Summary Report

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Summary Report 54763/7 **Issue No: 1** **Date of issue: 10 October 2018**

This Summary Report confirms that BSRIA Ltd has tested a sample of the product described below in accordance with the test methods contained within EN 13030 : 2001 and have determined the item met the detailed classification shown on pages 3 to 6. For further details of the test item see Page 2 of this Summary Report.

Manufacturer/Agent	N.V. Renson Projects IZ 2 Vijverdam Maalbeekstraat 6 B-8790 Waregem
Product	411
Test location	BSRIA Old Bracknell West Bracknell Berkshire RG12 7AH
Date of test	29 December 2010 and 11 February 2011
Date of issue	9 October 2018
Test engineer	A Freeth

Quality approved Mark Roper
Principal Test Engineer

This summary report supersedes certificate 54763/7. This up-date was carried out under BSRIA contract reference 61223.

TEST INFORMATION

Contract	54763	
Date	December 2010	
Manufacturer	N.V. Renson Projects	
Louvre Model	411	
Material	Aluminium	
Painted	No	
Blade Height	1015	mm
Blade Width	1000	mm
Blade Depth	19	mm
Frame Depth	28	mm
No. of Blades	30	
Blade Pitch	33	mm
Blade Angle	45	degrees
No. of Banks	1	
Guard Type	Insect/None	
Guard Spacing	7	mm
Side Channels	None	
Water Drip Tray	Yes	
Blade Orientation	Horizontal	

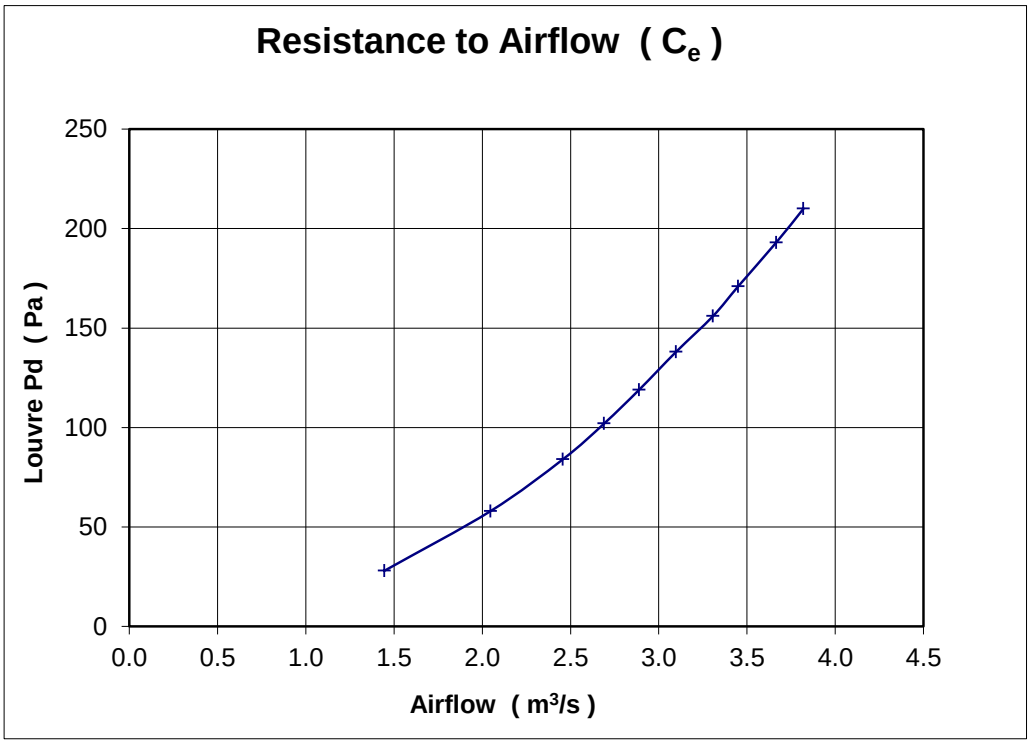
Front view of louvre

COEFFICIENT OF ENTRY (with mesh)

