

Certificate

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Certificate No: 53559/2

Issue No: 1

Date of issue: 13 October 2009

This is to certify that

BSRIA Limited

Has tested a sample of the product described below in accordance with the test methods contained within EN 13030 : 2001 and has determined the item met the detailed classification shown on pages 3 and 4 of this certificate. For further details of the test item see Page 2 of this certificate

Manufacturer/Agent	ALU + Ltd Unit 1 Maguire Industrial Estate 219 Torrington Avenue Coventry Warwickshire CV4 9HN
Product	MLS (50mm)
Test location	BSRIA Old Bracknell West Bracknell Berkshire RG12 7AH
Date of test	29 September 2009
Expiry date	13 October 2012
Test engineer	Andrew Coulson
Quality approved	Phil Stonard Laboratory Manager Testing & Certification

This certificate must not be reproduced except in full without the written approval of an executive director of BSRIA. It is only intended to be used within the context described in the text.

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TEST ITEM INFORMATION

Contract	53559A
Date	08/09/2009
Manufacturer	ALU + Ltd
Louvre Model	MLS (50mm)
Material	Aluminium
Painted	No
Blade Height	1025 mm
Blade Width	1002 mm
Blade Depth	65 mm
Frame Depth	70 mm
No.of Blades	20
Blade Pitch	50 mm
Blade Angle	45 Degrees
No.of Banks	1
Guard Type	Vermin
Guard Spacing	5 mm
Side Channels	No
Water Drip Tray	Yes
Blade Orientation	Horizontal



WATER PENETRATION

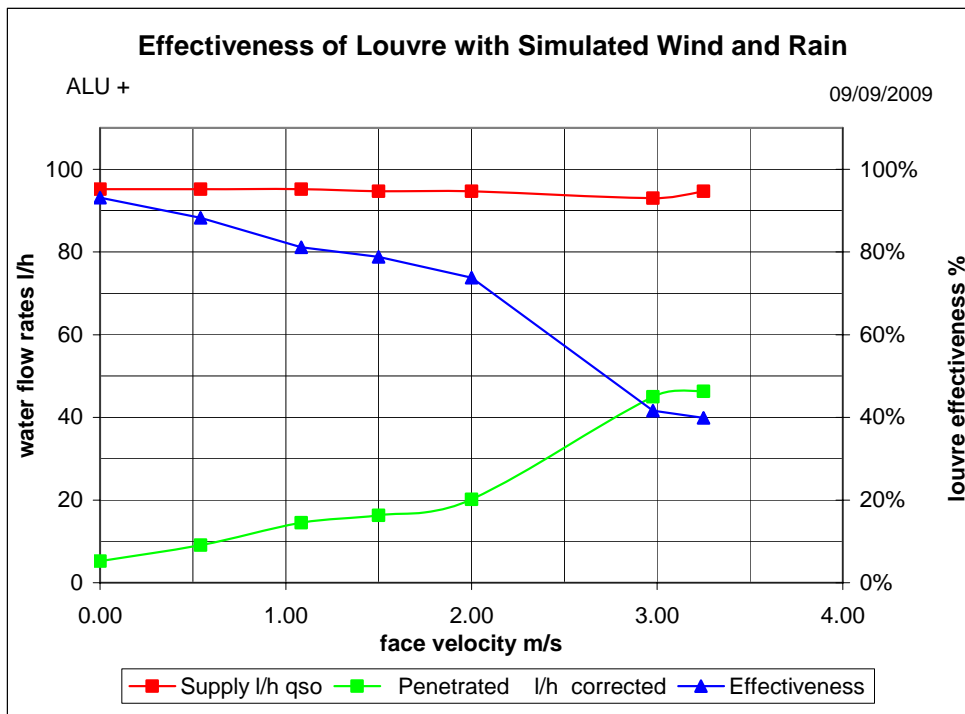
Certification test

MANUFACTURER ALU +
MODEL MLS (50mm)

Date 09/09/2009
Contract 53559A

Simulated rainfall 75 mm/hr
Wind speed 13.0 m/s
louvre height 1025 mm
louvre width 1002 mm
louvre area 1.027 m²

VENTILATION RATE		WATER FLOW RATES		Effectiveness	Class
Volume m ³ /s	Velocity m/s	Supply l/h	Penetrated l/h		
0.00	0.00	95.2	5.3	93.2%	C
0.56	0.54	95.2	9.1	88.2%	C
1.11	1.08	95.2	14.6	81.1%	C
1.54	1.50	94.7	16.3	78.8%	D
2.05	2.00	94.7	20.2	73.8%	D
3.06	2.98	93.0	45.0	41.6%	D
3.34	3.25	94.7	46.3	39.9%	D



