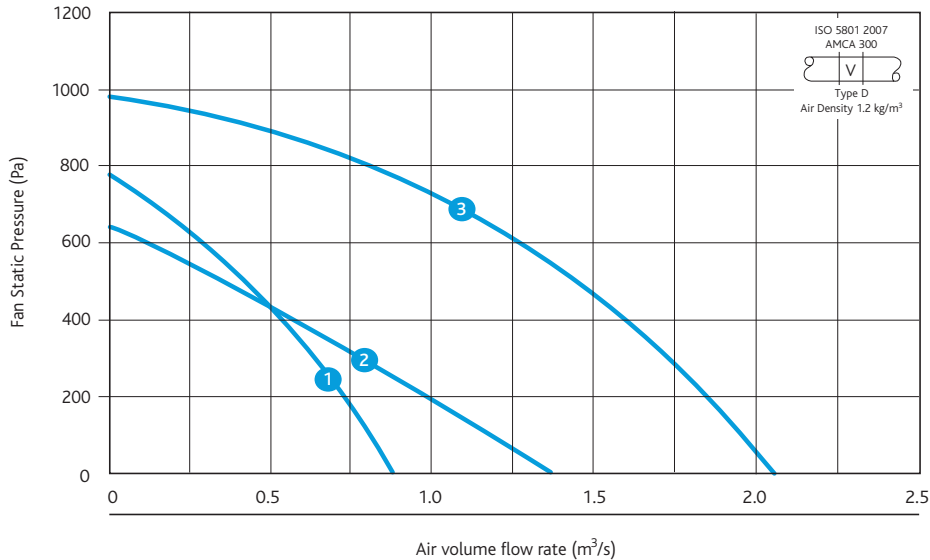
## AIR HANDLING UNITS (AHU'S)

### XBOXER THERMAL WHEEL

#### TECHNICAL INFORMATION

#### PERFORMANCE - XBOXER THERMAL WHEEL

##### Xboxer Thermal wheel sizes 1, 2 and 3



#### Casing



#### Code description (Example)

**T1NC - TWB - LL 2 WP**

| | | | | | |  
1 2 3 4 5 6 7

- 1. = Type/Curve Ref.
- 2. = Ecosmart control as standard  
NC = No control
- 3. = Thermal wheel box
- 4. = Component layout  
L = Left hand  
R = Right hand  
(Handings in direction of supply air)
- 5. = Type of heater  
L = LPHW, N = No heater, E = Electric
- 6. = 2 row coil
- 7. = Optional Weather Roof

#### PERFORMANCE - XBOXER THERMAL WHEEL

#### ELECTRICAL, SOUND & WEIGHT

Curve	Code	Phase	Speed (RPM)	Motor power (kW)	Start current (amps)	Full load current (amps)	LPHW Heater (kW)		Induct Sound Power Levels dB re 1pW								Breakout dBA @3m	Weight Kg***
									63	125	250	500	1K	2K	4K	8K		
1	T1-TWB-**	1	1710	1.8	11.6	11.6	*	Intake	75	74	76	72	73	71	66	69	45	395
								Supply	79	79	81	78	79	77	73	66		
								Discharge	79	79	81	78	79	77	73	66		
								Extract	75	74	76	72	73	71	66	69		
								Breakout	72	68	71	61	57	55	56	50		
2	T2-TWB-**	3	2140	2.1	3.5	3.5	*	Intake	84	84	78	71	69	65	57	60	46	395
								Supply	88	89	83	77	75	71	64	57		
								Discharge	88	89	83	77	75	71	64	57		
								Extract	84	84	78	71	69	65	57	60		
								Breakout	81	78	73	60	53	49	47	41		
3	T3-TWB-**	3	2412	0.8	2.7	2.7	*	Intake	60	69	72	72	66	65	60	69	47	847
								Supply	69	78	82	82	82	80	77	66		
								Discharge	68	75	78	79	74	73	69	66		
								Extract	64	73	78	76	77	74	68	69		
								Breakout	64	73	78	76	77	74	68	69		

Units are supplied c/w with 2 No. G4 filters as standard. (F5 & F7 filters are available as integrated options on supply).

Motor power and current loads are the total for both fans running together. Ecosmart models have a soft start function therefore the starting current is identical to the full load.

\*\* Add relevant code for heater type.

\* For details on coils, codes refer to page 87.