MANUFACTURER Renson Date 29/12/2010
MODEL 411 (with mesh) Contract 54763

air temperature	11.6	°C	louvre height	1015	mm
barometer	1016	mbar	louvre width	1000	mm
air density	1.238	kg/m^3	louvre area	1.015	m^2

	louvre face velocity	air flow rate		
louvre pd Pascals	m/s	test m^3/s	theoretical m^3/s	coefficient C_e
210.0	3.76	3.820	18.695	0.204
193.0	3.61	3.666	17.922	0.205
171.0	3.40	3.451	16.870	0.205
156.0	3.26	3.308	16.113	0.205
138.0	3.05	3.098	15.155	0.204
119.0	2.85	2.889	14.073	0.205
102.0	2.65	2.690	13.029	0.206
84.0	2.42	2.456	11.824	0.208
58.0	2.02	2.047	9.825	0.208
28.0	1.42	1.445	6.826	0.212
			mean C_e	0.206
			Class	3

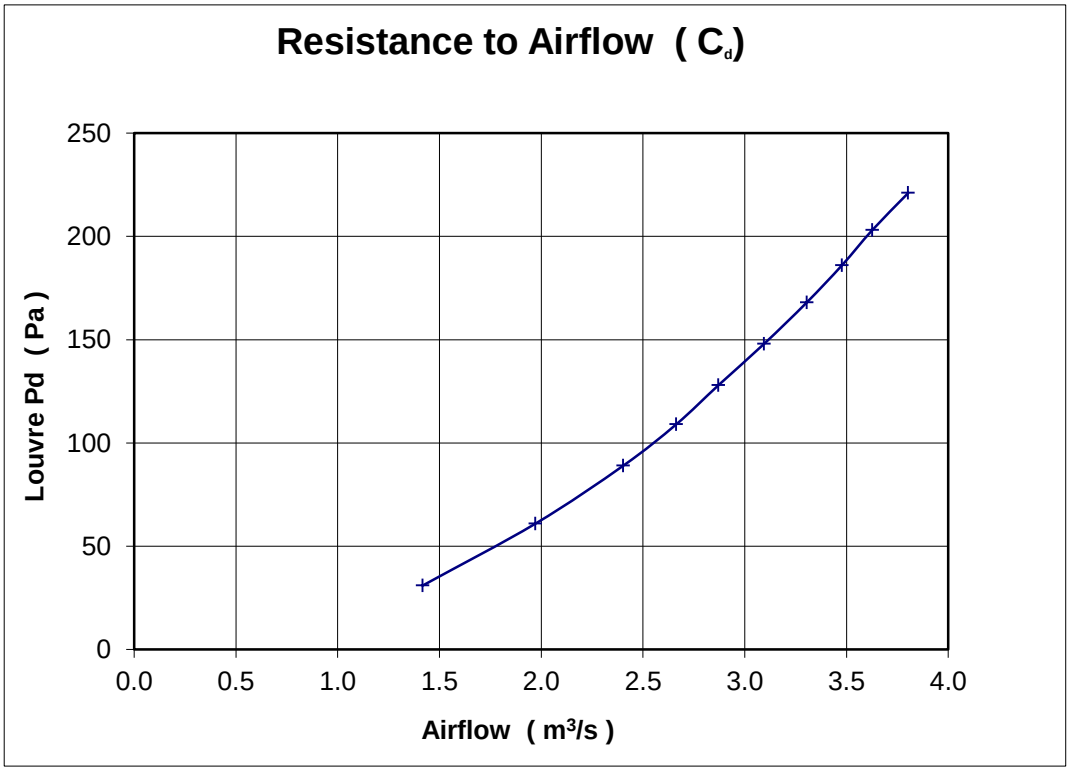


COEFFICIENT OF DISCHARGE (with mesh)

