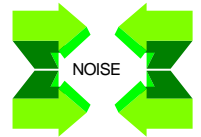


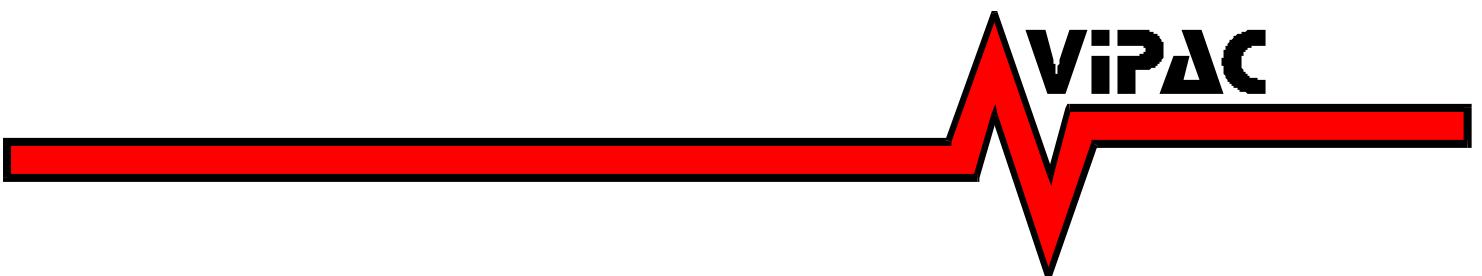
WESTAFLEX Australia Pty. Ltd.

Catalogue Data for Various Air Outlets



Report No. 302990-2

Prepared by
Vipac Engineers & Scientists Ltd
August, 2001







DOCUMENT CONTROL FORM

Catalogue Data for Various Air Outlets		
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1.0 INTRODUCTION

This report presents the results of computer prediction of acoustic, pressure drop and throw catalogue data for various air outlets supplied by Westaflex Australia Pty. Ltd.

2.0 PREDICTION METHODOLOGY

An "inhouse" computer prediction program developed by Vipac, which has been validated over many products was employed to produce the catalogue data. This program uses experimental data obtained in Vipac's N.A.T.A. certified Air Distribution Laboratory.

The experimental data can be referenced in Vipac N.A.T.A. Report No. 302990-1.

3.0 TESTED UNITS

Table 1 : Description of Tested Units

#	Unit Description	Nominal Size	Measured Sizes (mm)	
			Face	Neck
1	Uni-Vent Fixed Blade	9" x 9"	280 x 280	213 x 213
2	Modular type plastic ceiling diffuser	12" x 12"	350 x 350	287 x 287
3	Tested in 4-way configuration	15" x 15"	425 x 425	361 x 361
4	Throw Pattern: 45° approx.	15" x 22"	359 x 536	425 x 604
5	Uni-Vent Adjustable Blade	9" x 9"	280 x 280	213 x 213
6	Modular type plastic ceiling diffuser	12" x 12"	350 x 350	287 x 287
7	Tested in 4-way configuration	15" x 15"	425 x 425	361 x 361
8	All blades move in unison Throw Pattern: Horizontal and 45°	15" x 22"	359 x 536	425 x 604
9	CD 2000	9" x 9"	310 x 310	210 x 210
10	4-way louvre type plastic	12" x 12"	380 x 380	280 x 280
11	ceiling diffuser, bevelled edge Throw Pattern: Horizontal	15" x 15"	465 x 465	360 x 360
12	As above, flush face	595 x 595mm	595 x 595	430 x 430
13	Aluminium 4-way louvre type	9" x 9"	340 x 340	210 x 210
14	ceiling diffuser, bevelled edge	12" x 12"	415 x 415	285 x 285
15	Throw Pattern: Horizontal	15" x 15"	490 x 490	360 x 360
16	As above, flush face	595 x 595mm	595 x 595	440 x 440
17	Aluminium 3-way louvre type	9" x 9"	345 x 345	210 x 210
18	ceiling diffuser, bevelled edge	12" x 12"	415 x 415	285 x 285
19	Throw Pattern: Horizontal	15" x 15"	490 x 490	355 x 355
20	UNIJET, Jet Centre	Φ 150mm	Φ 235	Φ 145
21	Plastic round ceiling diffuser Throw Pattern: Vertical Damper fully open	Φ 200mm	Φ 285	Φ 195
22	UNIJET, Cone Centre	Φ 150mm	Φ 215	Φ 140
23	Plastic round ceiling diffuser	Φ 200mm	Φ 270	Φ 190
24	Throw Pattern: Vertical Tested at x = 0 & x = 20 cone settings	Φ 250mm	Φ 320	Φ 240
25	Aluminium Double Deflection Wall	14" x 4"	390 x 140	335 x 85
26	Register	20" x 12"	540 x 340	490 x 285
27	Test setting: 0° deflection	20" x 20"	540 x 540	485 x 485
28		32" x 24"	835 x 655	790 x 610

4.0 CATALOGUE DATA

The catalogue data has been predicted for a range of sizes. Predictions were performed for the sizes shown in Tables 2-4 below for a comprehensive range of flow rates. The Appendices contain the prediction data in table format and nomogram format.

Note: * denotes tested sizes

Table 2 : Uni-Vent Fixed & Adjustable Blade Ceiling Diffuser Prediction Sizes

Category	Nominal Size	Face Dimensions (mm)
A*	9" x 9"	280 x 280
B*	12" x 12"	350 x 350
C*	15" x 15"	425 x 425

Table 3 : CD2000 Prediction Sizes

Category	Nominal Size
A	9" x 9"
B*	12" x 12"
C*	15" x 15"
D*	595 x 595 mm

Table 4 : Aluminium 4-way Louvre Type Ceiling Diffuser Prediction Sizes

Category	Nominal Size
A	6" x 6"
B*	9" x 9"
C*	12" x 12"
D*	15" x 15"
E*	595 x 595mm

Table 5 : Aluminium 3-way Louvre Type Ceiling Diffuser Prediction Sizes

Category	Nominal Size
A	6" x 6"
B*	9" x 9"
C*	12" x 12"
D*	15" x 15"
E	595 x 595mm

Table 6 : UNIJET – Jet Centre Prediction Sizes

Category	Size (mm)
A*	Φ 150
B*	F200
C	F250

**Table 7 : UNIJET – Cone Centre (x = 0 mm) &
Cone Centre (20 mm) Prediction Sizes**

Category	Size (mm)
A*	Φ 150
B*	Φ 200
C*	Φ 250

Table 8 : Double Deflection Wall Register Prediction Sizes

Category	Neck Area (m ²)
A*	0.028
B	0.034
C	0.040
D	0.048
E	0.058
F	0.070
G	0.084
H	0.100
I	0.120
J*	0.140
K	0.168
L	0.202
M*	0.235
N	0.282
O	0.338
P	0.406
Q*	0.482
R	0.578



APPENDIX A

Prediction Data

Uni-Vent Fixed Blade Ceiling Diffusers

(45° Throw Pattern)

**Uni-Vent Fixed Blade Ceiling Diffuser - Detailed Data****Uni-Vent Fixed Blade Ceiling Diffuser - Size 9" x 9"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1	-	-	-	-	-	-	-	-	-	-	-	-
1.5	66	5	1	8	28.0	26.0	22.0	6.0	-	-	-	-
2	88	9	2.5	15	32.8	32.7	29.0	16.0	7.0	-	-	-
2.5	110	14	4.3	20	36.9	37.9	34.1	24.1	15.8	12.0	11.0	-
3	132	20	5.6	24	40.2	42.2	38.2	30.7	22.8	18.3	14.1	-
3.5	154	26	6.6	28	43.0	45.8	41.8	36.3	28.7	23.5	16.7	-
4	176	34	7.5	31	45.5	48.9	44.8	41.2	33.8	28.0	19.0	-
4.5	198	43	8.5	35	47.6	51.6	47.5	45.4	38.3	31.9	20.9	-
5	221	53	9.6	39	49.6	54.1	49.9	49.2	42.4	35.4	22.7	-
5.5	243	64	10.7	43	51.3	56.3	52.1	52.7	46.0	38.6	24.3	-
6	265	76	11.8	46	52.9	58.4	54.1	55.8	49.3	41.6	25.8	-
6.5	287	88	13.1	49	54.4	60.2	55.9	58.7	52.4	44.2	27.1	-

Uni-Vent Fixed Blade Ceiling Diffuser - Size 12" x 12"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1	-	-	-	-	-	-	-	-	-	-	-	-
1.5	122	5	2.4	7	29.8	26.4	21.3	-	-	-	-	-
2	162	9	4.8	13	35.1	33.1	27.9	15.5	7.2	-	-	-
2.5	203	14	6.4	19	39.2	38.3	33.0	23.6	15.8	12.1	10.9	-
3	244	20	7.8	23	42.5	42.5	37.2	30.2	22.8	18.3	14.0	-
3.5	284	26	9.2	27	45.3	46.1	40.7	35.8	28.7	23.4	16.6	-
4	325	34	10.7	31	47.8	49.3	43.7	40.6	33.8	27.9	18.8	-
4.5	366	43	12.3	35	49.9	52.0	46.4	44.9	38.3	31.8	20.8	-
5	406	53	14.0	39	51.9	54.5	48.8	48.7	42.3	35.4	22.5	-
5.5	447	64	15.9	42	53.6	56.7	51.0	52.1	46.0	38.6	24.1	-
6	487	76	17.8	45	55.2	58.7	53.0	55.3	49.3	41.5	25.6	-
6.5	528	88	19.8	48	56.7	60.6	54.8	58.2	52.4	44.2	26.9	-

**Uni-Vent Fixed Blade Ceiling Diffuser - Size 15" x 15"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1	-	-	-	-	-	-	-	-	-	-	-	-
1.5	194	5	5.0	6	31.6	26.6	20.5	-	-	-	-	-
2	259	9	7.1	13	36.8	33.4	27.1	15.1	7.2	-	-	-
2.5	324	14	8.7	18	40.9	38.6	32.2	23.1	15.8	12.1	10.8	-
3	389	20	10.5	22	44.2	42.8	36.3	29.7	22.7	18.2	13.8	-
3.5	454	26	12.3	26	47.1	46.4	39.8	35.3	28.7	23.4	16.4	-
4	518	34	14.4	30	49.5	49.6	42.9	40.2	33.8	27.8	18.7	-
4.5	583	43	16.6	34	51.7	52.3	45.6	44.4	38.3	31.8	20.6	-
5	648	53	19.0	38	53.6	54.8	48.0	48.2	42.3	35.3	22.4	-
5.5	713	64	21.5	42	55.4	57.0	50.2	51.7	46.0	38.5	24.0	-
6	778	76	24.2	45	56.9	59.0	52.1	54.9	49.3	41.4	25.5	-
6.5	842	88	26.9	48	58.4	60.9	54.0	57.8	52.3	44.1	26.8	-

Uni-Vent Fixed Blade Ceiling Diffuser - Summary Data

Size

9" x 9"**12" x 12"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	-	-	-	-	-	-	-	-
1.5	66	5	1.0	8	122	5	2.4	7
2	88	9	2.5	15	162	9	4.8	13
2.5	110	14	4.3	20	203	14	6.4	19
3	132	20	5.6	24	244	20	7.8	23
3.5	154	26	6.6	28	284	26	9.2	27
4	176	34	7.5	31	325	34	10.7	31
4.5	198	43	8.5	35	366	43	12.3	35
5	221	53	9.6	39	406	53	14.0	39
5.5	243	64	10.7	43	447	64	15.9	42
6	265	76	11.8	46	487	76	17.8	45
6.5	287	88	13.1	49	528	88	19.8	48

Size **15" x 15"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	-	-	-	-
1.5	194	5	5.0	6
2	259	9	7.1	13
2.5	324	14	8.7	18
3	389	20	10.5	22
3.5	454	26	12.3	26
4	518	34	14.4	30
4.5	583	43	16.6	34
5	648	53	19.0	38
5.5	713	64	21.5	42
6	778	76	24.2	45
6.5	842	88	26.9	48



APPENDIX B

Prediction Data

Uni-Vent Adjustable Blade Ceiling Diffusers (Horizontal Throw Pattern)



CORRECTION FOR 45° THROW PATTERN

The data below is relevant to a horizontal throw pattern, achieved with a blade setting of $x = 14\text{mm}$, refer to NATA Report No. 302990-1 for details. Based on experimental data, when the blades are adjusted to achieve a 45° throw pattern ($x = 24\text{mm}$), for the *same flow rate*, the NR reduces by 4.