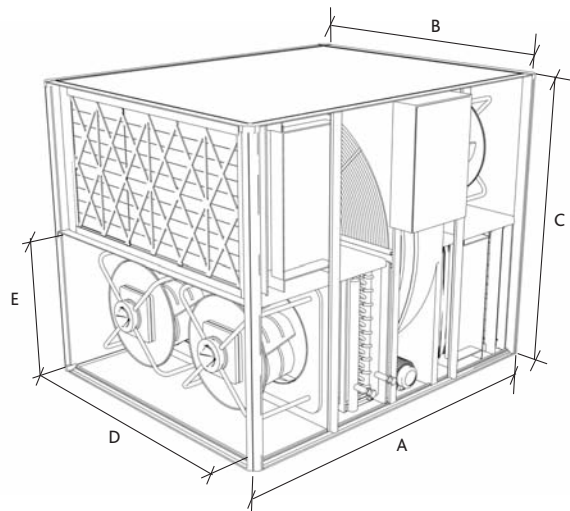
\*\*\*Weights of units are for guidance and include control and no weather roof.

DIMENSIONS AND CONFIGURATIONS

Xboxer Thermal wheel sizes 1, 2 and 3

DIMENSIONS (mm)

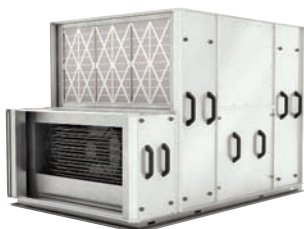
Code	A	B	C	Duct size D X E
T1-TWB	1470	1070	1163	949 X 494
T2-TWB	1470	1070	1163	949 X 494
T3-TWB	2000	1200	1676	1440 X 740



Model shown: T1-3NC-TWB-L (LPHW). No Ecosmart control.



Model shown: T1-3-TWB-L (LPHW). Includes Ecosmart control.



Model shown: T1-3NC-TWB-E (Electric heater). No Ecosmart control.



Model shown: T1-3-TWB-E (Electric heater). Includes Ecosmart control.



Model shown: T1-3NC-TWB-N (No heater). No Ecosmart control.



Model shown: T1-3-TWB-N (No heater). Includes Ecosmart control.



Model shown: T1-3NC-TWB-DX (With DX coil). No Ecosmart control.



Model shown: T1-3-TWB-DX (With DX coil). Includes Ecosmart control.

Note: Control box is integral.

## AIR HANDLING UNITS (AHU'S)

### XBOXER COIL PERFORMANCE

#### TECHNICAL INFORMATION

## COOLING COIL AND CHILLED WATER PERFORMANCE

### Size T1

Max Air Volume Flow Rate (m³/s)		0.722				18 Pa		0.36		26 Pa	
CWater Flow and Return Temp. (C)		Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa		
6 / 12	Entering Air Conditions db (deg C) / Rh (%)										
	25 / 50	9.5 / 7*	17 / 72.5	0.38	16.3	4.9 / 3.5**	17 / 72	0.193	10.6		
Connection size			3/4" / 22mm			Connection size			3/4" / 22mm		

### Size T2

Max Air Volume Flow Rate (m³/s)		1.1				0.75				
CWater Flow and Return Temp. (C)		Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa	
6 / 12	Entering Air Conditions db (deg C) / Rh (%)									
	25 / 50	13.6 / 9.8	17.61 / 70.3	0.541	20.3	10.1 / 7.3	17.02 / 72.2	0.399	12.1	
Connection size			3/4" / 22mm			Connection size			3/4" / 22mm	

### Size T3

Max Air Volume Flow Rate (m³/s)		1.8				0.9				
CWater Flow and Return Temp. (C)		Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa	
6 / 12	Entering Air Conditions db (deg C) / Rh (%)									
	25 / 50	23 / 17	17 / 73	0.93	12	12.1 / 8.7	17 / 72	0.48	19	
Connection size			1/4" / 35mm			Connection size			1/4" / 35mm	

## DX COIL PERFORMANCE

### Size T1

Max Air Volume Flow Rate (m³/s)		0.72				0.36			
R407C Liq. Temp. before TEV °C Average Evap. Temp. °C Superheat °K		Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k
45.0	10.0								
	25 / 50	7	17 / 82	163	0.19 / 0.9	3.5	17 / 82	82	0.04 / 0
Connection size (mm) twin coil interlaced			2 x 12.7 2 x 15.9 Gas 5 m/s			2 x 12.7 2 x 15.9 Gas 2.5 m/s			

