AIRFLOW AC

Drum Jet Louvres

Type DJL

Airflow AC Middle East FZE-LLC

Email:- airflowacme@gmail.com,www.airflowac.me,00971509293811

To satisfactorily supply a large volume of air into big open spaces such as shopping malls, leisure arenas and gymnasiums, requires a certain type of diffuser. This type of application is where the design features inherent in the Model DJL are best demonstrated.

With adjustable vertical vanes located in a rotational cylinder drum, the diffuser is capable of supplying controlled ventilation over a long throw in both heating and cooling modes. Whilst normally used for horizontal distribution, the diffuser may also be used for vertical projection if required.

The diffuser is constructed from aluminium extrusions and incorporates a flanged frame for easy installation. A polypropylene is used to seal the drum louvre inside the outer flange frame. With the diffuser in-site the cylinder is able to rotate a full 360 degrees, to allow cleaning with or without an OBD fitted.

A complete range of eight standard sizes and four non standard sizes comprises of seven small formats (type 'S') and five large formats (type 'L').

Standard finish is silver (RAL 9006) or white (RAL 9010) powder coated. Alternative paint finishes to the relevant RAL colours are available on request.

Opposed blade dampers can be factory fitted and are located to the rear of the drum louvre. If required a separate opposed blade damper can be supplied for fitting (by others) into the ductwork behind the diffuser assembly.

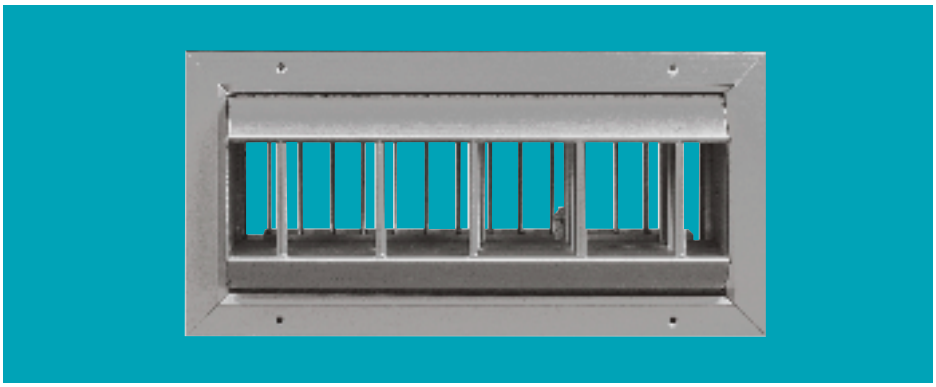
Motorised Operation

To satisfy the demand for remote automatic operation, a motorised version of the Model DJL-M is also available. The cylinder drum is motorised to alter the air discharge angle for heating or cooling modes. Drum travel can be altered to suit on site requirements, by adjustment of the motor. Internal air pattern vanes are manually adjusted to the required position.

A 230 Volt A.C. or 24 Volt D.C. on/off motor can be fitted to a built-in mounting plate assembly incorporated into the standard diffuser.

The built-in motor mounting assembly is suitable for 275 high diffuser sizes only.

Manual Operation



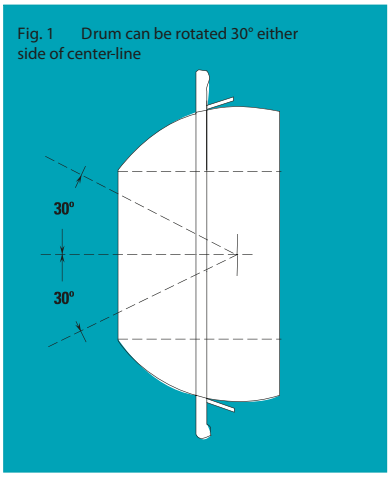


Fig. 1 Drum can be rotated 30° either side of center-line

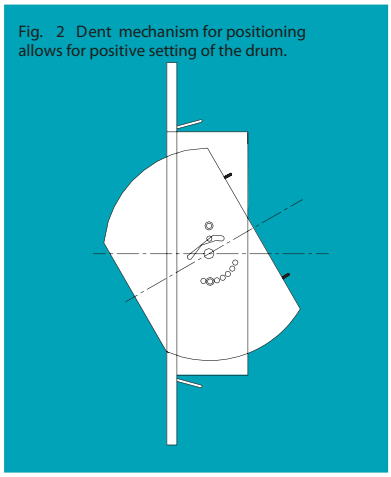
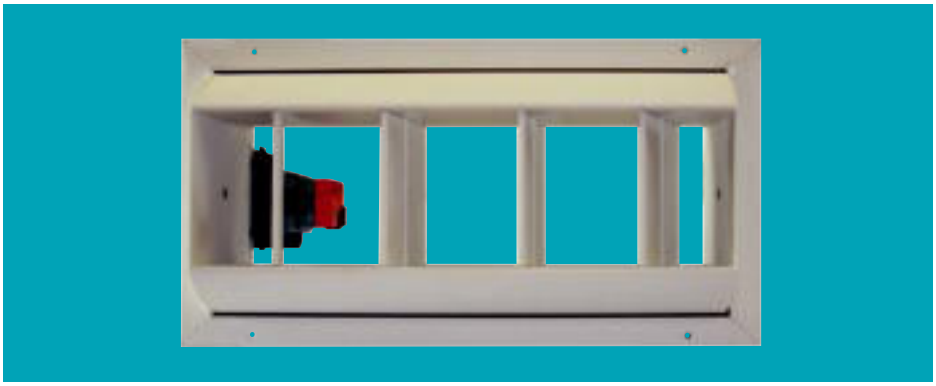


