

TESTRAPPORT
57226/1
ENGLISH TRANSLATION

According to EN 13030: 2001: "Ventilation of buildings - Grilles - Performance testing of air grilles subjected to simulated rain"

**Louvre 450 / Linus blade
 L.050W without mesh**

carried out by : BSRIA Ltd
 Old Bracknell West, Bracknell
 Berkshire RG12 7AH [Engeland]

commissioned by : nv RENSON Sunprotection-Projects sa
 Maalbeekstraat 10
 8790 Waregem [België]

Date of issue : 18 June 2013

TEST INFORMATION

Contract	57226
Date	14-5-13
Manufacturer	nv RENSON Ventilation sa
Louvre Model	Louvre 450 / Linus blade L.050W without mesh
Material	Aluminium
Painted	No
Blade Height	955 mm
Blade Width	1000 mm
Blade Depth	130 mm
Frame Depth	160 mm
No. of Blades	19
Blade Pitch	50 mm
Blade Angle	45° approx
No. of Banks	1
Guard Type	None
Guard Spacing	N/A
Side Channels	No
Water Drip Tray	Yes
Blade Orientation	Horizontal



57226A1 [voorzijde]



57226A1 [achterzijde]

INTRODUCTION

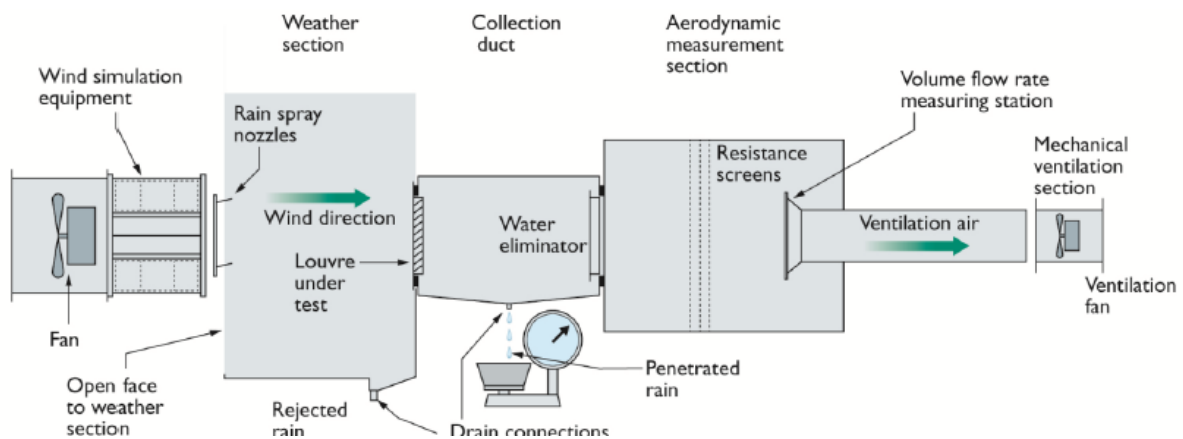
This report concerns tests conducted on a louvre to determine the Rainwater Penetration and the Pressure Drop versus Airflow Curve, with the associated Coefficient of Entry using the test methods contained within EN 13030 : 2001. The work was commissioned by nv RENSON Ventilation sa and was carried out at BSRIA on 14 – 31 May 2013.

Items received for test

Test Item	BSRIA ID
Louvre 450 / Linius blade L.050W without mesh	57226A1

TEST METHOD

A schematic representation of the rig used during testing



The test comprises of two parts:

- **WATER PENETRATION**

The weather louvre is subjected to fan driven wind at a speed of 13 m/s and water sprayed as rainfall at a rate of 75 l/h. In addition to the simulated wind and rain, air is drawn through the louvre at various set velocities [0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 and 3.5 m/s].

Each test is preceded by a suitable 'pre-test' soak which is typically around 30 minutes. Each test is run until the results become stable, and in any case, for a minimum of 30 minutes.