### Size T2

Max Air Volume Flow Rate (m³/s)		1.1				0.75			
R407C Liq. Temp. before TEV °C Average Evap. Temp. °C Superheat °K		Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k
45.0	10.0								
	25 / 50	12.4 / 10.9	16.8 / 80	293	0.82 / 3.9	10.2 / 8.1	16 / 80	240	0.55 / 2.6
Connection size (mm) twin coil interlaced			1 x 12.7mm Liquid line and 1 x 28 Gas line						

### Size T3

Max Air Volume Flow Rate (m³/s)		7.4				5.4			
R407C Liq. Temp. before TEV °C Average Evap. Temp. °C Superheat °K		Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k
45.0	10.0								
	25 / 50	17.4	17 / 82	408	0.12 / 0.5	8.7	17 / 82	204	0.06 / 0
Connection size (mm) twin coil interlaced			2 x 12.7 2 x 22 Gas 6 m/s			2 x 12.7 2 x 15.9 Gas 6.2 m/s			

\*Please note: above tables are based on indicative selections. For more specific selection, contact Nuair.

Size T2 continued

0.5				0.25			
Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Water flow rate l/s	Water dp kPa
7.1 / 5.1	16.52 / 73.9	0.283	6.8	3.8 / 2.8	15.85 / 76.8	0.151	3
Connection size 3/4" / 22mm				Connection size 3/4" / 22mm			

Code description for Chilled Water or Cooling Coils

**CW TR 1 - 6/12 - 2.6**

|   |   |   |   |  
 1   2   3   4   5

- 1. = Chilled water or (CC) = Cooling coil
- 2. = Suitable for Thermal wheel (TWB)
- 3. = Unit size
- 4. = Flow and return temperature
- 5. = Return temperature
- 6. = Maximum air flow rate (m<sup>3</sup>/s)

Size T2 continued

0.5				0.4			
Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k	Cooling Output kW total / sensible	Air Off Condition db (deg C) / Rh (%)	Mass flow rate kg / h	Coil dp bar / k
7.7 / 5.8	15.4 / 80	182	0.31 / 1.5	4.1 / 3.9	17 / 80	97	0.07 / 0
1 x 12.7mm Liquid line and 1 x 28 Gas line							

Code description for DX Coil

**DX TR 1 - 2.6**

|   |   |   |  
 1   2   3   4

- 1. = Type of coil
- 2. = Suitable for Thermal wheel (TWB)
- 3. = Unit size
- 4. = Maximum air flow rate (m<sup>3</sup>/s)

## AIR HANDLING UNITS (AHU'S)

### XBOXER COIL PERFORMANCE

#### TECHNICAL INFORMATION

#### STANDARD COIL PERFORMANCE

Size 1 Air Volume Flow rate (m³/s)		0.72				0.36				Flow & Return Connection size
LPH Water Flow & Return Temp. (C)	Entering Air Temp (C)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	
82/71	-3	23	24	0.52	9.2	17	37	0.38	5.4	0.75" / 22mm
	3	21	28	0.48	8	16	39	0.35	4.6	0.75" / 22mm
	10	19	32	0.43	6.6	14	43	0.32	3.9	0.75" / 22mm
	15	18	35	0.4	5.7	13	45	0.3	3.4	0.75" / 22mm
80/60	-3	20	20	0.24	3	15	31	0.18	3	0.75" / 22mm
	3	18	24	0.22	3	13	34	0.165	3	0.75" / 22mm
	10	16	28	0.2	3	12	37	0.15	3	0.75" / 22mm
	15	14	31	0.18	3	11	40	0.13	3	0.75" / 22mm
60/40	-3	13	12	0.16	3	10	20	0.12	3	0.75" / 22mm
	3	11	15	0.14	3	8.5	22	0.1	3	0.75" / 22mm
	10	9	20	0.11	3	7	26	0.09	3	0.75" / 22mm
	15	7	24	0.09	3	6	28	0.07	3	0.75" / 22mm