Correction for 45° throw pattern: Reduce NR by 4.
--

**Uni-Vent Adjustable Blade Ceiling Diffuser - Detailed Data****Uni-Vent Adjustable Blade Ceiling Diffuser - Size 9" x 9"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1	-	-	-	-	-	-	-	-	-	-	-	-
1.5	66	7	0.9	13	35.9	30.2	27.6	12.4	5.8	-	-	-
2	88	12	1.4	19	40.4	35.6	33.0	21.2	15.8	10.1	9.0	-
2.5	110	18	2.5	23	43.9	39.9	37.2	28.1	23.5	17.9	14.3	-
3	132	26	4.0	26	46.7	43.3	40.6	33.7	29.8	24.2	18.7	-
3.5	154	35	5.4	29	49.1	46.2	43.5	38.4	35.1	29.6	22.3	-
4	176	45	6.7	33	51.2	48.7	46.0	42.5	39.7	34.2	25.5	-
4.5	198	57	8.1	37	53.0	51.0	48.2	46.1	43.8	38.3	28.3	-
5	221	70	9.4	40	54.7	52.9	50.2	49.4	47.4	42.0	30.9	-
5.5	243	84	10.7	44	56.2	54.7	52.0	52.3	50.7	45.3	33.1	-
6	265	100	12.0	47	57.5	56.4	53.6	55.0	53.7	48.3	35.2	-
6.5	287	117	13.2	49	58.8	57.9	55.1	57.4	56.5	51.1	37.1	-

Uni-Vent Adjustable Blade Ceiling Diffuser - Size 12" x 12"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1	81	3	0.8	7	29.6	24.1	21.2	-	-	-	-	-
1.5	122	7	1.7	14	35.9	31.7	28.8	13.8	6.4	-	-	-
2	162	12	3.9	20	40.4	37.2	34.1	22.6	16.3	10.7	9.0	-
2.5	203	18	5.8	24	43.9	41.4	38.3	29.5	24.0	18.5	14.3	-
3	244	26	7.6	28	46.7	44.8	41.8	35.1	30.3	24.8	18.6	-
3.5	284	35	9.3	31	49.1	47.7	44.6	39.8	35.7	30.2	22.3	-
4	325	45	11.0	34	51.2	50.3	47.1	43.9	40.3	34.9	25.5	-
4.5	366	57	12.6	38	53.0	52.5	49.4	47.5	44.3	39.0	28.3	-
5	406	70	14.3	41	54.7	54.5	51.3	50.8	48.0	42.6	30.9	-
5.5	447	84	15.9	44	56.2	56.3	53.1	53.7	51.3	45.9	33.1	-
6	487	100	17.5	47	57.5	57.9	54.8	56.4	54.3	49.0	35.2	-
6.5	528	117	19.0	50	58.8	59.4	56.3	58.8	57.0	51.8	37.1	-



Uni-Vent Adjustable Blade Ceiling Diffuser - Size 15" x 15"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1	130	3	1.0	7	29.6	25.3	22.0	-	-	-	-
1.5	194	7	2.7	15	35.9	32.9	29.6	14.9	6.8	-	-
2	259	12	5.2	21	40.4	38.3	35.0	23.7	16.7	11.2	8.9
2.5	324	18	7.3	25	43.9	42.6	39.2	30.6	24.5	19.0	14.3
3	389	26	9.4	29	46.7	46.0	42.6	36.2	30.8	25.3	18.6
3.5	454	35	11.3	32	49.1	48.9	45.5	40.9	36.1	30.7	22.3
4	518	45	13.2	35	51.2	51.4	48.0	45.0	40.7	35.3	25.5
4.5	583	57	15.1	39	53.0	53.7	50.2	48.6	44.8	39.4	28.3
5	648	70	16.9	42	54.7	55.7	52.2	51.9	48.4	43.1	30.9
5.5	713	84	18.7	45	56.1	57.5	54.0	54.8	51.7	46.4	33.1
6	778	100	20.6	47	57.5	59.1	55.6	57.5	54.7	49.5	35.2
6.5	842	117	22.4	50	58.7	60.6	57.1	59.9	57.5	52.2	37.1

Uni-Vent Adjustable Blade Ceiling Diffuser - Summary Data

Size **9" x 9"** **12" x 12"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	44	3	-	5	81	3	0.8	7
1.5	66	7	0.9	13	122	7	1.7	14
2	88	12	1.4	19	162	12	3.9	20
2.5	110	18	2.5	23	203	18	5.8	24
3	132	26	4.0	26	244	26	7.6	28
3.5	154	35	5.4	29	284	35	9.3	31
4	176	45	6.7	33	325	45	11.0	34
4.5	198	57	8.1	37	366	57	12.6	38
5	221	70	9.4	40	406	70	14.3	41
5.5	243	84	10.7	44	447	84	15.9	44
6	265	100	12.0	47	487	100	17.5	47
6.5	287	117	13.2	49	528	117	19.0	50

Size **15" x 15"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	130	3	1.0	7
1.5	194	7	2.7	15
2	259	12	5.2	21
2.5	324	18	7.3	25
3	389	26	9.4	29
3.5	454	35	11.3	32
4	518	45	13.2	35
4.5	583	57	15.1	39
5	648	70	16.9	42
5.5	713	84	18.7	45
6	778	100	20.6	47
6.5	842	117	22.4	50



APPENDIX C

Prediction Data

CD 2000

**CD2000 Plastic Square Ceiling Diffuser- Detailed Data****CD2000 - Size 9" x 9"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1	-	-	-	-	-	-	-	-	-	-	-	-
1.5	66	10	0.8	8	28.0	26.9	22.7	10.7	-	-	-	-
2	88	18	1.7	15	34.2	33.2	29.2	20.0	15.5	8.0	-	-
2.5	110	27	3.8	20	39.1	38.2	34.2	27.3	23.5	17.0	11.8	-
3	132	38	5.7	24	43.0	42.2	38.3	33.2	30.0	24.3	16.6	-
3.5	154	51	7.4	29	46.4	45.6	41.8	38.2	35.6	30.6	20.7	-
4	176	66	8.9	33	49.3	48.6	44.8	42.5	40.3	36.0	24.2	-
4.5	198	83	10.2	38	51.9	51.2	47.4	46.4	44.6	40.7	27.3	-
5	221	101	11.4	41	54.2	53.5	49.8	49.8	48.3	45.0	30.1	-
5.5	243	121	12.3	45	56.2	55.6	51.9	52.9	51.8	48.8	32.7	-
6	265	143	13.1	48	58.1	57.5	53.9	55.7	54.9	52.3	35.0	-
6.5	287	166	13.7	50	59.9	59.3	55.7	58.3	57.7	55.5	37.1	-

CD2000 - Size 12" x 12"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1	-	-	-	-	-	-	-	-	-	-	-	-
1.5	118	10	1.7	11	30.5	29.4	25.5	13.7	7.8	-	-	-
2	157	18	4.4	18	36.7	35.8	32.0	23.1	18.1	10.9	8.0	-
2.5	196	27	6.9	23	41.6	40.7	37.0	30.3	26.1	19.9	13.9	-
3	235	38	9.1	27	45.5	44.7	41.1	36.2	32.6	27.2	18.7	-
3.5	274	51	11.0	31	48.9	48.2	44.5	41.3	38.1	33.5	22.8	-
4	314	66	12.6	36	51.8	51.1	47.5	45.6	42.9	38.8	26.3	-
4.5	353	83	13.9	40	54.4	53.7	50.2	49.4	47.2	43.6	29.4	-
5	392	101	15.0	44	56.7	56.1	52.6	52.8	50.9	47.9	32.2	-
5.5	431	121	15.8	47	58.7	58.2	54.7	55.9	54.3	51.7	34.7	-
6	470	143	16.4	50	60.6	60.1	56.6	58.7	57.5	55.2	37.0	-
6.5	510	166	16.9	53	62.4	61.9	58.4	61.3	60.3	58.4	39.1	-

**CD2000 - Size 15" x 15"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1	126	5	1.5	1	23.7	22.5	18.7	-	-	-	-
1.5	189	10	4.8	13	32.5	31.5	27.8	16.3	9.9	-	-
2	252	18	8.2	20	38.8	37.9	34.3	25.6	20.2	13.3	9.7
2.5	315	27	11.2	25	43.6	42.8	39.3	32.8	28.2	22.3	15.6
3	378	38	13.7	29	47.6	46.9	43.4	38.8	34.8	29.6	20.4
3.5	441	51	15.8	34	51.0	50.3	46.8	43.8	40.3	35.8	24.5
4	504	66	17.4	38	53.9	53.2	49.8	48.1	45.1	41.2	28.0
4.5	567	83	18.7	42	56.4	55.8	52.5	51.9	49.3	46.0	31.1
5	630	101	19.6	46	58.7	58.2	54.8	55.3	53.1	50.2	33.9
5.5	693	121	20.3	49	60.8	60.3	57.0	58.4	56.5	54.1	36.4
6	756	143	20.8	52	62.7	62.2	58.9	61.3	59.6	57.6	38.7
6.5	819	166	21.0	56	64.4	64.0	60.7	63.9	62.5	60.8	40.8