MANUFACTURER Renson Date 29/12/2010
MODEL 411 Reversed (with mesh) Contract 54763

air temperature	10.5	°C	louvre height	1015	mm
barometer	1016	mbar	louvre width	1000	mm
air density	1.243	kg/m^3	louvre area	1.015	m^2

	louvre face velocity	air flow rate		
louvre pd Pascals	m/s	test m^3/s	theoretical m^3/s	coefficient Cd
221.0	3.75	3.804	19.141	0.199
203.0	3.57	3.627	18.345	0.198
186.0	3.43	3.478	17.560	0.198
168.0	3.26	3.305	16.689	0.198
148.0	3.05	3.096	15.664	0.198
128.0	2.83	2.871	14.567	0.197
109.0	2.62	2.663	13.443	0.198
89.0	2.37	2.403	12.147	0.198
61.0	1.94	1.972	10.056	0.196
31.0	1.40	1.417	7.169	0.198
			mean Cd	0.198
			Class	4

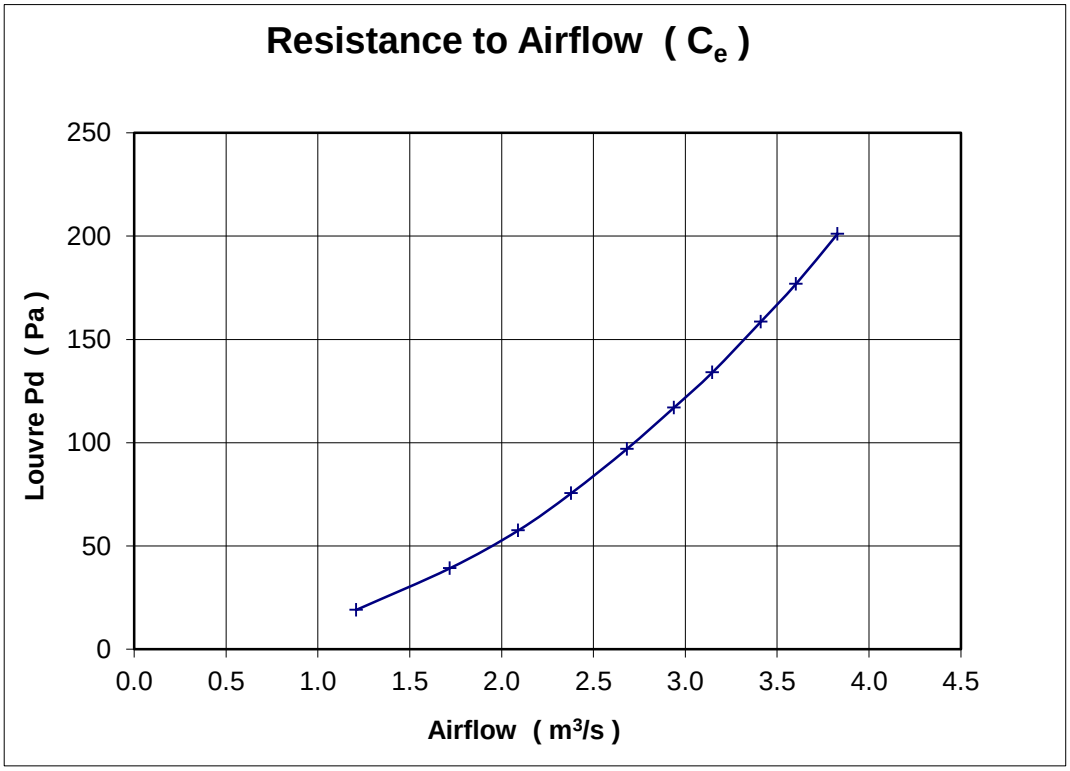


COEFFICIENT OF ENTRY (no mesh)

MANUFACTURER Renson Date 29/12/2010
MODEL 411 (no mesh) Contract 54763

air temperature	14	°C	louvre height	1015	mm
barometer	1007	mbar	louvre width	1000	mm
air density	1.217	kg/m^3	louvre area	1.015	m^2

	louvre face velocity	air flow rate		
louvre pd Pascals	m/s	test m^3/s	theoretical m^3/s	coefficient C_e
201.0	3.77	3.828	18.449	0.208
176.8	3.55	3.602	17.302	0.208
158.5	3.36	3.411	16.383	0.208
134.0	3.10	3.148	15.063	0.209
117.0	2.90	2.939	14.075	0.209
97.0	2.64	2.683	12.816	0.209
75.5	2.34	2.379	11.307	0.210
57.5	2.06	2.090	9.867	0.212
39.2	1.69	1.718	8.147	0.211
19.1	1.19	1.209	5.687	0.213
			mean C_e	0.210
			Class	3