Size 2 Air Volume Flow rate (m³/s)		1.1				0.75				0.5				Flow & Return Connection size
LPH Water Flow & Return Temp. (C)	Entering Air Temp (C)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	
82/71	-3	32.52	21.5	0.724	23.2	28.97	26.4	0.645	18.9	24.25	33.9	0.54	31.7	0.75" / 22mm
	3	29.9	25.9	0.665	20	26.55	30.5	0.591	16.1	22.2	37.5	0.494	11.7	0.75" / 22mm
	10	26.86	30.9	0.598	16.4	23.76	35.2	0.529	13.2	19.84	41.6	0.442	9.6	0.75" / 22mm
	15	24.7	34.4	0.55	14.1	21.79	38.5	0.485	11.3	18.18	44.5	0.405	12	0.75" / 22mm
80/60	-3	28.57	18.3	0.349	6.4	25.43	22.8	0.31	5.2	21.39	29.5	0.261	3.8	0.75" / 22mm
	3	25.96	22.6	0.317	5.4	23.04	26.9	0.281	4.4	19.37	33.1	0.236	3.2	0.75" / 22mm
	10	22.93	27.6	0.28	4.3	20.27	31.5	0.247	3.5	17.04	37.1	0.208	3	0.75" / 22mm
	15	20.77	31.2	0.253	3.7	18.32	34.8	0.224	3	15.39	40	0.188	3	0.75" / 22mm
60/40	-3	19.69	11.3	0.238	3.4	17.41	14.6	0.211	3	14.69	19.3	0.178	3	0.75" / 22mm
	3	17.07	15.6	0.207	3	15.05	18.6	0.182	3	12.7	22.7	0.154	3	0.75" / 22mm
	10	14.02	20.5	0.17	3	12.32	23.1	0.149	3	10.4	26.6	0.126	3	0.75" / 22mm
	15	11.82	24	0.143	3	10.38	26.2	0.126	3	8.76	29.2	0.106	3	0.75" / 22mm

Size 3 Air Volume Flow rate (m³/s)		1.8				0.9				Flow & Return Connection size
LPH Water Flow & Return Temp. (C)	Entering Air Temp (C)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	
82/71	-3	81	34	1.81	8.7	56	49	1.26	4.9	1.25" / 35mm
	3	75	37	1.66	7.5	52	51	1.15	4.3	1.25" / 35mm
	10	67	41	1.49	6.3	46	53	1.04	3.6	1.25" / 35mm
	15	61	43	1.36	5.5	43	54	0.95	3.2	1.25" / 35mm
80/60	-3	65	27	0.8	3	46	39	0.56	3	1.25" / 35mm
	3	59	30	0.72	3	42	41	0.51	3	1.25" / 35mm
	10	51	33	0.62	3	36	43	0.44	3	1.25" / 35mm
	15	45	36	0.55	3	32	44	0.39	3	1.25" / 35mm
60/40	-3	37	15	0.47	3	27	22	0.33	3	1.25" / 35mm
	3	32	17	0.38	3	22	23	0.26	3	1.25" / 35mm
	10	22	20	0.27	3	11	20	0.13	3	1.25" / 35mm
	15	10	20	0.12	3	9	23	0.11	3	1.25" / 35mm

The thermal outputs in these tables represent the results that may be achieved with the range of standardised coils offered in this range of equipment. Heating coils may of course be individually selected to meet project specific requirements.

\*Please note: above tables are based on indicative selections. For more specific selection, contact Nuair.

\*Please note that the pressure drops shown are for the bare coil only. Please contact Nuair for further information.

**FROST COIL PERFORMANCE**

Size 1 Maximum Air Volume															
Flow rate (m <sup>3</sup> /s)															
LPH	Water Flow & Return Temp. (C)	Entering Air Temp (C)	Heat Output (kW)	4			3			2			Connection size		
				Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)		Water Flow rate (l/s)	Water dp (kPa)
82/71		-3	119	21.6	2.7	6.9	108	26.7	2.4	5.9	90.3	34.3	2	4.4	00"/00mm
80/60		-3	98.5*	17.3	1.3	3	89.3**	21.7	1.1	3	74**	28.5	0.91	3	*00"/35mm **0"/00mm
60/40		-3	63*	9.5	0.77	3	57**	12.2	0.69	3	48**	16.4	0.58	3	*00"/35mm **0"/00mm

Size 2 Maximum Air Volume															
Flow rate (m <sup>3</sup> /s)															
LPH	Water Flow & Return Temp. (C)	Entering Air Temp (C)	Heat Output (kW)	6.6			4.5			3			Connection size		
				Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)		Water Flow rate (l/s)	Water dp (kPa)
82/71		-3	287	30	6.4	11.1	249	39.1	5.5	8.9	180	51.9	4	5.4	*0"/00mm **00"/00mm ***00"/00mm
80/60		-3	239	27.6	2.92	3.4	213	32.9	2.6	3	173	40.8	2.1	3	*00"/00mm ** 00"/00mm
60/40		-3	162	15.7	1.97	3	140	20.6	1.7	3	114	25.9	1.38	3	*00"/00mm ** 00"/00mm