CD2000 - Size 595 x 595

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1	185	5	3.8	6	25.4	24.2	20.5	5.1	-	-	-
1.5	277	10	8.2	15	34.2	33.2	29.7	18.3	11.7	-	-
2	370	18	12.3	22	40.4	39.6	36.1	27.6	22.0	15.2	11.0
2.5	462	27	15.7	27	45.3	44.5	41.1	34.9	30.0	24.2	16.9
3	555	38	18.5	31	49.3	48.6	45.2	40.8	36.5	31.6	21.8
3.5	647	51	20.7	36	52.6	52.0	48.7	45.8	42.0	37.8	25.8
4	740	66	22.4	40	55.5	54.9	51.7	50.1	46.8	43.2	29.4
4.5	832	83	23.7	44	58.1	57.5	54.3	53.9	51.0	47.9	32.5
5	925	101	24.5	48	60.4	59.9	56.7	57.4	54.8	52.2	35.3
5.5	1017	121	25.1	51	62.5	62.0	58.8	60.5	58.2	56.0	37.8
6	1109	143	25.4	54	64.4	63.9	60.8	63.3	61.3	59.5	40.1
6.5	1202	166	25.5	57	66.1	65.7	62.6	65.9	64.2	62.8	42.2

**CD2000 Plastic Square Ceiling Diffuser - Summary Data**Size **9" x 9"** **12" x 12"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	-	-	-	-	-	-	-	-
1.5	66	10	0.8	8	118	10	1.7	11
2	88	18	1.7	15	157	18	4.4	18
2.5	110	27	3.8	20	196	27	6.9	23
3	132	38	5.7	24	235	38	9.1	27
3.5	154	51	7.4	29	274	51	11.0	31
4	176	66	8.9	33	314	66	12.6	36
4.5	198	83	10.2	38	353	83	13.9	40
5	221	101	11.4	41	392	101	15.0	44
5.5	243	121	12.3	45	431	121	15.8	47
6	265	143	13.1	48	470	143	16.4	50
6.5	287	166	13.7	50	510	166	16.9	53

Size **15" x 15"** **595 x 595**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	126	5	1.5	1	185	5	3.8	6
1.5	189	10	4.8	13	277	10	8.2	15
2	252	18	8.2	20	370	18	12.3	22
2.5	315	27	11.2	25	462	27	15.7	27
3	378	38	13.7	29	555	38	18.5	31
3.5	441	51	15.8	34	647	51	20.7	36
4	504	66	17.4	38	740	66	22.4	40
4.5	567	83	18.7	42	832	83	23.7	44
5	630	101	19.6	46	925	101	24.5	48
5.5	693	121	20.3	49	1017	121	25.1	51
6	756	143	20.8	52	1109	143	25.4	54
6.5	819	166	21.0	56	1202	166	25.5	57



APPENDIX D

Prediction Data

Aluminium 3-way Louvre Type Ceiling Diffuser

**ALUMINIUM 3 - WAY LOUVRE TYPE - Detailed Data****ALUMINIUM 3 - WAY LOUVRE TYPE - Size 6" x 6"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1.5	-	-	-	-	-	-	-	-	-	-	-	-
2	36	15	0.9	10	29.7	30.0	24.1	15.1	-	-	-	-
2.5	46	22	2.2	15	33.7	33.6	29.2	21.6	12.1	6.8	6.7	-
3	55	31	3.7	19	36.9	36.6	33.3	27.0	19.4	13.6	10.2	-
3.5	64	40	4.8	23	39.6	39.1	36.8	31.5	25.7	19.3	13.2	-
4	73	52	5.7	26	41.9	41.3	39.9	35.3	31.1	24.3	15.8	-
4.5	82	64	6.4	29	44.0	43.2	42.6	38.8	35.8	28.7	18.1	-
5	91	77	7.1	33	45.9	44.9	45.0	41.9	40.1	32.6	20.1	-
5.5	100	92	7.8	37	47.6	46.5	47.2	44.6	43.9	36.2	21.9	-
6	109	108	8.5	40	49.1	47.9	49.2	47.2	47.4	39.4	23.6	-
6.5	118	125	9.2	44	50.5	49.2	51.0	49.5	50.7	42.4	25.1	-
7	128	143	10.0	46	51.8	50.4	52.7	51.7	53.6	45.2	26.6	-

ALUMINIUM 3 - WAY LOUVRE TYPE - Size 9" x 9"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
1.5	66	9	0.8	9	29.1	30.4	22.1	12.5	-	-	-	-
2	88	15	3.8	14	34.2	35.1	28.7	20.9	9.7	-	-	-
2.5	110	22	6.1	20	38.1	38.8	33.8	27.4	18.7	12.9	9.8	-
3	132	31	7.8	24	41.3	41.8	38.0	32.7	26.1	19.7	13.3	-
3.5	154	40	9.4	27	44.1	44.3	41.5	37.2	32.3	25.5	16.3	-
4	176	52	10.9	31	46.4	46.5	44.6	41.1	37.7	30.5	18.9	-
4.5	198	64	12.5	35	48.5	48.4	47.2	44.5	42.5	34.9	21.1	-
5	221	77	14.1	40	50.4	50.1	49.6	47.6	46.7	38.8	23.2	-
5.5	243	92	15.7	43	52.0	51.6	51.8	50.4	50.6	42.3	25.0	-
6	265	108	17.4	47	53.6	53.1	53.8	52.9	54.1	45.6	26.7	-
6.5	287	125	19.2	50	55.0	54.4	55.6	55.2	57.3	48.6	28.2	-
7	309	143	21.1	53	56.3	55.6	57.3	57.4	60.3	51.3	29.7	-

**ALUMINIUM 3 - WAY LOUVRE TYPE - Size 12" x 12"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	122	9	2.8	13	32.2	34.0	25.4	16.4	-	-	-
2	162	15	6.1	18	37.3	38.7	31.9	24.8	14.3	8.9	7.6
2.5	203	22	8.6	23	41.2	42.4	37.0	31.3	23.4	17.2	11.9
3	244	31	10.7	27	44.4	45.3	41.2	36.7	30.7	24.0	15.5
3.5	284	40	12.9	31	47.2	47.8	44.7	41.1	36.9	29.7	18.4
4	325	52	15.2	35	49.5	50.0	47.8	45.0	42.3	34.7	21.0
4.5	366	64	17.5	40	51.6	51.9	50.5	48.5	47.1	39.1	23.3
5	406	77	19.9	44	53.5	53.7	52.9	51.5	51.3	43.0	25.3
5.5	447	92	22.5	48	55.1	55.2	55.0	54.3	55.2	46.6	27.2
6	487	108	25.1	51	56.7	56.6	57.0	56.9	58.7	49.8	28.8
6.5	528	125	27.9	55	58.1	57.9	58.9	59.2	61.9	52.8	30.4
7	569	143	30.7	58	59.4	59.2	60.6	61.4	64.9	55.6	31.8

ALUMINIUM 3 - WAY LOUVRE TYPE - Size 15" x 15"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	189	9	4.4	16	34.4	36.6	27.7	19.3	6.0	-	-
2	252	15	7.6	21	39.5	41.3	34.2	27.7	17.7	11.9	9.2
2.5	315	22	10.3	25	43.5	44.9	39.3	34.2	26.7	20.3	13.5
3	378	31	12.9	30	46.7	47.9	43.5	39.5	34.0	27.1	17.0
3.5	441	40	15.6	34	49.4	50.4	47.0	44.0	40.3	32.8	20.0
4	504	52	18.5	39	51.7	52.6	50.1	47.9	45.6	37.8	22.5
4.5	567	64	21.5	43	53.8	54.5	52.8	51.3	50.4	42.2	24.8
5	630	77	24.7	47	55.7	56.2	55.2	54.4	54.7	46.1	26.9
5.5	693	92	28.0	51	57.4	57.8	57.4	57.2	58.5	49.7	28.7
6	756	108	31.5	55	58.9	59.2	59.3	59.7	62.0	52.9	30.4
6.5	819	125	35.0	58	60.3	60.5	61.2	62.0	65.3	55.9	31.9
7	882	143	38.6	61	61.6	61.7	62.9	64.2	68.2	58.7	33.3

**ALUMINIUM 3 - WAY LOUVRE TYPE - Size 595 x 595**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	290	9	5.7	18	36.6	39.1	29.9	22.1	9.3	-	-
2	387	15	8.9	23	41.7	43.8	36.5	30.5	20.9	14.9	10.7
2.5	484	22	11.8	28	45.6	47.4	41.6	37.0	29.9	23.3	15.0
3	581	31	15.0	32	48.8	50.4	45.8	42.3	37.3	30.1	18.5
3.5	678	40	18.4	37	51.6	52.9	49.3	46.8	43.5	35.8	21.5
4	774	52	22.0	42	53.9	55.1	52.3	50.7	48.9	40.8	24.0
4.5	871	64	25.8	46	56.0	57.0	55.0	54.1	53.6	45.2	26.3
5	968	77	29.8	51	57.8	58.7	57.4	57.2	57.9	49.1	28.4
5.5	1065	92	34.0	54	59.5	60.3	59.6	60.0	61.7	52.7	30.2
6	1162	108	38.3	58	61.1	61.7	61.6	62.5	65.3	55.9	31.9
6.5	1258	125	42.7	61	62.5	63.0	63.4	64.8	68.5	58.9	33.4
7	1355	143	47.2	64	63.8	64.2	65.1	67.0	71.5	61.6	34.8

ALUMINIUM 3 - WAY LOUVRE TYPE - Summary Data

Size

6" x 6"**9" x 9"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	27	9	-	4	66	9	0.8	9
2	36	15	0.9	10	88	15	3.8	14
2.5	46	22	2.2	15	110	22	6.1	20
3	55	31	3.7	19	132	31	7.8	24
3.5	64	40	4.8	23	154	40	9.4	27
4	73	52	5.7	26	176	52	10.9	31
4.5	82	64	6.4	29	198	64	12.5	35
5	91	77	7.1	33	221	77	14.1	40
5.5	100	92	7.8	37	243	92	15.7	43
6	109	108	8.5	40	265	108	17.4	47
6.5	118	125	9.2	44	287	125	19.2	50
7	128	143	10.0	46	309	143	21.1	53



Size

12" x 12"**15" x 15"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	122	9	2.8	13	189	9	4.4	16
2	162	15	6.1	18	252	15	7.6	21
2.5	203	22	8.6	23	315	22	10.3	25
3	244	31	10.7	27	378	31	12.9	30
3.5	284	40	12.9	31	441	40	15.6	34
4	325	52	15.2	35	504	52	18.5	39
4.5	366	64	17.5	40	567	64	21.5	43
5	406	77	19.9	44	630	77	24.7	47
5.5	447	92	22.5	48	693	92	28.0	51
6	487	108	25.1	51	756	108	31.5	55
6.5	528	125	27.9	55	819	125	35.0	58
7	569	143	30.7	58	882	143	38.6	61

Size

595 x 595

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	290	9	5.7	18
2	387	15	8.9	23
2.5	484	22	11.8	28
3	581	31	15.0	32
3.5	678	40	18.4	37
4	774	52	22.0	42
4.5	871	64	25.8	46
5	968	77	29.8	51
5.5	1065	92	34.0	54
6	1162	108	38.3	58
6.5	1258	125	42.7	61
7	1355	143	47.2	64