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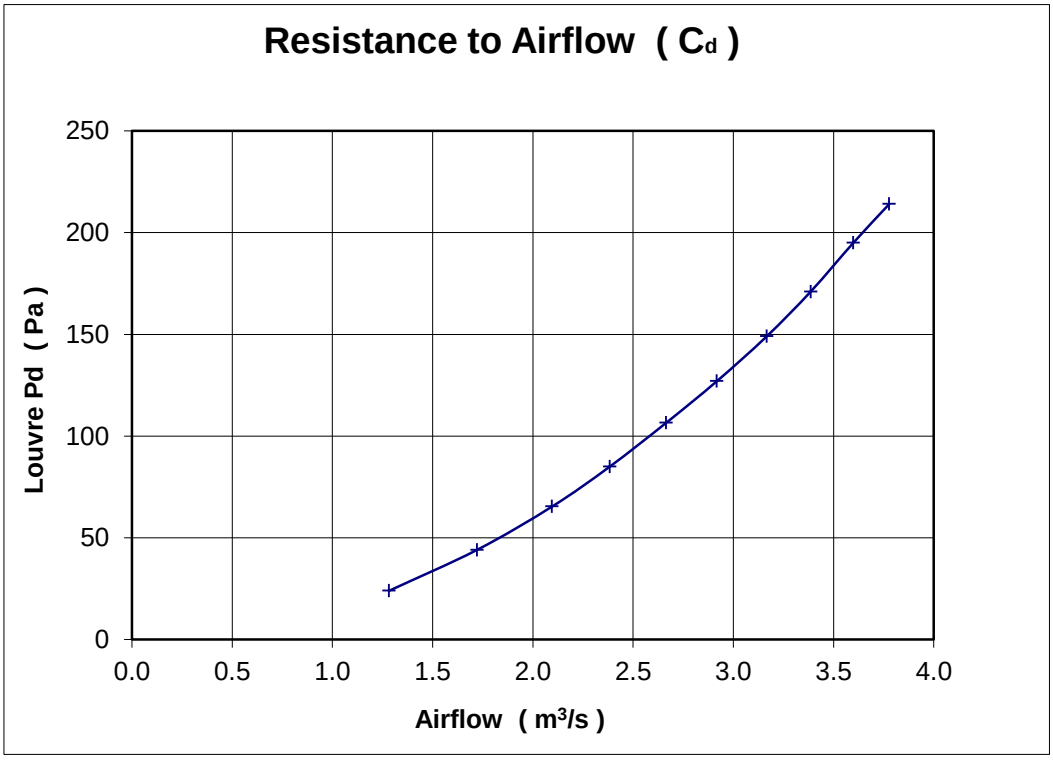
COEFFICIENT OF DISCHARGE (no mesh)

MANUFACTURER Renson Date 29/12/2010
MODEL 411 Reversed (no mesh) Contract 54763

air temperature	14	°C	louvre height	1015	mm
barometer	1007	mbar	louvre width	1000	mm
air density	1.217	kg/m^3	louvre area	1.015	m^2

	louvre face velocity	air flow rate		
louvre pd Pascals	m/s	test m^3/s	theoretical m^3/s	coefficient Cd
214.0	3.72	3.778	19.036	0.198
195.0	3.55	3.599	18.171	0.198
171.0	3.34	3.386	17.016	0.199
149.0	3.12	3.167	15.884	0.199
127.0	2.88	2.918	14.665	0.199
106.5	2.63	2.665	13.429	0.198
85.0	2.35	2.384	11.997	0.199
65.4	2.07	2.096	10.523	0.199
44.1	1.70	1.722	8.641	0.199
24.0	1.26	1.282	6.375	0.201
			mean Cd	0.199
			Class	4



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 8.2 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 $l.h^{-1}.m^{-2}$
A	1,00 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 and Entry Loss Coefficient

The discharge and entry loss coefficient given in Table 2, shall be determined in accordance with section 8.3 of test standard EN13030:2001.

Table 2 Discharge and Entry loss coefficient classification

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