Fig. 2 Dent mechanism for positioning allows for positive setting of the drum.

Motorised Operation



Diffuser Specification

Material

Drum Louvre, adjustable direction vanes and 25mm flange border from extruded aluminium sections, drum louvres ends from aluminium sheet. Silicone treated polypropylene bristle used as seal between drum louvres and flanged outer frame.

Construction
Outer flanged frame mitred with corners mechanically cleated. Drum louvres, adjustable vanes joined by mechanical fittings.

Standard Installation Method
Countersunk screws holes in the flange frame for easy face fixing onto ductwork or structural opening.

Accessories
Optional opposed blade dampers.
Motorised option.

Finish
Standard finish is silver (RAL 9006) or white (RAL 9010) stove enamel paint. Alternative stove enamel paint finishes to RAL colours also available, on request.

Standard Model Types

DJL – Drum Jet Louvres

Standard Types

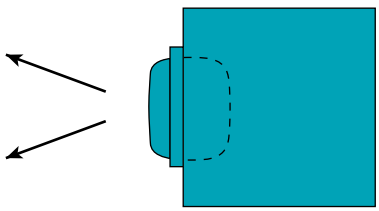
Type	Size	Nominal Width	Nominal Height
B	1	250	175
B	2	325	175
B	3	475	175
B	4	625	175
E	5	525	275
E	6	650	275
E	7	775	275
E	8	900	275

Non Standard Types

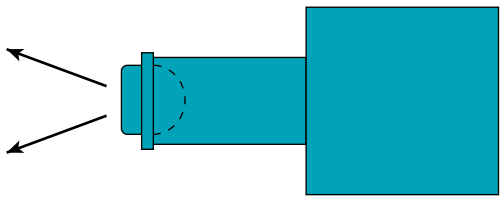
B	9	175	175
B	10	400	175
B	11	550	175
E	12	1025	275

For complete dimensional data please refer to page 4.

Selection Guide



VELOCITY up to 5m/s



VELOCITY over 5m/s

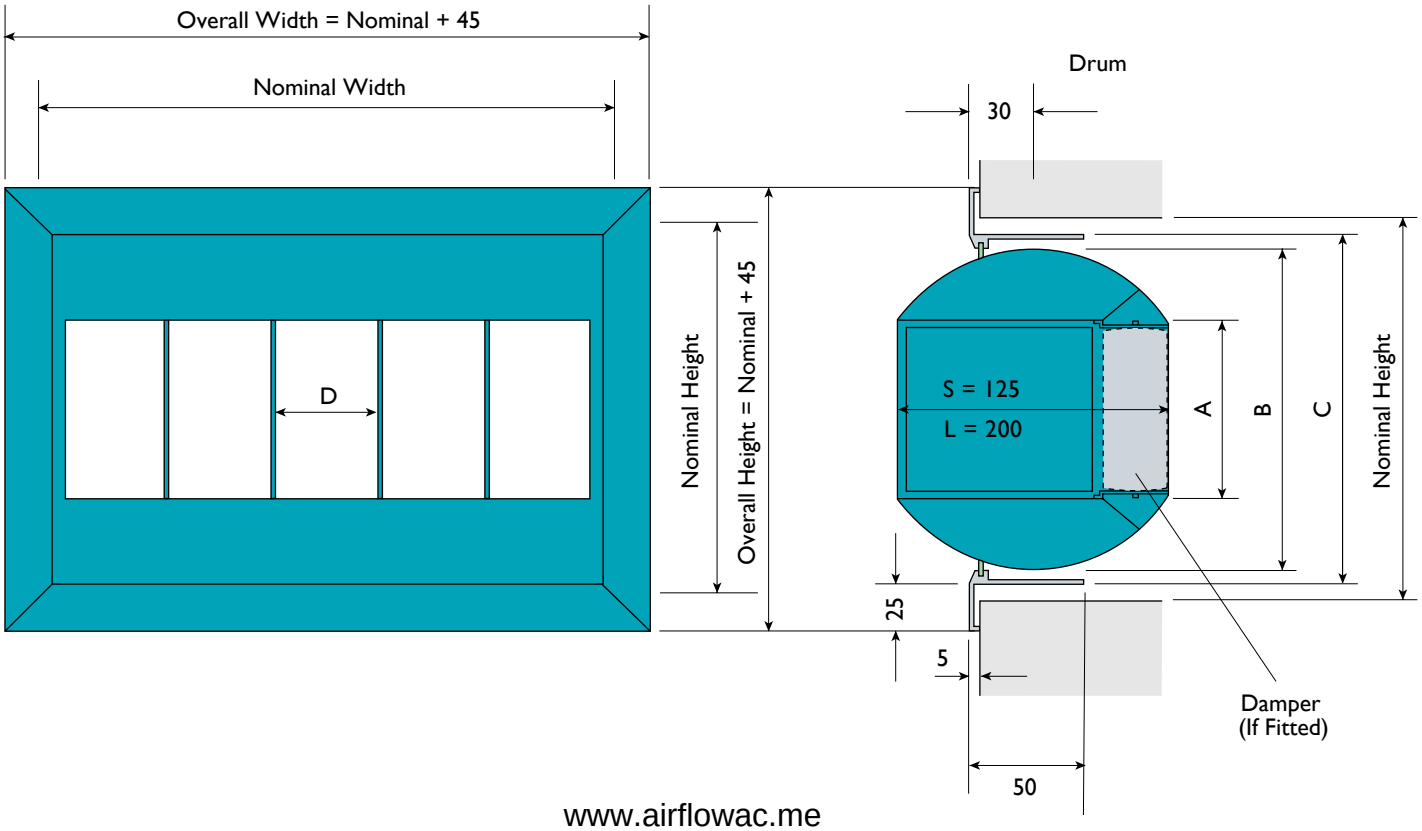
Drum Louvres can be mounted on horizontal or vertical position without affecting the affecting the air distribution patterns.
When mounting on main ducts with a velocity below 5 m/s, drum louvres can be mounted directly on the duct. When the velocity exceeds 5m/s it highly recommended that an extension collars be installed for mounting Drum louvres. (See above example)