APPENDIX E

Prediction Data

Aluminium 4-way Louvre Type Ceiling Diffuser

**ALUMINIUM 4 - WAY LOUVRE TYPE - Detailed Data****ALUMINIUM 4 - WAY LOUVRE TYPE - Size 6" x 6"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	-	-	-	-	-	-	-	-	-	-	-
2	36	13	0.8	11	26.2	26.6	25.1	7.5	-	-	-
2.5	46	19	1.2	15	30.5	31.2	29.5	15.2	7.3	6.3	7.9
3	55	27	1.4	19	34.0	34.9	33.0	21.5	13.8	11.6	10.4
3.5	64	37	2.9	22	37.0	38.0	36.0	26.9	19.2	16.1	12.6
4	73	47	4.4	24	39.5	40.8	38.7	31.5	23.9	20.0	14.4
4.5	82	59	5.6	27	41.8	43.2	41.0	35.5	28.1	23.5	16.1
5	91	72	6.6	29	43.8	45.3	43.0	39.2	31.8	26.5	17.5
5.5	100	86	7.6	32	45.6	47.3	44.9	42.5	35.1	29.3	18.9
6	109	102	8.5	36	47.3	49.0	46.6	45.5	38.2	31.8	20.1
6.5	118	119	9.4	38	48.8	50.7	48.2	48.3	41.0	34.2	21.2
7	128	136	10.2	41	50.3	52.2	49.6	50.8	43.7	36.3	22.2

ALUMINIUM 4 - WAY LOUVRE TYPE - Size 9" x 9"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	66	7	0.8	9	26.8	25.7	23.5	-	-	-	-
2	88	13	2.0	15	32.3	31.6	29.1	14.9	7.4	-	-
2.5	110	19	4.9	19	36.6	36.1	33.5	22.6	15.3	11.9	10.6
3	132	27	7.0	23	40.1	39.8	37.1	28.9	21.7	17.2	13.1
3.5	154	37	8.7	26	43.0	43.0	40.1	34.2	27.1	21.7	15.3
4	176	47	10.2	29	45.6	45.7	42.7	38.9	31.8	25.6	17.1
4.5	198	59	11.6	33	47.9	48.1	45.0	42.9	36.0	29.0	18.8
5	221	72	12.9	37	49.9	50.2	47.0	46.6	39.7	32.1	20.2
5.5	243	86	14.2	40	51.7	52.2	48.9	49.9	43.1	34.8	21.6
6	265	102	15.5	43	53.4	53.9	50.6	52.9	46.2	37.4	22.8
6.5	287	119	16.8	46	54.9	55.6	52.2	55.6	49.0	39.7	23.9
7	309	136	18.1	48	56.3	57.1	53.6	58.2	51.6	41.9	24.9

**ALUMINIUM 4 - WAY LOUVRE TYPE - Size 12" x 12"**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	122	7	1.8	12	31.0	29.1	26.3	10.0	-	-	-
2	162	13	5.6	18	36.5	35.0	31.9	20.0	12.9	9.2	9.4
2.5	203	19	8.0	22	40.8	39.5	36.3	27.7	20.7	15.7	12.5
3	244	27	9.9	26	44.3	43.2	39.8	34.0	27.2	21.0	15.0
3.5	284	37	11.5	29	47.2	46.4	42.9	39.3	32.6	25.5	17.1
4	325	47	13.1	34	49.8	49.1	45.5	43.9	37.3	29.4	19.0
4.5	366	59	14.7	38	52.1	51.5	47.8	48.0	41.5	32.8	20.6
5	406	72	16.3	42	54.1	53.6	49.8	51.7	45.2	35.9	22.1
5.5	447	86	18.0	45	55.9	55.6	51.7	55.0	48.6	38.6	23.4
6	487	102	19.7	48	57.6	57.3	53.4	58.0	51.6	41.2	24.6
6.5	528	119	21.4	51	59.1	59.0	55.0	60.7	54.5	43.5	25.7
7	569	136	23.2	53	60.5	60.5	56.4	63.3	57.1	45.7	26.8

ALUMINIUM 4 - WAY LOUVRE TYPE - Size 15" x 15"

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	194	7	4.5	14	34.2	31.7	28.4	13.9	6.9	-	-
2	259	13	7.5	20	39.7	37.6	34.0	23.9	17.1	12.1	10.8
2.5	324	19	9.6	24	44.0	42.1	38.4	31.6	24.9	18.6	13.9
3	389	27	11.3	28	47.5	45.8	42.0	37.9	31.4	23.9	16.4
3.5	454	37	13.0	33	50.5	49.0	45.0	43.2	36.8	28.4	18.6
4	518	47	14.7	38	53.0	51.7	47.6	47.9	41.5	32.3	20.4
4.5	583	59	16.5	42	55.3	54.1	49.9	51.9	45.7	35.7	22.1
5	648	72	18.4	46	57.3	56.2	52.0	55.6	49.4	38.8	23.5
5.5	713	86	20.4	49	59.1	58.2	53.8	58.9	52.8	41.6	24.8
6	778	102	22.5	52	60.8	59.9	55.5	61.9	55.8	44.1	26.1
6.5	842	119	24.7	55	62.3	61.6	57.1	64.6	58.7	46.4	27.2
7	907	136	27.0	57	63.7	63.1	58.5	67.2	61.3	48.6	28.2



ALUMINIUM 4 - WAY LOUVRE TYPE - Size 595 x 595

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1.5	290	7	6.4	16	37.0	33.9	30.2	17.3	10.5	6.2	8.0
2	387	13	8.7	22	42.5	39.8	35.9	27.2	20.7	14.6	12.0
2.5	484	19	10.4	26	46.8	44.3	40.2	34.9	28.6	21.1	15.1
3	581	27	12.0	31	50.3	48.1	43.8	41.2	35.0	26.4	17.6
3.5	678	37	13.8	37	53.2	51.2	46.8	46.6	40.4	30.9	19.8
4	774	47	15.7	41	55.8	53.9	49.4	51.2	45.1	34.8	21.6
4.5	871	59	17.8	45	58.0	56.3	51.7	55.3	49.3	38.2	23.3
5	968	72	20.0	49	60.1	58.5	53.8	58.9	53.0	41.3	24.7
5.5	1065	86	22.3	52	61.9	60.4	55.7	62.2	56.4	44.1	26.1
6	1162	102	24.8	55	63.5	62.2	57.4	65.2	59.4	46.6	27.3
6.5	1258	119	27.4	58	65.1	63.8	58.9	68.0	62.3	48.9	28.4
7	1355	136	30.0	61	66.5	65.3	60.4	70.6	64.9	51.1	29.4

ALUMINIUM 4 - WAY LOUVRE TYPE - Summary Data

Size **6" x 6"** **9" x 9"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	-	-	-	-	66	7	0.8	9
2	36	13	0.8	11	88	13	2.0	15
2.5	46	19	1.2	15	110	19	4.9	19
3	55	27	1.4	19	132	27	7.0	23
3.5	64	37	2.9	22	154	37	8.7	26
4	73	47	4.4	24	176	47	10.2	29
4.5	82	59	5.6	27	198	59	11.6	33
5	91	72	6.6	29	221	72	12.9	37
5.5	100	86	7.6	32	243	86	14.2	40
6	109	102	8.5	36	265	102	15.5	43
6.5	118	119	9.4	38	287	119	16.8	46
7	128	136	10.2	41	309	136	18.1	48



Size

12" x 12"**15" x 15"**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	122	7	1.8	12	194	7	4.5	14
2	162	13	5.6	18	259	13	7.5	20
2.5	203	19	8.0	22	324	19	9.6	24
3	244	27	9.9	26	389	27	11.3	28
3.5	284	37	11.5	29	454	37	13.0	33
4	325	47	13.1	34	518	47	14.7	38
4.5	366	59	14.7	38	583	59	16.5	42
5	406	72	16.3	42	648	72	18.4	46
5.5	447	86	18.0	45	713	86	20.4	49
6	487	102	19.7	48	778	102	22.5	52
6.5	528	119	21.4	51	842	119	24.7	55
7	569	136	23.2	53	907	136	27.0	57

Size

595 x 595

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	290	7	6.4	16
2	387	13	8.7	22
2.5	484	19	10.4	26
3	581	27	12.0	31
3.5	678	37	13.8	37
4	774	47	15.7	41
4.5	871	59	17.8	45
5	968	72	20.0	49
5.5	1065	86	22.3	52
6	1162	102	24.8	55
6.5	1258	119	27.4	58
7	1355	136	30.0	61



APPENDIX F

Prediction Data

UNIJET – Jet Centre

**UNIJET JET CENTRE - Detailed Data****UNIJET Jet Centre - (150 mm diameter)**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2	-	-	-	-	-	-	-	-	-	-	-
2.5	41	11	4	3	27.0	23.0	18.0	12.0	9.0	-	-
3	50	16	5.9	8	32.3	27.8	22.4	18.0	15.0	9.0	-
3.5	58	22	7.7	13	36.5	31.9	26.5	22.2	20.1	14.0	7.0
4	66	28	9.2	18	40.2	35.5	30.0	26.2	24.5	19.3	11.3
4.5	74	35	10.7	22	43.5	38.6	33.0	29.8	28.4	23.6	14.8
5	83	43	12.0	25	46.4	41.4	35.8	33.0	31.9	27.5	18.0
5.5	91	52	13.3	28	49.0	43.9	38.3	35.8	35.1	31.0	20.8
6	99	61	14.5	31	51.4	46.2	40.6	38.4	38.0	34.2	23.4
6.5	107	71	15.7	34	53.6	48.4	42.7	40.8	40.6	37.2	25.8
7	116	82	16.9	36	55.7	50.4	44.6	43.1	43.1	39.9	28.0
7.5	124	94	18.0	38	57.6	52.2	46.4	45.1	45.4	42.5	30.0

UNIJET Jet Centre - (200 mm diameter)

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2	60	7	2	3	27.0	21.0	17.0	12.0	7.0	-	-
2.5	75	11	3.9	9	33.1	26.8	23.1	19.0	15.0	8.0	-
3	90	16	5.8	14	38.1	31.6	27.9	24.0	20.8	14.0	6.0
3.5	104	22	7.5	19	42.4	35.7	31.9	28.7	26.0	20.1	10.7
4	119	28	9.0	24	46.1	39.3	35.4	32.7	30.4	25.0	14.7
4.5	134	35	10.5	27	49.3	42.4	38.5	36.2	34.3	29.4	18.2
5	149	43	11.9	31	52.2	45.2	41.2	39.4	37.8	33.2	21.3
5.5	164	52	13.3	34	54.8	47.8	43.7	42.3	41.0	36.8	24.1
6	179	61	14.6	37	57.2	50.1	46.0	44.9	43.9	40.0	26.7
6.5	194	71	16.0	39	59.5	52.2	48.1	47.3	46.5	42.9	29.1
7	209	82	17.3	42	61.5	54.2	50.0	49.5	49.0	45.7	31.3
7.5	224	94	18.7	44	63.4	56.0	51.8	51.6	51.3	48.2	33.4



