Test Report
Report No: TD/1946

Date: 20 November 2006

Customer: **TITON**

Specimen: **Select Xtra XS13 4400EA screw fix ventilator and Select Xtra XC13 412 screw fix canopy.**

Materials: As drawings.

Tests performed: Weathertightness generally in accordance with the requirements of BS 6375 Part 1: 2004.
Performance testing generally in accordance with to BS EN 13141-1: 2004.

Date of tests: November 2006.

Results: When corrected to an STP of 20°C and 1013.25mb the device achieved the following performance levels:

Air tightness (BS EN 13141-1: 2004)	At 50Pa the leakage rate was	2.42	m^3/hr	or	0.67	l/s
	At 100Pa the leakage rate was	3.94	m^3/hr	or	1.10	l/s
Air permeability (BS EN 1026: 2000)	At 150Pa the leakage rate was	14.29	m^3/hr	or	3.97	l/s
	At 200Pa the leakage rate was	17.17	m^3/hr	or	4.77	l/s
	At 300Pa the leakage rate was	24.14	m^3/hr	or	6.70	l/s
	At 600Pa the leakage rate was	34.96	m^3/hr	or	9.71	l/s
	Additionally, the ventilator remained closed when gusted at				817	Pa
Watertightness (BS EN 1027: 2000)	The device was watertight to	600	Pa in the closed position.			
	The device was watertight to	N/A	Pa in the open position.			
Air flow (BS EN 13141-1: 2004)	The arrangement as described exhibited a minimum EA at 1Pa of				4325	mm^2.
	with flow from	canopy to vent				
Geometric free area (BS EN13141-1: 2004)	The Select Xtra XS13 s/f ventilator had a geometric free area of				4241	mm^2.
	The Select Xtra XC13 s/f canopy had a geometric free area of				5027	mm^2.

*Uncertainty of measurement. BS EN 13141-1: 2004 states that the combined uncertainties of pressure and flow measurement will result in a total accuracy of the test method in the range of 3% to 5%.

An itemised list of results is documented in Appendix A.

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The figures shown on page 1 are average values obtained from the testing of three randomly selected production samples.

This report relates to items selected and submitted by:

TITON

and those items alone.

The results obtained do not necessarily relate to samples from the production line and in no way imply performance or quality of the continuing production.
The results presented are only valid for the test conditions shown and may not reflect on site values in another configuration.
The results and conclusions shown in this report are given in good faith.
Titon accepts no liability or responsibility for any loss or damage occurring from the use of the same.

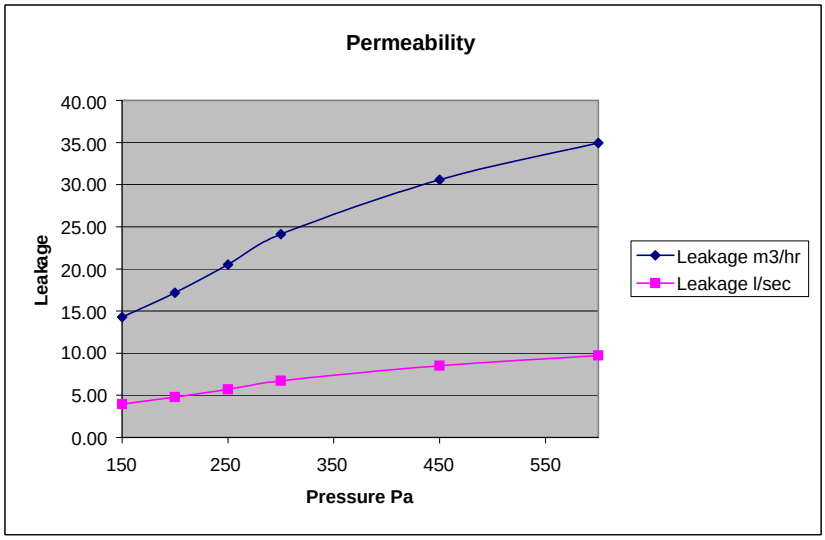
APPENDIX A

AIR PERMEABILITY.

Tested generally in accordance with BS EN1026: 2000.

Pressure	Blank leakage m^3/hr				Gross leakage m3/hr				Nett leakage	
Pa	▲	▼	Max	To STP	▲	▼	Max	To STP	m^3/hr	l/s
150	6.90	6.90	6.90	6.77	20.20	21.46	21.46	21.06	14.29	3.97
200	8.30	8.30	8.30	8.14	24.26	25.80	25.80	25.31	17.17	4.77
250	9.60	9.60	9.60	9.42	28.83	30.50	30.50	29.93	20.51	5.70
300	10.90	10.80	10.90	10.69	32.80	35.50	35.50	34.83	24.14	6.70
450	14.00	14.00	14.00	13.74	43.00	45.16	45.16	44.31	30.57	8.49
600	16.70	16.70	16.70	16.39	52.33	52.33	52.33	51.34	34.96	9.71

Laboratory temperature, ^{0}C	21.20	Chamber temperature, ^{0}C	16.8
Atmospheric pressure, kPa	998.0	Relative humidity, %	47.0



RESISTANCE TO OPENING

The ventilator remained closed when gusted at 817 Pa

WATERTIGHTNESS

Tested generally in accordance with BS EN1027: 2000. Spray method 1A.