Size 3 Maximum Air Volume															
Flow rate (m <sup>3</sup> /s)															
LPH	Water Flow & Return Temp. (C)	Entering Air Temp (C)	Heat Output (kW)	10.1			7.5			5			Connection size		
				Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)	Water Flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off temp (C)		Water Flow rate (l/s)	Water dp (kPa)
82/71		-3	443	30.3	9.86	33.8	392	36.7	8.7	27.7	319	45.4	7.09	19.8	*0"/00mm **00"/00mm
80/60		-3	378	25.5	4.62	10.2	337	31.1	4.1	8.6	276	38.9	3.37	6.4	*00"/00mm **00"/00mm
60/40		-3	251	15.9	3.1	5.7	224	19.7	2.71	4.8	185	25	2.74	3.6	*00"/00mm **00"/00mm

The thermal outputs in these tables represent the performance of coils selected to achieve our recommended operational specifications for a frost protection coil. Alternative coil specifications may be provided on request.

\*Please note: above tables are based on indicative selections. For more specific selection, contact Nuair.

\*Please note that the pressure drops shown are for the bare coil only. Please contact Nuair for further information.

**Code descriptions**

**FC TR 1 - 82/71 - 4**

| | | | | |  
**1 2 3 4 5 6**

- 1. = Frost coil
- 2. = Suitable for Thermal wheel (TWB)
- 3. = Unit size
- 4. = Flow temperature
- 5. = Return temperature
- 6. = Maximum volume flow rate (m<sup>3</sup>/s)

## AIR HANDLING UNITS (AHU'S)

### XBOXER ANCILLARIES

#### TECHNICAL INFORMATION

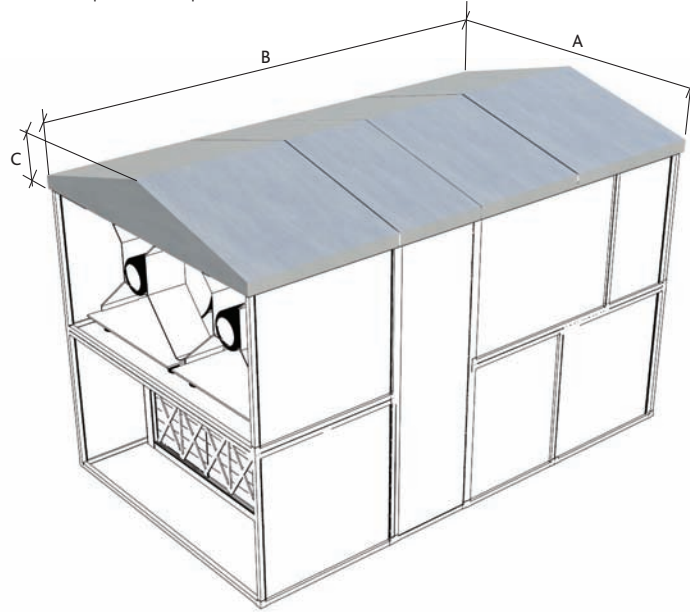
### WEATHER PROTECTION ROOF FOR XBOXER THERMAL WHEEL & RUN AROUND COIL UNITS

\*Note: Weather protection is also available for other stacked and horizontal units in the XBOXER range.

For further information contact Nuairé.

An example of a stacked unit with weather roof is shown below. Note: These roofs do not provide frost protection.

For Weather Protection add 'WP' to end of unit code i.e. T3-TWB-LLWP.

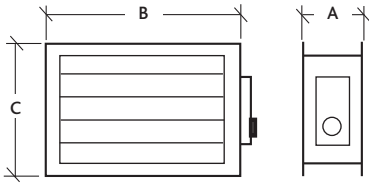


### DYNAMIC INSERTION LOSS (dB)

Length	125	250	500	1K	2K	4K	8K
900	6	8	18	22	20	16	15

### MOTORISED DAMPER

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



### DIMENSIONS (mm)

Unit	A	B	C	Weight (Kg)
MD-TR-1	165	760	395	15
MD-TR-2	165	960	494	20
MD-TR-3	165	1200	590	40

Note: Dimensions B & C are to suit unit supplied.

### TWB & RAC WEATHER PROTECTION

### DIMENSIONS (mm)

Unit Code	A	B	C	Weight (Kg*)
T/1 -TWB-*WP	1070	1470	112	40
T/2 -TWB-*WP	1070	1470	112	50
T/3 -TWB-*WP	1200	2000	100	60

\*Weight of weather roof only.