UNIJET Jet Centre - (250 mm diameter)

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s)		Sound Power Level, dB re 1E-12W						
			[m]	NR	Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2	94	7	2	7	31.0	24.0	21.0	17.0	12.0	-	-
2.5	118	11	3.9	14	37.6	29.7	27.3	24.0	19.0	12.0	-
3	141	16	5.7	19	42.6	34.6	32.1	29.0	25.4	19.0	9.0
3.5	165	22	7.3	24	46.9	38.7	36.1	33.6	30.5	24.5	13.2
4	188	28	8.9	28	50.6	42.2	39.6	37.7	35.0	29.4	17.2
4.5	212	35	10.4	32	53.8	45.4	42.7	41.2	38.9	33.8	20.7
5	236	43	11.9	35	56.7	48.2	45.4	44.4	42.4	37.7	23.9
5.5	259	52	13.4	38	59.3	50.7	47.9	47.2	45.5	41.2	26.7
6	283	61	14.9	41	61.7	53.0	50.2	49.9	48.4	44.4	29.3
6.5	306	71	16.4	44	64.0	55.2	52.3	52.3	51.1	47.4	31.7
7	330	82	17.9	46	66.0	57.1	54.2	54.5	53.5	50.1	33.9
7.5	353	94	19.4	49	67.9	59.0	56.0	56.6	55.8	52.6	36.0

UNIJET JET CENTRE - Summary Data

150 mm diameter

200 mm diameter

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	-	-	-	-	60	7	1.7	3
2.5	41	11	3.8	3	75	11	3.9	9
3	50	16	5.9	8	90	16	5.8	14
3.5	58	22	7.7	13	104	22	7.5	19
4	66	28	9.2	18	119	28	9.0	24
4.5	74	35	10.7	22	134	35	10.5	27
5	83	43	12.0	25	149	43	11.9	31
5.5	91	52	13.3	28	164	52	13.3	34
6	99	61	14.5	31	179	61	14.6	37
6.5	107	71	15.7	34	194	71	16.0	39
7	116	82	16.9	36	209	82	17.3	42
7.5	124	94	18.0	38	224	94	18.7	44

**250 mm diameter**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	94	7	1.9	7
2.5	118	11	3.9	14
3	141	16	5.7	19
3.5	165	22	7.3	24
4	188	28	8.9	28
4.5	212	35	10.4	32
5	236	43	11.9	35
5.5	259	52	13.4	38
6	283	61	14.9	41
6.5	306	71	16.4	44
7	330	82	17.9	46
7.5	353	94	19.4	49



APPENDIX G

Prediction Data

UNIJET – Cone Centre ($x = 0$ mm Cone Setting)

**UNIJET CONE CENTRE (x = 0 mm) - Detailed Data****UNIJET Cone Centre (x = 0 mm) - 150 mm diameter**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1	-	-	-	-	-	-	-	-	-	-	-
1.5	23	32	2.1	9	29.9	26.9	23.5	15.9	10.3	9.4	8.9
2	31	52	4.8	15	33.3	31.1	29.5	23.8	17.0	13.8	12.3
2.5	38	75	6.9	20	35.9	34.4	34.2	30.0	22.2	17.2	14.9
3	46	102	8.8	25	38.1	37.1	38.0	35.0	26.5	20.0	17.1
3.5	54	131	10.5	29	39.9	39.3	41.2	39.3	30.1	22.3	18.9
4	62	164	12.2	33	41.5	41.3	44.0	43.0	33.2	24.4	20.4
4.5	69	199	13.9	36	42.9	43.0	46.5	46.2	36.0	26.2	21.8
5	77	237	15.5	39	44.2	44.6	48.7	49.2	38.4	27.8	23.1
5.5	85	277	17.1	42	45.3	46.0	50.6	51.8	40.7	29.2	24.2
6	92	320	18.7	44	46.3	47.2	52.5	54.2	42.7	30.6	25.2
6.5	100	365	20.3	46	47.3	48.4	54.1	56.4	44.6	31.8	26.1

UNIJET Cone Centre (x = 0 mm) - 200 mm diameter

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1	28	23	0.8	3	29.1	23.3	16.6	8.1	-	-	-
1.5	43	44	4.5	11	33.9	29.3	25.1	19.3	15.5	12.5	10.2
2	57	71	7.3	17	37.3	33.5	31.1	27.2	22.3	16.9	13.6
2.5	71	103	9.8	23	40.0	36.8	35.7	33.4	27.5	20.3	16.2
3	85	139	12.2	28	42.1	39.4	39.6	38.5	31.7	23.1	18.4
3.5	99	179	14.5	33	44.0	41.7	42.8	42.7	35.3	25.4	20.2
4	113	223	16.8	36	45.6	43.7	45.6	46.4	38.5	27.5	21.7
4.5	128	271	19.1	40	46.9	45.4	48.0	49.7	41.2	29.3	23.1
5	142	323	21.4	43	48.2	46.9	50.2	52.6	43.7	30.9	24.4
5.5	156	378	23.7	45	49.3	48.3	52.2	55.2	45.9	32.3	25.5
6	170	436	25.9	48	50.4	49.6	54.0	57.6	47.9	33.7	26.5
6.5	184	498	28.2	50	51.3	50.8	55.7	59.8	49.8	34.9	27.5



UNIJET Cone Centre (x = 0 mm) - 250 mm diameter

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W						
					Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
1	45	34	3.5	6	33.0	26.8	20.6	14.1	12.4	10.2	7.9
1.5	68	67	7.4	15	37.8	32.7	29.1	25.3	21.8	16.4	12.7
2	90	108	10.8	23	41.2	36.9	35.1	33.3	28.6	20.8	16.1
2.5	113	156	14.1	29	43.9	40.2	39.8	39.4	33.8	24.2	18.7
3	136	210	17.3	34	46.0	42.9	43.6	44.5	38.0	27.0	20.8
3.5	158	271	20.5	39	47.9	45.2	46.8	48.7	41.6	29.4	22.7
4	181	338	23.7	42	49.5	47.1	49.6	52.4	44.8	31.4	24.2
4.5	203	411	26.9	46	50.9	48.8	52.0	55.7	47.5	33.2	25.6
5	226	489	30.1	49	52.1	50.4	54.2	58.6	50.0	34.8	26.9
5.5	249	572	33.2	51	53.2	51.8	56.2	61.2	52.2	36.3	28.0
6	271	661	36.3	54	54.3	53.1	58.0	63.7	54.2	37.6	29.0
6.5	294	754	39.3	56	55.2	54.2	59.7	65.9	56.1	38.8	29.9

UNIJET CONE CENTRE (x = 0 mm) - Summary Data

150 mm diameter

200 mm diameter

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	-	-	-	-	28	23	0.8	3
1.5	23	32	2.1	9	43	44	4.5	11
2	31	52	4.8	15	57	71	7.3	17
2.5	38	75	6.9	20	71	103	9.8	23
3	46	102	8.8	25	85	139	12.2	28
3.5	54	131	10.5	29	99	179	14.5	33
4	62	164	12.2	33	113	223	16.8	36
4.5	69	199	13.9	36	128	271	19.1	40
5	77	237	15.5	39	142	323	21.4	43
5.5	85	277	17.1	42	156	378	23.7	45
6	92	320	18.7	44	170	436	25.9	48
6.5	100	365	20.3	46	184	498	28.2	50

**250 mm diameter**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR
1	45	34	3.5	6
1.5	68	67	7.4	15
2	90	108	10.8	23
2.5	113	156	14.1	29
3	136	210	17.3	34
3.5	158	271	20.5	39
4	181	338	23.7	42
4.5	203	411	26.9	46
5	226	489	30.1	49
5.5	249	572	33.2	51
6	271	661	36.3	54
6.5	294	754	39.3	56



APPENDIX H

Prediction Data

UNIJET – Cone Centre (x = 20 mm Cone Setting)

**UNIJET CONE CENTRE (x = 20 mm) - Detailed Data****UNIJET Cone Centre (x = 20 mm) - 150 mm diameter**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
2.5	-	-	-	-	-	-	-	-	-	-	-	-
3	46	16	1	4	31.0	25.0	19.0	12.0	8.0	7.0	-	-
3.5	54	21	2.3	8	34.8	28.7	22.8	17.0	12.0	10.0	9.0	-
4	62	27	3.8	12	37.9	31.8	26.6	20.5	16.0	14.0	11.0	-
4.5	69	34	5.3	15	40.7	34.6	29.9	24.1	19.3	16.3	13.3	-
5	77	42	6.7	19	43.1	37.1	32.8	27.2	22.3	18.8	15.2	-
5.5	85	51	8.1	21	45.3	39.4	35.5	30.0	25.0	21.0	16.8	-
6	92	60	9.4	24	47.4	41.4	37.9	32.6	27.4	23.0	18.4	-
6.5	100	70	10.6	26	49.2	43.3	40.2	35.0	29.7	24.9	19.8	-
7	108	81	11.7	28	51.0	45.1	42.2	37.2	31.8	26.6	21.1	-
7.5	115	93	12.7	30	52.6	46.7	44.2	39.3	33.7	28.2	22.3	-
8	123	106	13.6	32	54.1	48.3	46.0	41.2	35.5	29.7	23.4	-

UNIJET Cone Centre (x = 20 mm) - 200 mm diameter

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
2.5	113	49	9	16	41.0	35.0	30.0	25.0	20.0	16.0	11.0	-
3	136	69	11.4	21	45.3	39.0	35.5	31.0	25.0	20.0	14.0	-
3.5	158	94	13.3	26	48.9	42.6	39.8	35.4	29.1	24.0	17.0	-
4	181	121	14.7	30	52.0	45.8	43.6	39.3	32.9	27.1	19.1	-
4.5	203	153	15.6	33	54.7	48.6	46.9	42.9	36.2	29.9	21.1	-
5	226	188	16.2	36	57.2	51.1	49.8	46.0	39.2	32.3	23.0	-
5.5	249	226	16.5	39	59.4	53.3	52.5	48.8	41.9	34.5	24.6	-
6	271	268	16.5	41	61.4	55.4	54.9	51.4	44.3	36.6	26.2	-
6.5	294	313	16.3	44	63.3	57.3	57.1	53.8	46.6	38.4	27.6	-
7	317	362	15.8	46	65.0	59.0	59.2	56.0	48.7	40.2	28.9	-
7.5	339	414	15.2	48	66.6	60.7	61.1	58.1	50.6	41.8	30.1	-
8	362	470	14.3	50	68.2	62.2	62.9	60.0	52.4	43.3	31.2	-