ENTRY LOSS COEFFICIENT

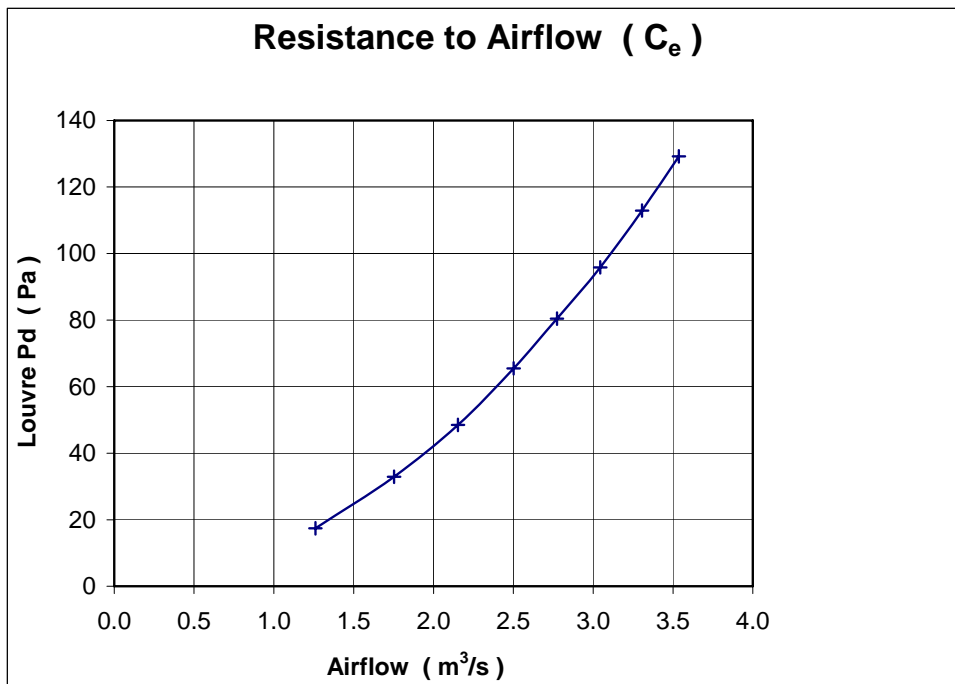
Certification test

MANUFACTURER ALU +
MODEL MLS (50mm)

Date 09/09/2009
Contract 53559A

air temperature	20.1 °C	louvre height	1025 mm
barometer	1030 mbar	louvre width	1002 mm
air density	1.219 kg/m ³	louvre area	1.027 m ²

louvre pd Pascals	louvre face velocity	air flow rate		coefficient C _e
	m/s	test m ³ /s	theoretical m ³ /s	
17.4	1.23	1.261	5.488	0.230
32.9	1.71	1.753	7.547	0.232
48.5	2.10	2.153	9.163	0.235
65.5	2.44	2.503	10.648	0.235
80.4	2.70	2.774	11.797	0.235
95.8	2.96	3.045	12.878	0.236
112.9	3.22	3.306	13.980	0.236
129.2	3.44	3.538	14.955	0.237
mean C _e				0.235
Class				3



CLASSIFICATION OF WEATHER LOUVRES

Weather louvres shall be classified by their ability to reject simulated rain.

Penetration Classification

Table 1 shows the different classifications based on the maximum simulated rain penetration per square metre of louvre. The classification is determined in accordance with section 8 of EN 13030:2001.

Water penetration rating at a given louvre face velocity is determined by the water penetration while the louvre is subjected to a 13 ms^{-1} simulated wind velocity and a simulated rain fall at the nominal rate.

Table 1 Penetration classification

Class	Effectiveness	Maximum allowed penetration of simulated rain $\text{l.h}^{-1}.\text{m}^{-2}$
A	1 TO 0,99	0,75
B	0,989 TO 0,95	3,75
C	0,949 TO 0,80	15,0
D	Below 0,8	Greater than 15,0

These classifications apply to various core velocities.

Discharge Loss Coefficient

The discharge loss coefficient given in Table 2, shall be determined in accordance with section 7.2 of test standard EN13030:2001.

Table 2 Discharge loss coefficient classification

Class	Discharge Loss Coefficient
1	0,4 and above
2	0,3 to 0,399
3	0,2 to 0,299
4	0,199 and below

(Note: The above also applies to entry loss coefficient)