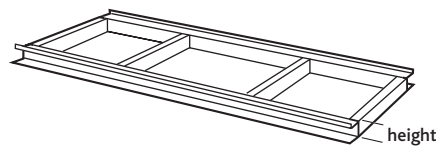
### NON MOTORISED DAMPER

Non motorised dampers are available, contact Nuairé.

Please contact Nuairé for manometers, gauges, sensors, traps and drains, condensate pumps, access panels, view ports and bulkhead lights.

### BASE FRAME

Base Frame is included.



### DIMENSIONS (mm)

Unit Code	Height of base frame
T1, T2 and T3	100

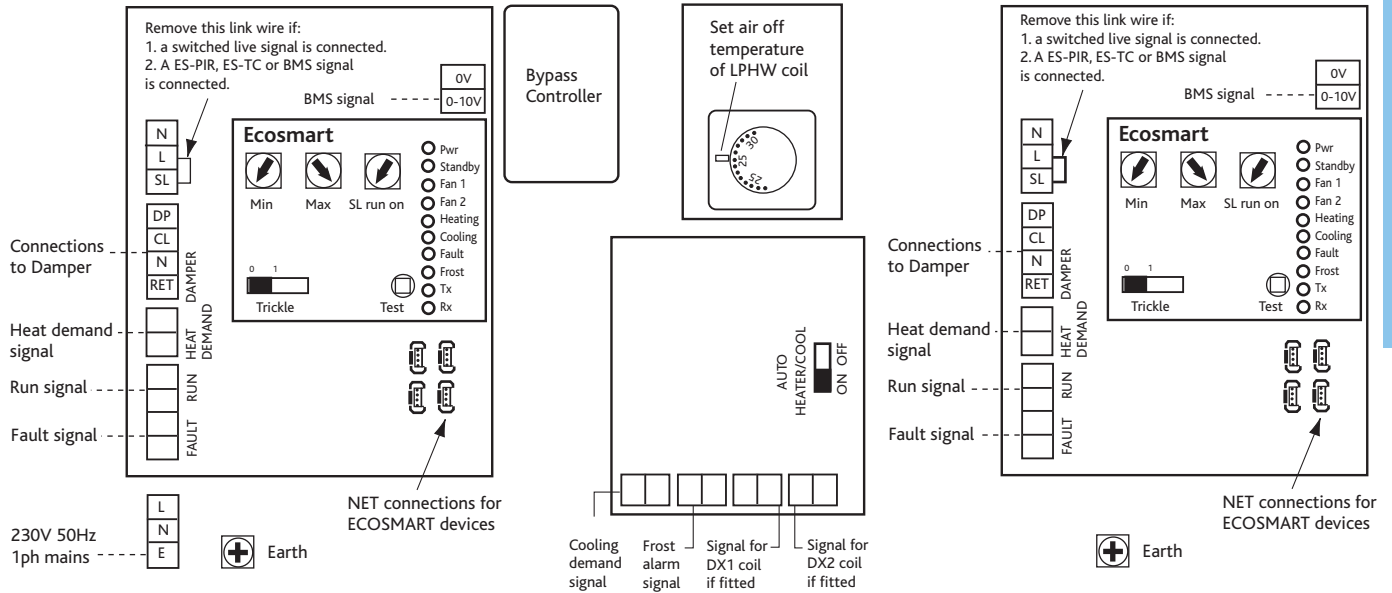
### CONDENSATE PUMP



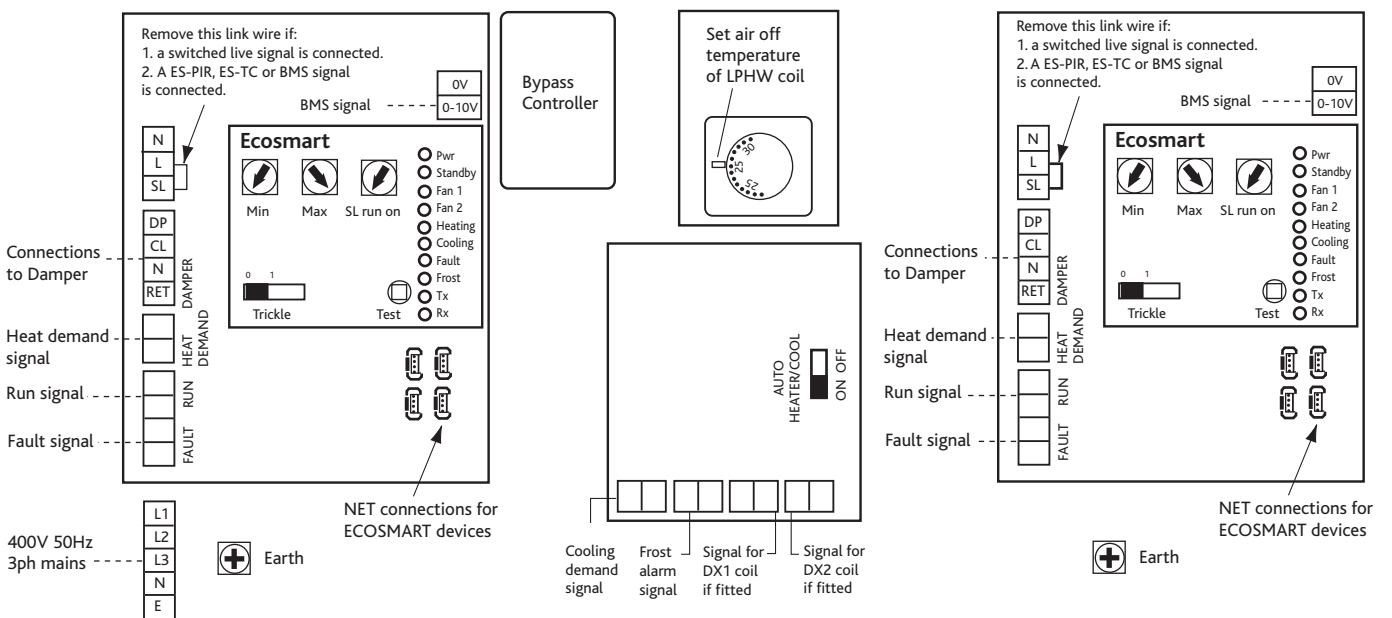
### DIMENSIONS (mm)

Unit Code	L x W x H	Weight (Kg)
XB-CON-DR	267 x 51 x 64	1

WIRING FOR UNITS WITH ECOSMART CONTROL - T1 - TWB 'L' (LPHW)



WIRING FOR UNITS WITH ECOSMART CONTROL - T2 - TWB 'L' (LPHW)



## CONSULTANTS SPECIFICATION

### XBOXER THERMAL WHEEL

#### OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. Supply air to the room shall be pre-heated by the extract air via the integrated thermal wheel or run around coil.

Where fitted an integrated heater battery shall raise the temperature of the supply air to the design room temperature after the air has passed through the thermal wheel or run around coil.

The Ecosmart ventilation unit shall automatically vary the ventilation rate, as it receives signals from one of the optional interconnected sensors. When signals are received, the fan shall either vary its speed proportionally or on a trickle and boost principle.

The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

#### RANGE TYPE - THERMAL WHEEL UNIT

The vertically stacked unit shall be manufactured from aluzinc corrosion resistant steel, with 25mm double skinned infill panels and extruded aluminium frame giving extremely low noise levels. The unit shall include the following items:- Thermal wheel, supply & extract fans, supply and extract filters, G4 grade bag as standard (upgrade to F7 bag if required) and LPHW heating coil (L model). The unit shall be constructed with removable panels allowing maintenance access from either side. Note: T1, T2 & T3 have chosen side access.