UNIJET Cone Centre (x = 20 mm) - 250 mm diameter

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.5	113	32	7	7	33.0	27.0	21.0	16.0	10.0	8.0	-
3	136	46	9.5	12	37.7	31.1	26.5	22.0	16.0	13.0	-
3.5	158	62	11.3	16	41.3	34.7	30.8	26.2	19.9	16.0	9.0
4	181	80	12.8	20	44.5	37.9	34.6	30.2	23.7	19.2	11.0
4.5	203	101	13.9	24	47.2	40.7	37.9	33.7	27.0	22.0	13.5
5	226	124	14.7	27	49.7	43.2	40.8	36.9	30.0	24.4	15.4
5.5	249	149	15.2	30	51.9	45.4	43.5	39.7	32.7	26.6	17.1
6	271	176	15.5	32	53.9	47.5	45.9	42.3	35.1	28.7	18.6
6.5	294	206	15.5	35	55.8	49.4	48.1	44.7	37.4	30.5	20.0
7	317	238	15.3	37	57.5	51.1	50.2	46.9	39.5	32.3	21.3
7.5	339	273	14.9	39	59.1	52.8	52.1	49.0	41.4	33.9	22.5
8	362	309	14.4	41	60.6	54.3	53.9	50.9	43.2	35.4	23.6

UNIJET CONE CENTRE (x = 20 mm) - Summary Data

150 mm diameter

200 mm diameter

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2.5	-	-	-	-	113	49	9.0	16
3	46	16	1.0	4	136	69	11.4	21
3.5	54	21	2.3	8	158	94	13.3	26
4	62	27	3.8	12	181	121	14.7	30
4.5	69	34	5.3	15	203	153	15.6	33
5	77	42	6.7	19	226	188	16.2	36
5.5	85	51	8.1	21	249	226	16.5	39
6	92	60	9.4	24	271	268	16.5	41
6.5	100	70	10.6	26	294	313	16.3	44
7	108	81	11.7	28	317	362	15.8	46
7.5	115	93	12.7	30	339	414	15.2	48
8	123	106	13.6	32	362	470	14.3	50

**250 mm diameter**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR
2.5	113	32	7.2	7
3	136	46	9.5	12
3.5	158	62	11.3	16
4	181	80	12.8	20
4.5	203	101	13.9	24
5	226	124	14.7	27
5.5	249	149	15.2	30
6	271	176	15.5	32
6.5	294	206	15.5	35
7	317	238	15.3	37
7.5	339	273	14.9	39
8	362	309	14.4	41



APPENDIX I

Prediction Data

Aluminium Double Deflection Wall Register

**DOUBLE DEFLECTION GRILL - Detailed Data****DOUBLE DEFLECTION GRILL - 0.028 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
2.0	-	-	-	-	-	-	-	-	-	-	-	-
2.5	70	9	3.6	11	32.9	29.1	25.3	18.1	10.0	-	-	-
3.0	84	14	7.2	15	36.6	33.0	29.9	23.7	15.5	11.0	7.1	-
3.5	98	19	10.3	19	39.8	36.3	33.8	28.5	20.5	16.3	11.1	-
4.0	112	26	13.0	23	42.5	39.1	37.1	32.6	24.8	20.8	14.5	-
4.5	126	34	15.4	26	44.9	41.7	40.1	36.3	28.7	24.8	17.6	-
5.0	140	43	17.5	30	47.1	43.9	42.7	39.5	32.1	28.4	20.3	-
5.5	154	54	19.3	32	49.0	46.0	45.1	42.5	35.2	31.6	22.7	-
6.0	168	65	21.1	35	50.8	47.8	47.3	45.2	38.1	34.6	25.0	-
6.5	182	78	22.6	38	52.4	49.5	49.3	47.7	40.7	37.3	27.1	-
7.0	196	92	24.1	40	54.0	51.1	51.2	49.9	43.1	39.8	29.0	-
7.5	210	107	25.4	42	55.4	52.6	52.9	52.1	45.3	42.2	30.8	-

DOUBLE DEFLECTION GRILL - 0.034 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)							
					125	250	500	1000	2000	4000	8000	
2.0	68	6	1.0	6	29.0	25.2	20.5	12.1	-	-	-	-
2.5	85	9	4.5	12	33.6	30.0	26.1	19.0	10.6	-	-	-
3.0	102	14	8.2	16	37.3	33.9	30.7	24.6	16.5	12.0	8.0	-
3.5	119	19	11.3	20	40.5	37.2	34.6	29.4	21.6	17.3	12.0	-
4.0	136	26	13.9	24	43.2	40.0	37.9	33.5	25.9	21.8	15.5	-
4.5	153	34	16.3	27	45.6	42.6	40.9	37.2	29.8	25.8	18.5	-
5.0	170	43	18.3	30	47.8	44.8	43.5	40.4	33.2	29.4	21.2	-
5.5	187	54	20.2	33	49.7	46.8	45.9	43.4	36.3	32.6	23.7	-
6.0	204	65	21.9	36	51.5	48.7	48.1	46.0	39.1	35.6	25.9	-
6.5	221	78	23.5	39	53.2	50.4	50.1	48.5	41.8	38.3	28.0	-
7.0	238	92	25.0	41	54.7	52.0	52.0	50.8	44.2	40.8	29.9	-
7.5	255	107	26.3	43	56.1	53.5	53.7	52.9	46.4	43.2	31.7	-

**DOUBLE DEFLECTION GRILL - 0.040 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	80	6	0.9	7	29.6	25.9	21.2	12.8	-	-	-
2.5	100	9	5.3	12	34.2	30.7	26.8	19.7	11.5	6.6	-
3.0	120	14	9.0	17	37.9	34.6	31.4	25.3	17.5	12.8	8.8
3.5	140	19	12.1	21	41.1	37.9	35.2	30.1	22.5	18.1	12.8
4.0	160	26	14.7	24	43.8	40.8	38.6	34.2	26.8	22.6	16.2
4.5	180	34	17.0	28	46.2	43.3	41.5	37.9	30.7	26.6	19.3
5.0	200	43	19.1	31	48.4	45.5	44.2	41.1	34.1	30.2	22.0
5.5	220	54	21.0	34	50.3	47.6	46.6	44.1	37.2	33.5	24.5
6.0	240	65	22.7	37	52.1	49.4	48.8	46.8	40.1	36.4	26.7
6.5	260	78	24.2	39	53.8	51.2	50.8	49.3	42.7	39.1	28.8
7.0	280	92	25.7	42	55.3	52.7	52.6	51.5	45.1	41.7	30.7
7.5	300	107	27.0	44	56.7	54.2	54.4	53.7	47.3	44.0	32.5

DOUBLE DEFLECTION GRILL - 0.048 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	96	6	1.8	7	30.3	26.8	21.9	13.6	-	-	-
2.5	120	9	6.2	13	34.9	31.5	27.5	20.5	12.5	7.6	-
3.0	144	14	9.9	18	38.6	35.4	32.1	26.2	18.5	13.8	9.7
3.5	168	19	12.9	22	41.8	38.7	36.0	30.9	23.5	19.0	13.7
4.0	192	26	15.5	25	44.5	41.6	39.3	35.1	27.9	23.6	17.1
4.5	216	34	17.9	29	46.9	44.1	42.3	38.7	31.7	27.6	20.2
5.0	240	43	19.9	32	49.1	46.4	44.9	42.0	35.1	31.1	22.9
5.5	264	54	21.8	35	51.0	48.4	47.3	44.9	38.2	34.4	25.4
6.0	288	65	23.5	38	52.8	50.3	49.5	47.6	41.1	37.3	27.6
6.5	312	78	25.0	40	54.5	52.0	51.5	50.1	43.7	40.1	29.7
7.0	336	92	26.4	42	56.0	53.6	53.4	52.4	46.1	42.6	31.6
7.5	360	107	27.8	44	57.4	55.1	55.1	54.5	48.4	44.9	33.4

**DOUBLE DEFLECTION GRILL - 0.058 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	116	6	2.7	8	31.0	27.6	22.7	14.5	6.3	-	-
2.5	145	9	7.2	14	35.6	32.4	28.3	21.4	13.6	8.5	-
3.0	174	14	10.8	19	39.3	36.3	32.9	27.0	19.5	14.7	10.6
3.5	203	19	13.8	23	42.5	39.6	36.8	31.8	24.6	20.0	14.6
4.0	232	26	16.4	26	45.2	42.5	40.1	35.9	28.9	24.5	18.0
4.5	261	34	18.7	30	47.6	45.0	43.1	39.5	32.8	28.5	21.1
5.0	290	43	20.8	33	49.8	47.2	45.7	42.8	36.2	32.1	23.8
5.5	319	54	22.6	36	51.7	49.3	48.1	45.7	39.3	35.3	26.3
6.0	348	65	24.3	38	53.5	51.1	50.3	48.4	42.1	38.3	28.5
6.5	377	78	25.8	41	55.2	52.9	52.3	50.9	44.8	41.0	30.6
7.0	406	92	27.3	43	56.7	54.4	54.2	53.2	47.2	43.5	32.5
7.5	435	107	28.6	45	58.1	55.9	55.9	55.3	49.4	45.9	34.3

DOUBLE DEFLECTION GRILL - 0.070 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	140	6	3.7	9	31.7	28.5	23.5	15.3	7.4	-	-
2.5	175	9	8.1	15	36.3	33.3	29.1	22.2	14.7	9.5	6.8
3.0	210	14	11.7	19	40.0	37.2	33.7	27.9	20.6	15.7	11.5
3.5	245	19	14.7	23	43.2	40.5	37.5	32.6	25.6	20.9	15.5
4.0	280	26	17.3	27	45.9	43.3	40.9	36.7	30.0	25.5	19.0
4.5	315	34	19.6	30	48.3	45.8	43.9	40.4	33.8	29.5	22.0
5.0	350	43	21.6	34	50.5	48.1	46.5	43.6	37.3	33.1	24.7
5.5	385	54	23.4	37	52.4	50.1	48.9	46.6	40.4	36.3	27.2
6.0	420	65	25.1	39	54.2	52.0	51.1	49.3	43.2	39.3	29.4
6.5	455	78	26.6	42	55.9	53.7	53.1	51.8	45.8	42.0	31.5
7.0	490	92	28.0	44	57.4	55.3	55.0	54.0	48.2	44.5	33.4
7.5	525	107	29.4	46	58.8	56.8	56.7	56.2	50.5	46.8	35.2

**DOUBLE DEFLECTION GRILL - 0.084 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	168	6	4.6	10	32.4	29.3	24.2	16.1	8.4	-	-
2.5	210	9	9.0	15	37.0	34.1	29.8	23.0	15.7	10.4	7.7
3.0	252	14	12.5	20	40.7	38.0	34.4	28.7	21.6	16.6	12.4
3.5	294	19	15.5	24	43.9	41.3	38.3	33.4	26.6	21.9	16.4
4.0	336	26	18.1	28	46.6	44.2	41.7	37.6	31.0	26.4	19.8
4.5	378	34	20.4	31	49.0	46.7	44.6	41.2	34.8	30.4	22.9
5.0	420	43	22.4	34	51.2	48.9	47.3	44.5	38.3	34.0	25.6
5.5	462	54	24.2	37	53.1	51.0	49.7	47.4	41.4	37.2	28.1
6.0	504	65	25.9	40	54.9	52.8	51.8	50.1	44.2	40.2	30.3
6.5	546	78	27.4	43	56.5	54.5	53.9	52.6	46.8	42.9	32.4
7.0	588	92	28.8	45	58.1	56.1	55.7	54.9	49.2	45.4	34.3
7.5	630	107	30.1	47	59.5	57.6	57.4	57.0	51.5	47.8	36.1