The penetrated water is collected in the collection duct and is measured and recorded against time elapsed.

A range of measurements are taken to give the characteristic curve for the test louvre.

- **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 give 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.

- **TEST EQUIPMENT USED**

Test equipment	BSRIA ID	Calibration Expiry Date
Water supply measurement	352	12-1-14
Rain measuring system	353	11-1-14
Airflow cones	364	15-1-14
Micromanometer	502	13-6-13
Scales	1364	8-2-14

WEATHER LOUVRE TEST

Uitgevoerd in opdracht van nv Renson Sunprotection-Projects sa
Industriezone 2
Vijverdam
Maalbeekstraat 10
8790 Waregem
België

Contract : Report 57226/1

Datum : **18 juni 2013**

Door : BSRIA Ltd
Old Bracknell Lane West,
Bracknell,
Berkshire RG12 7AH UK

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Fax : **+44 [0]1344 465626**
E : **bsria@bsria.co.uk**
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Compiled by: Naam : Andrew Freeth
Titel : Senior Testingenieur

Approved by:
Naam : Mark Roper
Titel : Hoofd Testingenieur

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RAINWATER PENETRATION

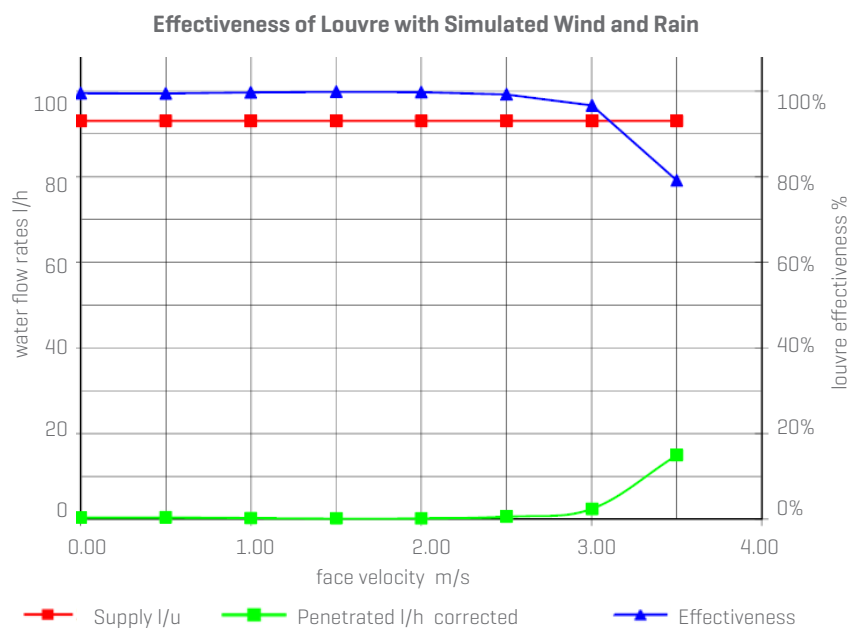
MANUFACTURER Renson
 MODEL Louvre 450

Date 30/05/2013
 Contract 57226

Simulated rainfall 75 mm/hr
 Wind speed 13.0 m/s

louvre height 955mm
 louvre width 1000 mm
 louvre area 0,955 m²

VENTILATION RATE		WATER FLOW RATES		Effectiveness	Class
Volume m ³ /s	Velocity m/s	Supply l/u	Penetrated l/u		
0,00	0,00	93,0	0,4	99,5%	A
0,48	0,50	93,0	0,4	99,4%	A
0,95	1,00	93,0	0,2	99,7%	A
1,43	1,50	93,0	0,1	99,8%	A
1,91	2,00	93,0	0,2	99,8%	A
2,39	2,50	93,0	0,6	99,2%	A
2,87	3,00	93,0	2,4	96,6%	B
3,34	3,50	93,0	15,0	79,1%	D