The unit shall be constructed with removable panels allowing full maintenance access from either side.

#### CONTROL TYPES - ECOSMART - (OPTIONAL)

The Ecosmart control option provides the facility for energy saving via an intelligent stand-alone AHU function, or for convenient integration with client BMS with a minimal coordination requirement.

The factory fitted control includes:- integral infinitely variable (inverter) speed / duty control for the supply and extract fans, with independent minimum and maximum adjustment for accurate commissioning.

A run on timer and "background" ventilation function and is provided as is unit status indication, run / fail relays, and interface connection for Ecosmart sensors/enablers and system dampers.

The unit heat recovery function is facilitated by a dedicated controller and associated sensors. An output signal is provided to control thermal wheel drive or plate heat exchanger bypass operation (included), For Run Around Coil units, the output signal may be used to control the circulation pump system (by others).

BMS. The Ecosmart control module can additionally be pre-configured to provide 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.  
Variable speed / duty control Switch from low speed to high speed - trickle and boost principle.

- 2 No. Volt free contacts to provide fan run and failure indication to provide system status.

**Please note Ecosmart is fan only control.**

#### NO CONTROL - (OPTIONAL)

Unit provides side access to direct supply and extract fan motor wiring (terminal boxes) for interface to custom built control panels by others. For this option, no sensors are fitted to the unit, but note that in the case of plate heat exchanger units, the bypass damper actuator is included, and for thermal wheel units, the wheel motor and drive unit is included.