DOUBLE DEFLECTION GRILL - 0.100 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	200	6	5.4	10	33.0	30.1	25.0	16.9	9.4	-	-
2.5	250	9	9.8	16	37.6	34.9	30.6	23.8	16.7	11.3	8.5
3.0	300	14	13.3	21	41.3	38.8	35.1	29.4	22.6	17.5	13.3
3.5	350	19	16.3	25	44.5	42.1	39.0	34.2	27.6	22.7	17.2
4.0	400	26	18.9	28	47.2	44.9	42.4	38.3	32.0	27.3	20.7
4.5	450	34	21.1	32	49.7	47.5	45.3	42.0	35.8	31.3	23.7
5.0	500	43	23.2	35	51.8	49.7	48.0	45.2	39.3	34.9	26.5
5.5	550	54	25.0	38	53.8	51.8	50.4	48.2	42.4	38.1	28.9
6.0	600	65	26.6	41	55.5	53.6	52.6	50.9	45.2	41.1	31.2
6.5	650	78	28.1	43	57.2	55.3	54.6	53.4	47.8	43.8	33.2
7.0	700	92	29.5	46	58.7	56.9	56.4	55.6	50.2	46.3	35.1
7.5	750	107	30.8	48	60.1	58.4	58.2	57.8	52.5	48.7	36.9

**DOUBLE DEFLECTION GRILL - 0.120 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	240	6	6.3	11	33.7	30.9	25.7	17.7	10.4	-	-
2.5	300	9	10.7	17	38.3	35.7	31.3	24.6	17.7	12.2	9.4
3.0	360	14	14.2	22	42.0	39.6	35.9	30.3	23.6	18.4	14.1
3.5	420	19	17.2	26	45.2	42.9	39.8	35.0	28.6	23.7	18.1
4.0	480	26	19.7	29	47.9	45.8	43.1	39.2	33.0	28.2	21.6
4.5	540	34	21.9	33	50.3	48.3	46.1	42.8	36.8	32.2	24.6
5.0	600	43	23.9	36	52.5	50.6	48.7	46.1	40.3	35.8	27.3
5.5	660	54	25.7	39	54.4	52.6	51.1	49.0	43.4	39.0	29.8
6.0	720	65	27.4	42	56.2	54.5	53.3	51.7	46.2	42.0	32.0
6.5	780	78	28.9	44	57.9	56.2	55.3	54.2	48.8	44.7	34.1
7.0	840	92	30.3	46	59.4	57.8	57.2	56.5	51.2	47.2	36.0
7.5	900	107	31.6	49	60.8	59.2	58.9	58.6	53.5	49.6	37.8

DOUBLE DEFLECTION GRILL - 0.140 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	280	6	7.1	12	34.3	31.7	26.4	18.4	11.3	-	-
2.5	350	9	11.4	18	38.9	36.4	32.0	25.3	18.5	13.0	10.2
3.0	420	14	14.9	22	42.6	40.3	36.5	31.0	24.5	19.2	14.9
3.5	490	19	17.9	26	45.8	43.6	40.4	35.7	29.5	24.5	18.9
4.0	560	26	20.4	30	48.5	46.5	43.8	39.8	33.9	29.0	22.3
4.5	630	34	22.6	33	50.9	49.0	46.7	43.5	37.7	33.0	25.4
5.0	700	43	24.6	37	53.1	51.3	49.4	46.7	41.1	36.6	28.1
5.5	770	54	26.4	40	55.0	53.3	51.8	49.7	44.2	39.8	30.5
6.0	840	65	28.0	42	56.8	55.2	54.0	52.4	47.1	42.8	32.8
6.5	910	78	29.5	45	58.4	56.9	56.0	54.9	49.7	45.5	34.9
7.0	980	92	30.9	47	60.0	58.5	57.8	57.2	52.1	48.0	36.8
7.5	1050	107	32.2	49	61.4	59.9	59.6	59.3	54.4	50.4	38.6

**DOUBLE DEFLECTION GRILL - 0.168 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	336	6	8.0	13	35.0	32.5	27.1	19.2	12.3	6.4	-
2.5	420	9	12.3	18	39.5	37.3	32.7	26.1	19.6	13.9	11.1
3.0	504	14	15.8	23	43.3	41.2	37.3	31.8	25.5	20.1	15.8
3.5	588	19	18.7	27	46.4	44.5	41.2	36.5	30.5	25.4	19.7
4.0	672	26	21.2	31	49.2	47.3	44.5	40.7	34.9	29.9	23.2
4.5	756	34	23.4	34	51.6	49.8	47.5	44.3	38.7	33.9	26.2
5.0	840	43	25.4	38	53.7	52.1	50.1	47.6	42.2	37.5	29.0
5.5	924	54	27.1	41	55.7	54.1	52.5	50.5	45.3	40.8	31.4
6.0	1008	65	28.8	43	57.5	56.0	54.7	53.2	48.1	43.7	33.7
6.5	1092	78	30.2	46	59.1	57.7	56.7	55.7	50.7	46.4	35.7
7.0	1176	92	31.6	48	60.6	59.3	58.6	58.0	53.1	49.0	37.7
7.5	1260	107	32.9	50	62.1	60.8	60.3	60.1	55.4	51.3	39.4

DOUBLE DEFLECTION GRILL - 0.202 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	404	6	8.9	13	35.7	33.3	27.9	20.1	13.3	7.3	-
2.5	505	9	13.1	19	40.2	38.1	33.5	27.0	20.6	14.9	12.0
3.0	606	14	16.6	24	44.0	42.0	38.1	32.6	26.5	21.1	16.7
3.5	707	19	19.5	28	47.1	45.3	41.9	37.4	31.6	26.3	20.6
4.0	808	26	22.0	31	49.9	48.2	45.3	41.5	35.9	30.9	24.1
4.5	909	34	24.2	35	52.3	50.7	48.2	45.1	39.8	34.9	27.1
5.0	1010	43	26.1	38	54.4	52.9	50.9	48.4	43.2	38.4	29.9
5.5	1111	54	27.9	41	56.4	55.0	53.3	51.3	46.3	41.7	32.3
6.0	1212	65	29.5	44	58.2	56.8	55.5	54.0	49.1	44.6	34.6
6.5	1313	78	31.0	47	59.8	58.5	57.5	56.5	51.8	47.4	36.6
7.0	1414	92	32.3	49	61.3	60.1	59.3	58.8	54.2	49.9	38.5
7.5	1515	107	33.6	51	62.7	61.6	61.1	60.9	56.4	52.2	40.3

**DOUBLE DEFLECTION GRILL - 0.235 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	470	6	9.6	14	36.2	34.0	28.5	20.7	14.2	8.1	6.9
2.5	588	9	13.8	20	40.8	38.8	34.1	27.6	21.5	15.7	12.7
3.0	705	14	17.3	25	44.5	42.7	38.7	33.3	27.4	21.8	17.4
3.5	823	19	20.2	28	47.7	46.0	42.6	38.0	32.4	27.1	21.4
4.0	940	26	22.6	32	50.4	48.8	45.9	42.2	36.8	31.6	24.8
4.5	1058	34	24.8	36	52.8	51.4	48.9	45.8	40.6	35.6	27.9
5.0	1175	43	26.8	39	55.0	53.6	51.5	49.1	44.0	39.2	30.6
5.5	1293	54	28.5	42	57.0	55.7	53.9	52.0	47.2	42.5	33.1
6.0	1410	65	30.1	45	58.7	57.5	56.1	54.7	50.0	45.4	35.3
6.5	1528	78	31.6	47	60.4	59.2	58.1	57.2	52.6	48.1	37.4
7.0	1645	92	32.9	49	61.9	60.8	60.0	59.5	55.0	50.7	39.3
7.5	1763	107	34.2	52	63.3	62.3	61.7	61.6	57.3	53.0	41.1

DOUBLE DEFLECTION GRILL - 0.282 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	564	6	10.5	15	36.9	34.8	29.2	21.6	15.2	9.0	7.8
2.5	705	9	14.7	21	41.5	39.6	34.9	28.5	22.5	16.6	13.6
3.0	846	14	18.1	25	45.2	43.5	39.4	34.1	28.4	22.8	18.3
3.5	987	19	21.0	29	48.4	46.8	43.3	38.9	33.4	28.0	22.3
4.0	1128	26	23.4	33	51.1	49.7	46.7	43.0	37.8	32.6	25.7
4.5	1269	34	25.6	37	53.5	52.2	49.6	46.6	41.6	36.6	28.8
5.0	1410	43	27.5	40	55.7	54.4	52.3	49.9	45.1	40.1	31.5
5.5	1551	54	29.2	43	57.6	56.5	54.7	52.8	48.2	43.4	33.9
6.0	1692	65	30.8	46	59.4	58.3	56.9	55.5	51.0	46.3	36.2
6.5	1833	78	32.3	48	61.1	60.1	58.9	58.0	53.6	49.1	38.2
7.0	1974	92	33.6	50	62.6	61.6	60.7	60.3	56.0	51.6	40.2
7.5	2115	107	34.9	52	64.0	63.1	62.5	62.4	58.3	53.9	41.9

**DOUBLE DEFLECTION GRILL - 0.338 m²**

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	676	6	11.4	16	37.6	35.7	30.0	22.4	16.2	9.9	8.7
2.5	845	9	15.5	21	42.2	40.4	35.6	29.3	23.5	17.5	14.4
3.0	1014	14	18.9	26	45.9	44.3	40.2	34.9	29.4	23.7	19.2
3.5	1183	19	21.8	30	49.0	47.6	44.1	39.7	34.5	28.9	23.1
4.0	1352	26	24.2	34	51.8	50.5	47.4	43.8	38.8	33.5	26.6
4.5	1521	34	26.3	37	54.2	53.0	50.4	47.4	42.7	37.5	29.6
5.0	1690	43	28.3	41	56.4	55.3	53.0	50.7	46.1	41.1	32.3
5.5	1859	54	30.0	44	58.3	57.3	55.4	53.6	49.2	44.3	34.8
6.0	2028	65	31.5	46	60.1	59.2	57.6	56.3	52.0	47.3	37.1
6.5	2197	78	33.0	49	61.7	60.9	59.6	58.8	54.6	50.0	39.1
7.0	2366	92	34.3	51	63.2	62.5	61.5	61.1	57.1	52.5	41.0
7.5	2535	107	35.5	53	64.7	63.9	63.2	63.2	59.3	54.9	42.8

