

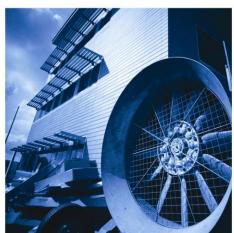
Louvre Airflow Test 467

BSRIA Final Report 60242/4

Carried out for nv RENSON Sunprotection-Projects sa

By Andrew Freeth 13 July 2017







Louvre Airflow Test 467

Carried out for:

nv RENSON Sunprotection-Projects sa

Maalbeekstraat 6 B-8790 Waregem Belgium

Contract: BSRIA Final Report 60242/4

Date: 13 July 2017

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BSRIA Test BSRIA Test

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LOUVRE AIRFLOW TEST INTRODUCTION

1 INTRODUCTION

This report concerns tests conducted on a louvre to determine the Pressure Drop versus Airflow Curve, with the associated Coefficient of Entry and Discharge using the test methods contained within EN 13030: 2001. The work was commissioned by nv RENSON Sunprotection-Projects sa, and was carried out at BSRIA on 3 - 4 May 2017.

Items received for test

Test Item	BSRIA ID
467	60242A4

1.1 TEST ITEM INFORMATION

Contract	60242	
Date	3-5-17	
Manufacturer	nv RENSON Sunprotection-Projects sa	
Louvre Model	467	
Material	Plastic	
Painted	No	
Core Area Height	760 mm	
Core Area Width	963 mm	
Blade Pack Depth	100 mm	
Frame Depth	100 mm	
No. of Blades	43	
Blade Pitch	20 mm	
Blade Angle	0° (to the airflow)	
No. of Banks	1	
Guard Type	None	
Guard Spacing	N/A	
Side Channels	No	
Water Drip Tray	No	
Blade Orientation	Horizontal	

Note: Weather louvre core area - product of the minimum height H and minimum width W of the front opening in the weather louvre assembly with the louvre blades removed Blade Pack Depth refers to the distance from front of first bank to rear of last bank.

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LOUVRE AIRFLOW TEST INTRODUCTION

Figure 1 Test item 60242A4 (front)



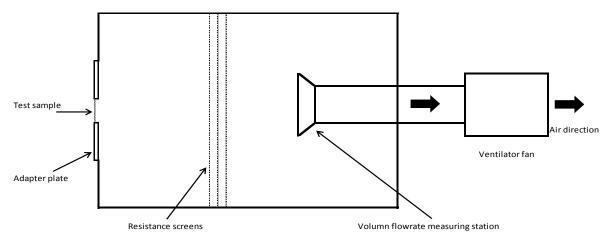
Figure 2 Test item 60242A4 (rear)



LOUVRE AIRFLOW TEST TEST METHOD

2 TEST METHOD

A schematic representation of the rig used during testing



Aerodynamic Measuring Section

2.1 PRESSURE DROP

For this test, the Aerodynamic Measuring Section (AMS) is separated from the main rig. The louvre is then mounted in the upstream opening of the AMS.

Pressure tappings in the plenum walls of the AMS allow measurement of the static pressure within the plenum during testing. The airflow volume is calculated from the differential pressure at the measuring cones. The plenum has a set of settling screens within to produce even flow through the cones and therefore gives an accurate reading of the total volume.

By adjusting the fan speed, the total airflow through the system varies and therefore changes the pressure on the louvre under test. A range of measurements are taken to give the characteristic curve for the test louvre.

2.2 TEST EQUIPMENT USED

Test equipment	BSRIA ID	Calibration Expiry Date
Airflow cones	364	7-1-18
Micromanometer	5	16-2-18
Micromanometer	682	2-2-18

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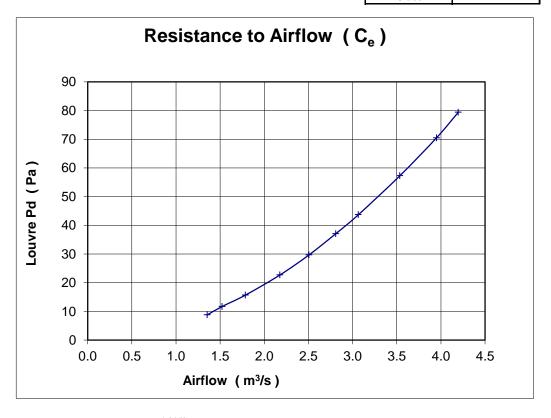
LOUVRE AIRFLOW TEST RESULTS

3 RESULTS

3.1 COEFFICIENT OF ENTRY

MANUFACTURER nv RENSON Sunprotection-Projects sa Date 03/05/2017 MODEL 467 Contract 60242

	louvre face velocity	air flow r	rate	
louvre pd		test	theoretical	coefficient
Pascals	m/s	m ³ /s	m ³ /s	C _e
8.8	1.85	1.353	2.785	0.486
11.7	2.08	1.521	3.211	0.474
15.7	2.44	1.787	3.720	0.480
22.7	2.97	2.177	4.473	0.487
29.7	3.42	2.506	5.117	0.490
37.1	3.84	2.810	5.719	0.491
43.7	4.19	3.065	6.207	0.494
57.3	4.83	3.536	7.107	0.497
70.5	5.40	3.951	7.883	0.501
79.4	5.73	4.197	8.366	0.502
			mean C _e	0.490
			Class	1



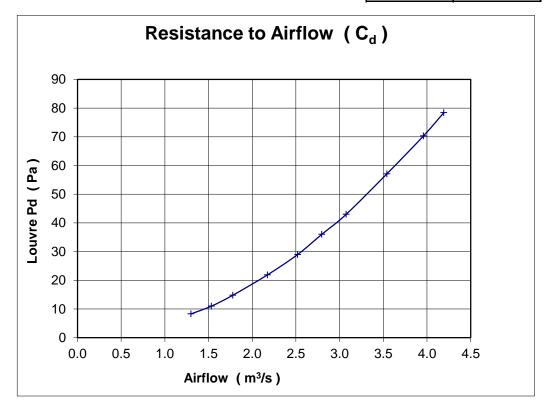
Graph equation is $y = 5.1037x^{1.9159}$

LOUVRE AIRFLOW TEST RESULTS

3.2 COEFFICIENT OF DISCHARGE

MANUFACTURER nv RENSON Sunprotection-Projects sa Date 03/05/2017 MODEL 467 Contract 60242

	louvre face velocity	air flow	rate	
louvre pd		test	theoretical	coefficient
Pascals	m/s	m ³ /s	m ³ /s	C_d
8.3	1.78	1.300	2.705	0.480
11.0	2.09	1.532	3.114	0.492
14.8	2.43	1.778	3.612	0.492
21.9	2.97	2.174	4.394	0.495
29.0	3.44	2.520	5.056	0.498
36.0	3.82	2.795	5.633	0.496
43.0	4.20	3.075	6.157	0.500
57.1	4.84	3.541	7.095	0.499
70.3	5.41	3.960	7.872	0.503
78.4	5.73	4.193	8.313	0.504
_			mean C _d	0.496
			Class	1



Graph equation is $y = 4.8896x^{1.9363}$

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APPENDIX: A MANUFACTURER'S DRAWING