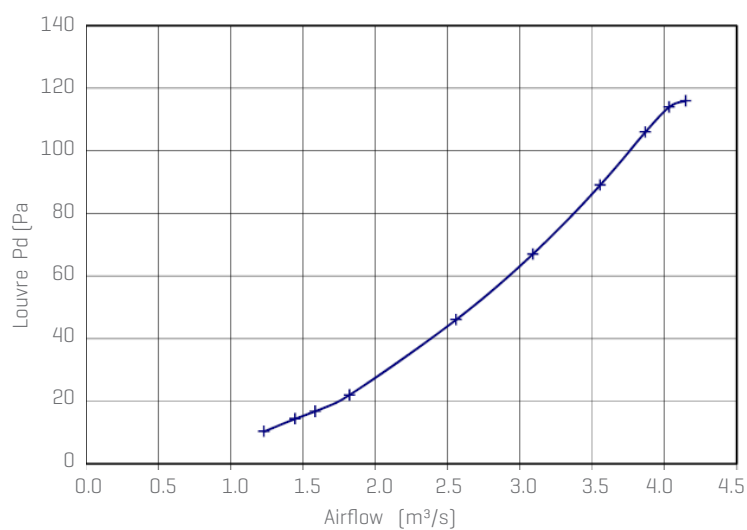


COEFFICIENT OF ENTRY

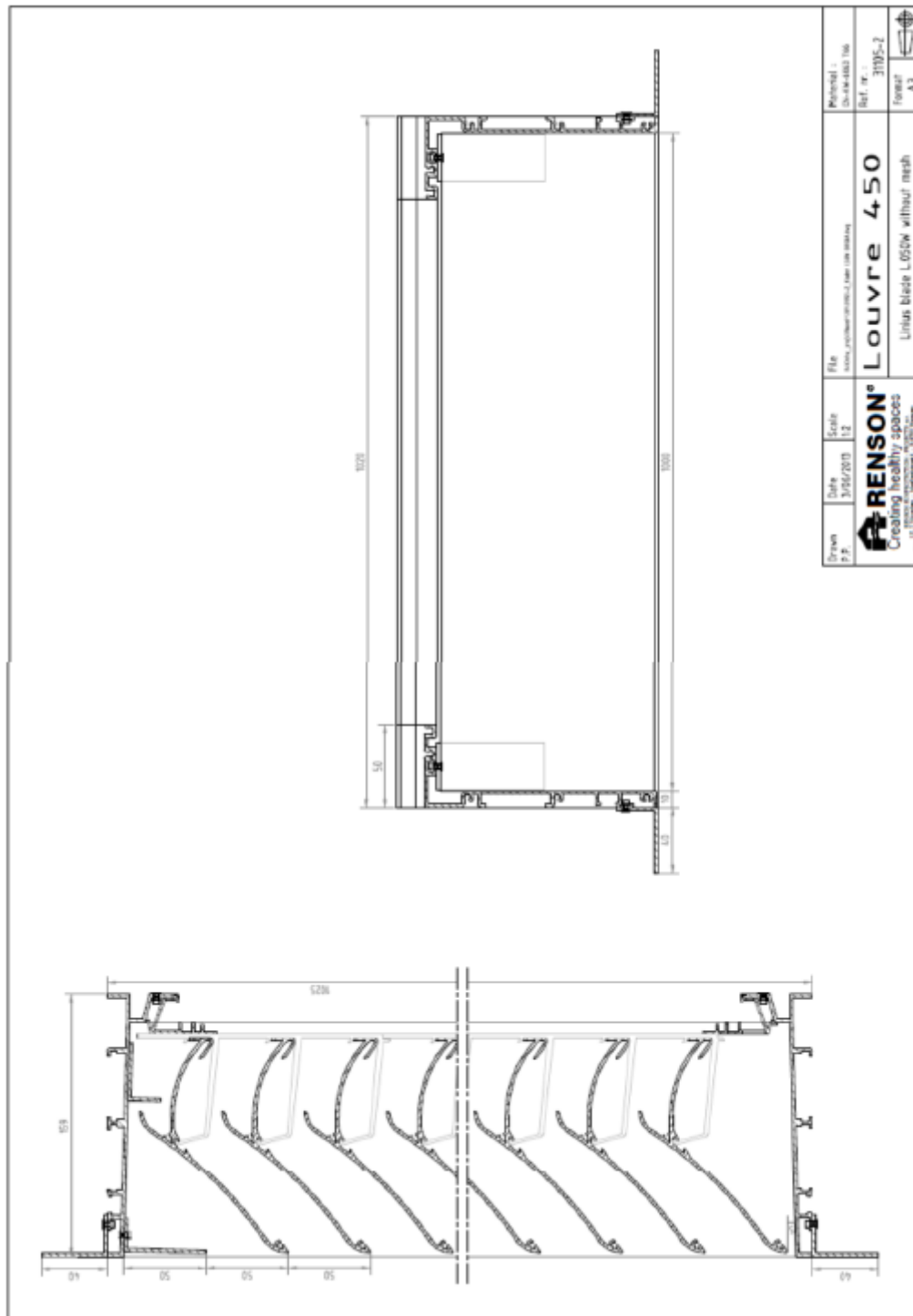
MANUFACTURER	Renson	Date	15/05/2013
MODEL	Louvre 450	Contract	57226
air temperature	15.3 °C	louvre height	955 mm
barometer	995,6 mbar	louvre width	1000 mm
air density	1,198 kg/m ³	louvre area	0,955 m ²