DOUBLE DEFLECTION GRILL - 0.406 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	812	6	12.2	16	38.3	36.5	30.8	23.2	17.2	10.8	9.6
2.5	1015	9	16.4	22	42.8	41.3	36.4	30.1	24.5	18.4	15.3
3.0	1218	14	19.7	27	46.6	45.2	40.9	35.7	30.5	24.6	20.0
3.5	1421	19	22.5	31	49.7	48.5	44.8	40.5	35.5	29.9	24.0
4.0	1624	26	25.0	35	52.5	51.3	48.2	44.6	39.8	34.4	27.5
4.5	1827	34	27.1	38	54.9	53.9	51.1	48.3	43.7	38.4	30.5
5.0	2030	43	29.0	42	57.0	56.1	53.8	51.5	47.1	42.0	33.2
5.5	2233	54	30.7	44	59.0	58.1	56.2	54.5	50.2	45.2	35.7
6.0	2436	65	32.2	47	60.8	60.0	58.4	57.2	53.1	48.2	37.9
6.5	2639	78	33.7	50	62.4	61.7	60.4	59.6	55.7	50.9	40.0
7.0	2842	92	35.0	52	63.9	63.3	62.2	61.9	58.1	53.4	41.9



7.5	3045	107	36.2	54	65.3	64.8	64.0	64.1	60.3	55.8	43.7
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DOUBLE DEFLECTION GRILL - 0.482 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	964	6	13.0	17	38.9	37.3	31.5	24.0	18.2	11.7	10.4
2.5	1205	9	17.2	23	43.5	42.1	37.1	30.9	25.5	19.3	16.2
3.0	1446	14	20.5	28	47.2	46.0	41.7	36.5	31.4	25.5	20.9
3.5	1687	19	23.3	32	50.4	49.3	45.5	41.3	36.5	30.7	24.9
4.0	1928	26	25.7	35	53.1	52.1	48.9	45.4	40.8	35.3	28.3
4.5	2169	34	27.8	39	55.5	54.6	51.8	49.0	44.6	39.3	31.3
5.0	2410	43	29.7	42	57.7	56.9	54.5	52.3	48.1	42.9	34.1
5.5	2651	54	31.4	45	59.6	58.9	56.9	55.2	51.2	46.1	36.5
6.0	2892	65	32.9	48	61.4	60.8	59.1	57.9	54.0	49.1	38.8
6.5	3133	78	34.3	50	63.1	62.5	61.1	60.4	56.6	51.8	40.8
7.0	3374	92	35.6	53	64.6	64.1	62.9	62.7	59.0	54.3	42.8
7.5	3615	107	36.8	55	66.0	65.6	64.7	64.8	61.3	56.7	44.5

DOUBLE DEFLECTION GRILL - 0.578 m²

Neck Velocity [m/s]	Flow [l/s]	Pressure Drop [Pa]	Throw (0.25m/s) [m]	NR	Sound Power Level, dB re 1E-12W Octave Band Centre Frequency (Hz)						
					125	250	500	1000	2000	4000	8000
2.0	1156	6	13.9	18	39.6	38.1	32.2	24.8	19.2	12.6	11.3
2.5	1445	9	18.0	24	44.2	42.9	37.8	31.7	26.5	20.2	17.0
3.0	1734	14	21.3	28	47.9	46.8	42.4	37.3	32.4	26.4	21.8
3.5	2023	19	24.1	32	51.0	50.1	46.3	42.1	37.5	31.7	25.7
4.0	2312	26	26.4	36	53.8	52.9	49.6	46.2	41.8	36.2	29.2
4.5	2601	34	28.5	40	56.2	55.5	52.6	49.8	45.7	40.2	32.2
5.0	2890	43	30.4	43	58.4	57.7	55.2	53.1	49.1	43.8	34.9
5.5	3179	54	32.1	46	60.3	59.8	57.6	56.0	52.2	47.0	37.4
6.0	3468	65	33.6	49	62.1	61.6	59.8	58.7	55.0	50.0	39.7
6.5	3757	78	35.0	51	63.7	63.3	61.8	61.2	57.7	52.7	41.7



7.0	4046	92	36.3	53	65.2	64.9	63.7	63.5	60.1	55.2	43.6
7.5	4335	107	37.5	56	66.7	66.4	65.4	65.6	62.3	57.6	45.4

DOUBLE DEFLECTION GRILL - Summary Data

Area 0.028 m² (A)

Area 0.034 m² (B)

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	-	-	-	-	68	6	1.0	6
2.5	70	9	3.6	11	85	9	4.5	12
3	84	14	7.2	15	102	14	8.2	16
3.5	98	19	10.3	19	119	19	11.3	20
4	112	26	13.0	23	136	26	13.9	24
4.5	126	34	15.4	26	153	34	16.3	27
5	140	43	17.5	30	170	43	18.3	30
5.5	154	54	19.3	32	187	54	20.2	33
6	168	65	21.1	35	204	65	21.9	36
6.5	182	78	22.6	38	221	78	23.5	39
7	196	92	24.1	40	238	92	25.0	41
7.5	210	107	25.4	42	255	107	26.3	43

Area 0.040 m² (C)

Area 0.048 m² (D)

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	80	6	0.9	7	96	6	1.8	7
2.5	100	9	5.3	12	120	9	6.2	13
3	120	14	9.0	17	144	14	9.9	18
3.5	140	19	12.1	21	168	19	12.9	22
4	160	26	14.7	24	192	26	15.5	25
4.5	180	34	17.0	28	216	34	17.9	29
5	200	43	19.1	31	240	43	19.9	32
5.5	220	54	21.0	34	264	54	21.8	35
6	240	65	22.7	37	288	65	23.5	38
6.5	260	78	24.2	39	312	78	25.0	40
7	280	92	25.7	42	336	92	26.4	42



7.5	300	107	27.0	44	360	107	27.8	44
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Area 0.058 m² (E)**Area 0.070 m² (F)**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	116	6	2.7	8	140	6	3.7	9
2.5	145	9	7.2	14	175	9	8.1	15
3	174	14	10.8	19	210	14	11.7	19
3.5	203	19	13.8	23	245	19	14.7	23
4	232	26	16.4	26	280	26	17.3	27
4.5	261	34	18.7	30	315	34	19.6	30
5	290	43	20.8	33	350	43	21.6	34
5.5	319	54	22.6	36	385	54	23.4	37
6	348	65	24.3	38	420	65	25.1	39
6.5	377	78	25.8	41	455	78	26.6	42
7	406	92	27.3	43	490	92	28.0	44
7.5	435	107	28.6	45	525	107	29.4	46

Area 0.084 m² (G)**Area 0.100 m² (H)**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	168	6	4.6	10	200	6	5.4	10
2.5	210	9	9.0	15	250	9	9.8	16
3	252	14	12.5	20	300	14	13.3	21
3.5	294	19	15.5	24	350	19	16.3	25
4	336	26	18.1	28	400	26	18.9	28
4.5	378	34	20.4	31	450	34	21.1	32
5	420	43	22.4	34	500	43	23.2	35
5.5	462	54	24.2	37	550	54	25.0	38
6	504	65	25.9	40	600	65	26.6	41
6.5	546	78	27.4	43	650	78	28.1	43
7	588	92	28.8	45	700	92	29.5	46
7.5	630	107	30.1	47	750	107	30.8	48

**Area 0.120 m² (I)****Area 0.140 m² (J)**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	240	6	6.3	11	280	6	7.1	12
2	300	9	10.7	17	350	9	11.4	18
2.5	360	14	14.2	22	420	14	14.9	22
3	420	19	17.2	26	490	19	17.9	26
3.5	480	26	19.7	29	560	26	20.4	30
4	540	34	21.9	33	630	34	22.6	33
4.5	600	43	23.9	36	700	43	24.6	37
5	660	54	25.7	39	770	54	26.4	40
5.5	720	65	27.4	42	840	65	28.0	42
6	780	78	28.9	44	910	78	29.5	45
6.5	840	92	30.3	46	980	92	30.9	47
7	900	107	31.6	49	1050	107	32.2	49

Area 0.168 m² (K)**Area 0.202 m² (L)**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	336	6	8.0	13	404	6	8.9	13
2.5	420	9	12.3	18	505	9	13.1	19
3	504	14	15.8	23	606	14	16.6	24
3.5	588	19	18.7	27	707	19	19.5	28
4	672	26	21.2	31	808	26	22.0	31
4.5	756	34	23.4	34	909	34	24.2	35
5	840	43	25.4	38	1010	43	26.1	38
5.5	924	54	27.1	41	1111	54	27.9	41
6	1008	65	28.8	43	1212	65	29.5	44
6.5	1092	78	30.2	46	1313	78	31.0	47
7	1176	92	31.6	48	1414	92	32.3	49
7.5	1260	107	32.9	50	1515	107	33.6	51

**Area 0.235 m² (M)****Area 0.282 m² (N)**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	470	6	9.6	14	564	6	10.5	15
2.5	588	9	13.8	20	705	9	14.7	21
3	705	14	17.3	25	846	14	18.1	25
3.5	823	19	20.2	28	987	19	21.0	29
4	940	26	22.6	32	1128	26	23.4	33
4.5	1058	34	24.8	36	1269	34	25.6	37
5	1175	43	26.8	39	1410	43	27.5	40
5.5	1293	54	28.5	42	1551	54	29.2	43
6	1410	65	30.1	45	1692	65	30.8	46
6.5	1528	78	31.6	47	1833	78	32.3	48
7	1645	92	32.9	49	1974	92	33.6	50
7.5	1763	107	34.2	52	2115	107	34.9	52

Area 0.338 m² (O)**Area 0.406 m² (P)**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
1.5	676	6	11.4	16	812	6	12.2	16
2	845	9	15.5	21	1015	9	16.4	22
2.5	1014	14	18.9	26	1218	14	19.7	27
3	1183	19	21.8	30	1421	19	22.5	31
3.5	1352	26	24.2	34	1624	26	25.0	35
4	1521	34	26.3	37	1827	34	27.1	38
4.5	1690	43	28.3	41	2030	43	29.0	42
5	1859	54	30.0	44	2233	54	30.7	44
5.5	2028	65	31.5	46	2436	65	32.2	47
6	2197	78	33.0	49	2639	78	33.7	50
6.5	2366	92	34.3	51	2842	92	35.0	52



7	2535	107	35.5	53	3045	107	36.2	54
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Area 0.482 m2 (Q)**Area 0.578 m2 (R)**

Neck Vel (m/s)	Flow (l/s)	PD (Pa)	Throw (m)	NR	Flow (l/s)	PD (Pa)	Throw (m)	NR
2	964	6	13.0	17	1156	6	13.9	18
2.5	1205	9	17.2	23	1445	9	18.0	24
3	1446	14	20.5	28	1734	14	21.3	28
3.5	1687	19	23.3	32	2023	19	24.1	32
4	1928	26	25.7	35	2312	26	26.4	36
4.5	2169	34	27.8	39	2601	34	28.5	40
5	2410	43	29.7	42	2890	43	30.4	43
5.5	2651	54	31.4	45	3179	54	32.1	46
6	2892	65	32.9	48	3468	65	33.6	49
6.5	3133	78	34.3	50	3757	78	35.0	51
7	3374	92	35.6	53	4046	92	36.3	53
7.5	3615	107	36.8	55	4335	107	37.5	56