Pressure Pa	Time min	Observations
0	**15**	No water ingress
50	**5**	No water ingress
100	**5**	No water ingress
150	**5**	No water ingress
200	**5**	No water ingress
250	**5**	No water ingress
300	**5**	No water ingress
450	**5**	No water ingress
600	**5**	No water ingress

AIR FLOW

Tested in accordance with BS EN 13141-1:2004 4.1

The measured air permeability of the test equipment was 0.22 m^3/hr at 99.89 Pa

Measured flow from canopy to vent

Δp (Pa)	Δp meas (Pa)	^{q}v meas m3/hr	K	n
1	0.92	11.75	12.2358	0.5293
2	1.81	16.67		
4	3.96	25.37		
8	7.89	36.66		
10	9.90	41.33	Deg C	mB	RH
15	14.79	50.88	21.3	1004.0	47
20	19.87	59.30		
30			AFR 1	
40			BLOWING	
60			S & P FAN	
80			VENT to CANOPY	
100				

Measured flow from vent to canopy

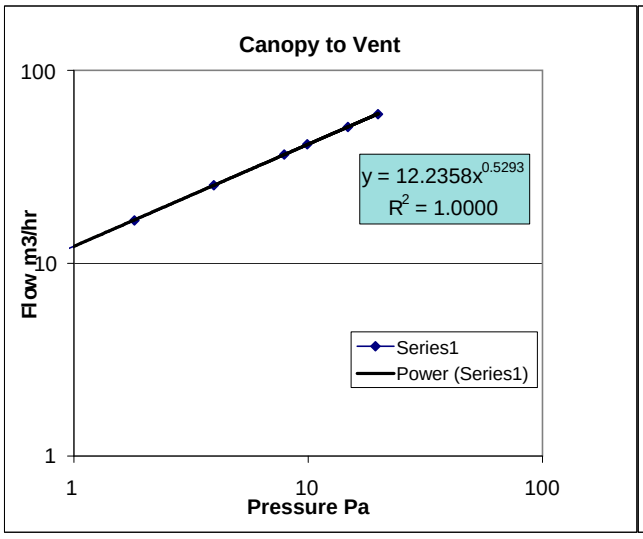
Δp (Pa)	Δp meas (Pa)	^{q}v meas m3/hr	K	n
1	1.04	13.10	12.8944	0.5291
2	1.91	18.07		
4	3.87	26.60		
8	7.85	38.52		
10	9.86	43.40	Deg C	mB	RH
15	14.84	53.65	22.0	1004.0	47
20	19.85	62.28		
30			AFR 1	
40			BLOWING	
60			S & P FAN	
80			VENT to CANOPY	
100				

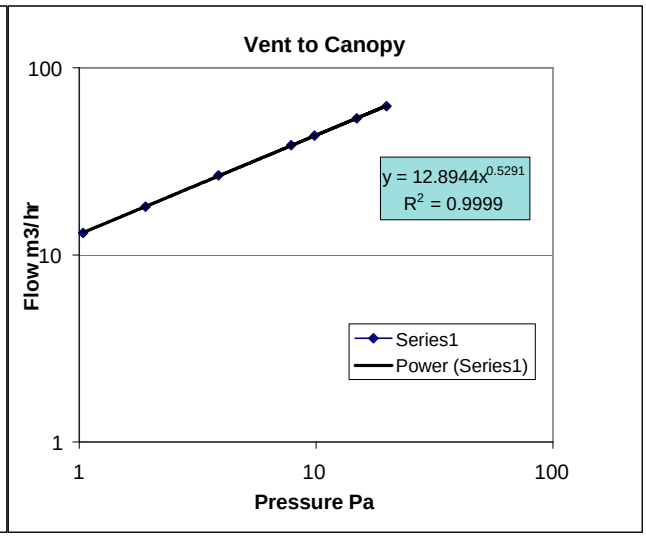
Calculated Results

Δp (Pa)	^{q}v cor (m^3/hr)	^{q}v cor (l/s)		Eqv. Air Opening
1	12.24	3.40		4325
2	17.66	4.91		4414
4	25.49	7.08		4504
8	36.78	10.22		4597
10	41.39	11.50		4627
15	51.30	14.25		4682
20	59.74	16.59		4722
30	74.04	20.57		4778
40	86.22	23.95		4819
60	106.86	29.68		4876
80	124.43	34.56		4918
100	140.03	38.90		4950