#### ELECTRIC HEATER BATTERY

The electric heater battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. When the unit is switched off, the fan shall continue to run to dissipate heat from the electric heater battery before stopping.

#### COIL TYPES - LOW PRESSURE HOT WATER COIL

The coil casing shall be formed from heavy gauge galvanised sheet steel to BS 2989 to make a rigid assembly. Tube end plates shall have die formed collared holes to allow expansion and contraction of the tubes without damage.

All coils are pressure tested to 16 bar with dry compressed air under water.

Standard or duty specific coils are selected to suit customer requirement using specific computer software to give optimum performance with lowest pressure drop.

The coils shall be factory fitted with drain cocks and air vents.

Standard specification coils have copper tubes and aluminium fins.

Coil connections shall be BSP terminated at the exterior of the unit casing. T1, T2 & T3 will have push fit connections.

## CONSULTANTS SPECIFICATION

### XBOXER THERMAL WHEEL

#### COOLING COILS - CHILLED WATER (OPTIONAL)

The coil casing shall be formed from heavy gauge galvanised sheet steel to BS 2989 to make a rigid assembly. Tube end plates shall have die formed collared holes to allow expansion and contraction of the tubes without damage. All coils are pressure tested to 16 bar with dry compressed air under water. Standard or duty specific coils are selected to suit customer requirement using specific computer software to give optimum performance with lowest pressure drop. The chilled water coils shall be factory fitted with drain cocks and air vents.

Standard specification coils shall have copper tubes and aluminium fins, and shall be supplied complete with an insulated condensate tray with drain connection, and moisture eliminator. Coil connections shall be BSP terminated at the exterior of the unit casing. T1, T2 & T3 will have push fit connections.

#### COOLING COILS – DX COIL (OPTIONAL)

The coil casing shall be formed from heavy gauge galvanised sheet steel to BS 2989 to make a rigid assembly. Tube end plates shall have die formed collared holes to allow expansion and contraction of the tubes without damage. All coils are pressure tested to 16 bar with dry compressed air under water. Standard or duty specific coils are selected to suit customer requirement using specific computer software to give optimum performance with the chosen refrigerant.

The DX coils shall be of twin coil interlaced type unless otherwise stated (c/w two pairs of connections). Standard specification coils shall have copper tubes and aluminium fins, and shall be supplied complete with an insulated condensate tray with drain connection, and moisture eliminator. Coil connections shall be BSP terminated at the exterior of the unit casing.

#### ANCILLARIES FOR TWB - ATTENUATORS

Attenuator splitters shall be manufactured from using chemically inert, non-combustible, non-hygroscopic and vermin resistant sound absorbing material, with fibre-retaining facing. Attenuator casing shall be manufactured from aluzinc corrosion resistant steel, with 25mm double skinned infill panels and extruded aluminium frame.

Attenuator shall be tested in accordance with BSI 4718: 1971 ASTM E 477 and shall be suitable for external/internal use.

#### CODE FOR ATTENUATORS

SIL-TR-1 (to fit thermal wheel unit).

SIL-TR-2 (to fit thermal wheel unit).

SIL-TR-3 (to fit thermal wheel unit).

#### MOTORISED DAMPERS

Motorised damper shall be of opposed blade type and come complete with quick fit flanges as standard. Damper is 240V open/shut type designed for efficient back draft protection.

#### CODE FOR DAMPERS

MD-TR1 (to fit size 1-TWB\*\*)

MD-TR2 (to fit size 2-TWB\*\*)

MD-TR3 (to fit size 3-TWB\*\*)

Note: above are suitable for both Thermal wheel and run around coil ranges.

#### WEATHER KIT

Manufactured from Aluzinc the weather proof enclosure is designed for Nuaire thermal wheel and run around coil ranges. Kit's can be factory fitted or installed on site. Note: enclosure does not provide frost protection.

### XBOXER THERMAL WHEEL & RUN AROUND COIL

#### CODE (FOR THERMAL WHEEL MODELS)

T1-TWB-L L 2 WP

T2-TWB-R L 2 WP

T3-TWB-L N WP

T1-TWB-R N WP

T2-TWB-L E WP

T3-TWB-R E WP

\* Denotes handing, 'L' = left, 'R' = right.

Models with Ecosmart control will have a 5 year warranty.

Models with no control will have a 2 year warranty.

For further details contact Nuaire.

Note: Thermal wheels have specific maintenance requirements, contact Nuaire for details.