	louvre face velocity	air flow rate		
louvre pd Pascal	m/s	Test m ³ /s	theoretical m ³ /s	Coëfficient Ce
116,0	4,34	4,146	13,292	0,312
114,0	4,22	4,033	13,177	0,306
106,0	4,05	3,868	12,706	0,304
89,0	3,72	3,555	11,643	0,305
67,0	3,24	3,090	10,102	0,306
46,0	2,68	2,559	8,370	0,306
22,0	1,91	1,824	5,789	0,315
16,8	1,66	1,586	5,058	0,314
14,4	1,52	1,449	4,683	0,309
10,3	1,29	1,231	3,961	0,311
			Ce moyen	0,309
			Classe	2

Resistance to Airflow [C_e]



APPENDIX: A MANUFACTURER'S DRAWING



Weather Louvre Test

Report 57226/1

Carried out for
nv RENSON Ventilation sa

By Andrew Freeth

18 June 2013



Weather Louvre Test

Carried out for:

nv RENSON Ventilation sa

Industriezone 2
Vijverdam
Maalbeekstraat 10
B-8790 Waregem
Belgium

Contract: **Report 57226/1**

Date: **18 June 2013**

Issued by: **BSRIA Limited**
Old Bracknell Lane West,
Bracknell,
Berkshire RG12 7AH UK

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BSRIA Test

Approved by:

Name: Phil Stonard

Title: Test Laboratory Manager
BSRIA Test

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1 INTRODUCTION

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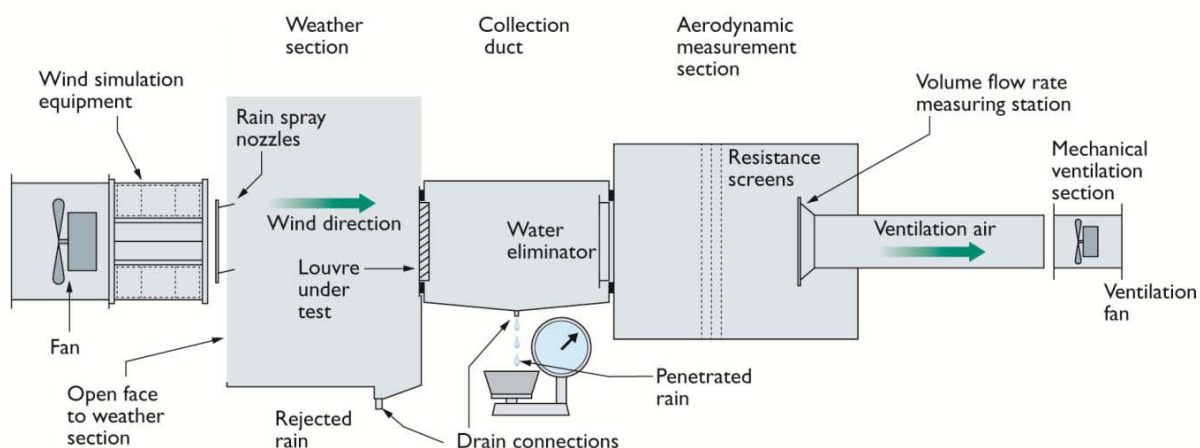
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Water Drip Tray	Yes
Blade Orientation	Horizontal

Figure 1 57226A1 (front)**Figure 2 57226A1 (rear)**

2 TEST METHOD

A schematic representation of the rig used during testing



The test comprises of two parts:

2.1 WATER PENETRATION

The weather louvre is subjected to fan driven wind at a speed of 13 m/s and water sprayed as rainfall at a rate of 75 l/h. In addition to the simulated wind and rain, air is drawn through the louvre at various set velocities (0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 and 3.5 m/s).

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3 RESULTS

3.1 RAINWATER PENETRATION

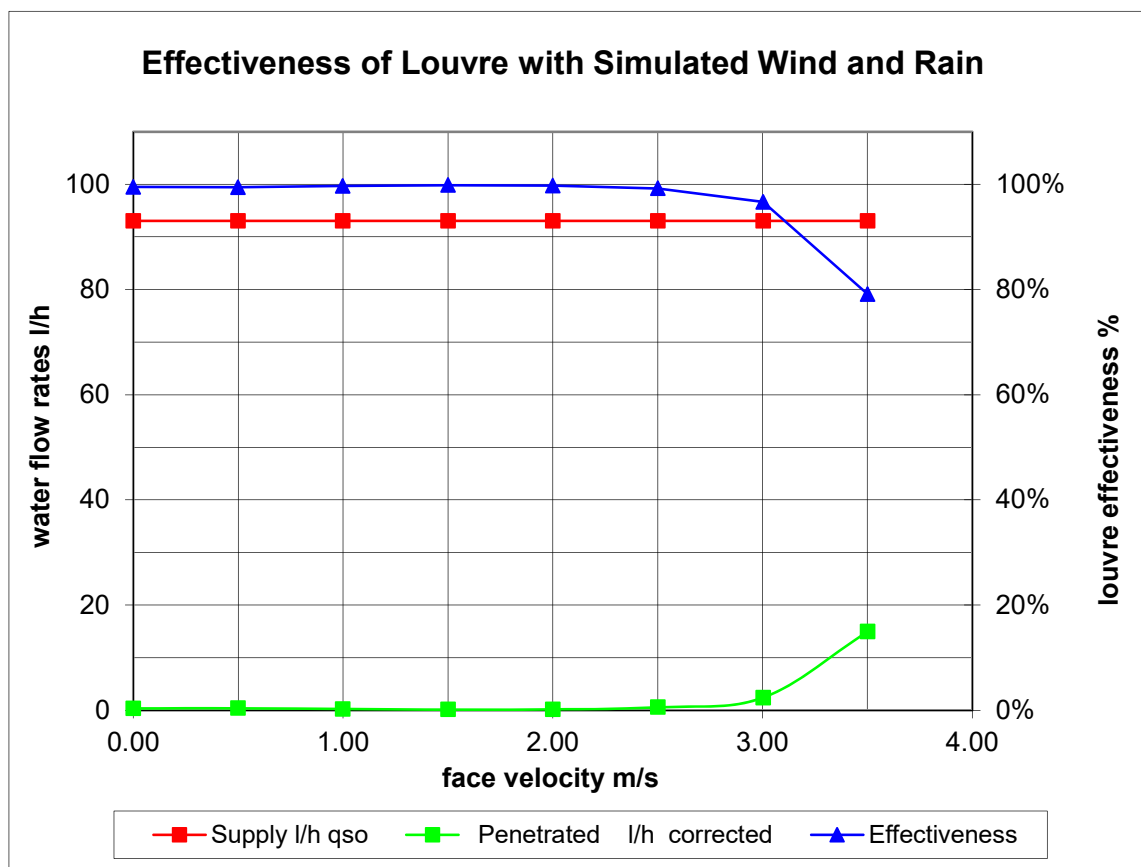
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MODEL Louvre 450