Calculated Results

Δp (Pa)	^{q}v cor (m^3/hr)	^{q}v cor (l/s)		Eqv. Air Opening
1	12.89	3.58		4558
2	18.61	5.17		4651
4	26.85	7.46		4745
8	38.75	10.76		4842
10	43.60	12.11		4874
15	54.03	15.01		4932
20	62.92	17.48		4973
30	77.97	21.66		5032
40	90.79	25.22		5074
60	112.52	31.25		5135
80	131.02	36.39		5178
100	147.44	40.95		5211





AIR TIGHTNESS WHEN CLOSED

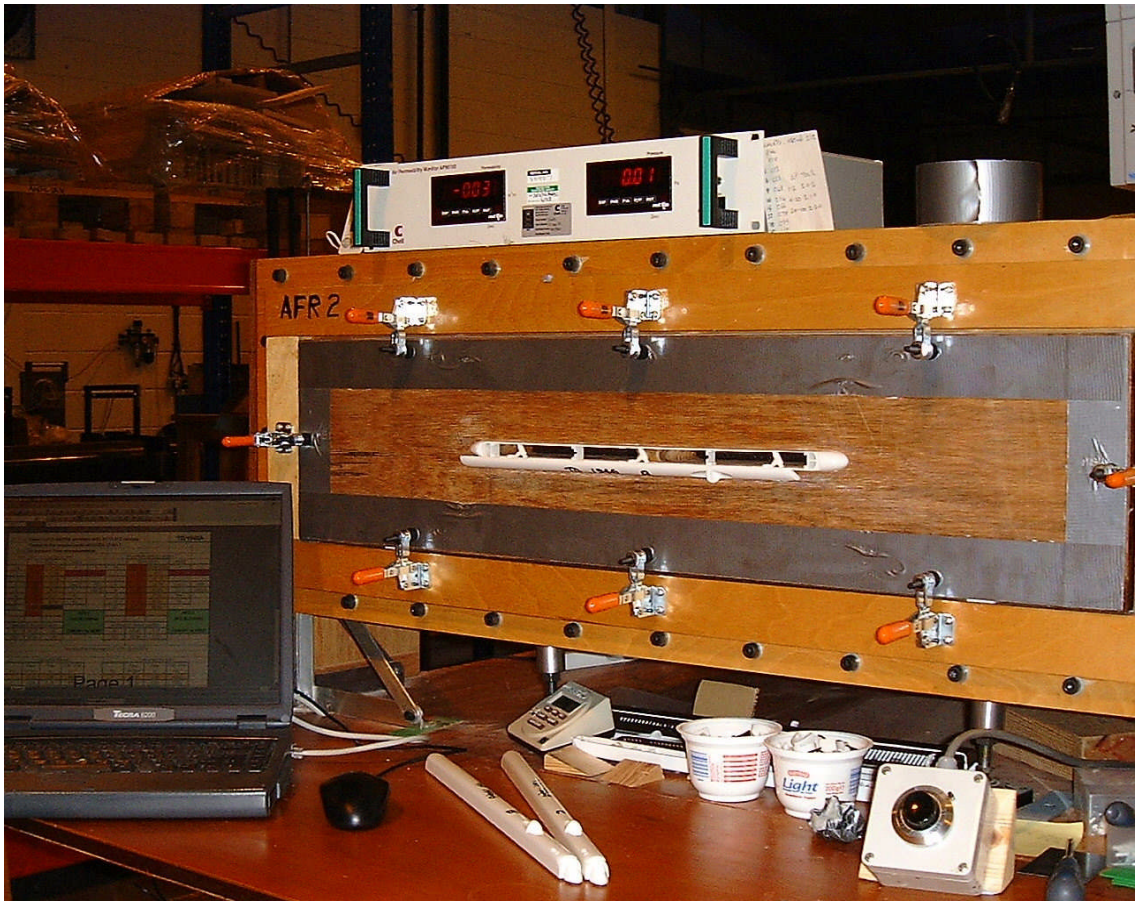
Tested generally in accordance with BS EN 13141-1:2004 4.3

Δp (Pa)	Δp meas (Pa)	^{q}v cor (m^3/hr)
50	50.18	2.42
100	100.03	3.94

Δp (Pa)	Δp meas (Pa)	^{q}v cor (m^3/hr)
50	50.03	2.09
100	100.08	3.41

IMAGES, DRAWINGS, SKETCHES, ETC OF TEST SPECIMEN

Vent mounted to air flow rig AFR 2



Vent mounted to air and water (BS 6375 Pt1) test rig.