Date 30/05/2013
Contract 57226

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3.34	3.50	93.0	15.0	79.1%	D



3.2 COEFFICIENT OF ENTRY

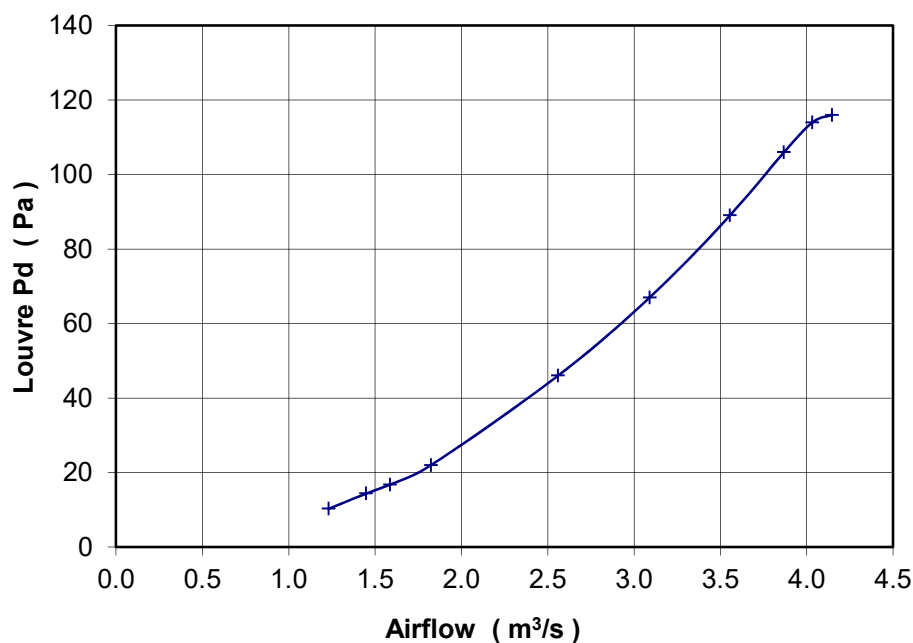
MANUFACTURER Renson
MODEL Louvre 450

Date 15/05/2013
Contract 57226

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barometer 995.6 mbar louvre width 1000 mm
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louvre pd Pascals	louvre face velocity	air flow rate		coefficient C _e
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14.4	1.52	1.449	4.683	0.309
10.3	1.29	1.231	3.961	0.311
mean C _e				0.309
Class				2

Resistance to Airflow (C_e)



Technical drawing of a Louvre 450 window system. The drawing includes a side elevation and a cross-section. The side elevation shows a series of louvre blades with a total height of 1020mm and a width of 1000mm. The cross-section shows the internal mechanism of the louvre blades, with dimensions 159mm, 50mm, 50mm, 50mm, and 50mm. The drawing is labeled 'Louvre 450' and 'Linus blade L.050W without mesh'.