Standard Sizes

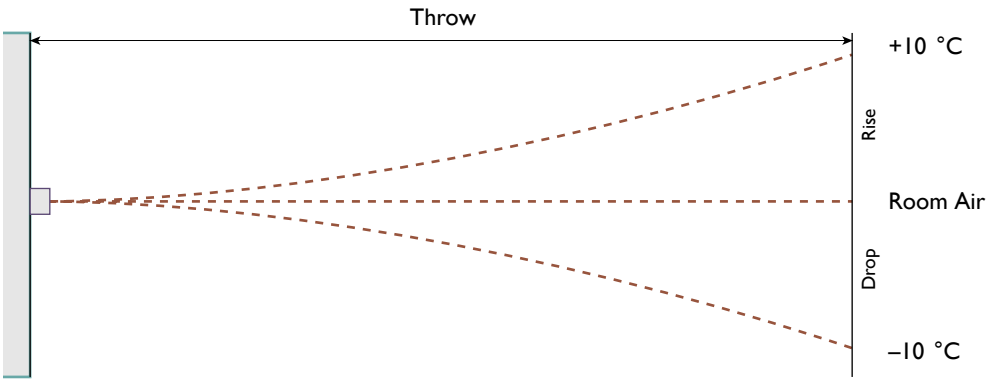
Type	Size	Nominal Width	Nominal Height	A	B	C	D	No. Blades
B	1	250	175	86	156	166	75	3
B	2	325	175	86	156	166	75	4
B	3	475	175	86	156	166	75	6
B	4	625	175	86	156	166	75	8
E	5	525	275	152	256	266	125	4
E	6	650	275	152	256	266	125	5
E	7	775	275	152	256	266	125	6
E	8	900	275	152	256	266	125	7

Non Standard Sizes

Type	Size	Nominal Width	Nominal Height	A	B	C	D	No. Blades
B	9	175	175	86	156	166	75	2
B	10	400	175	86	156	166	75	5
B	11	550	175	86	156	166	75	7
E	12	1025	275	152	256	266	125	8



Discharge Correction



Supply air temperature will affect the throw and air jet will need correction to achieve table throw figures.

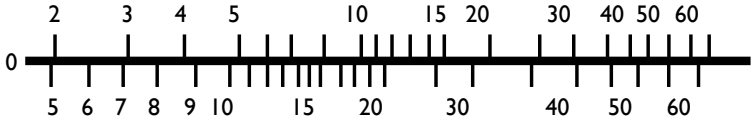
Rise or drop	Throw (metres)										
(meters)	3	6	9	12	15	18	21	24	27	31	37
0.14	3	2	1	1							
0.3	6	3	2	1	1	1					
0.5	11	6	4	3	2	2	2				
1.1		11	8	6	5	4	3	3			
1.6		16	10	9	7	6	5	4	4		
2.5		23	16	12	10	9	8	7	5	5	
3		27	18	14	11	10	8	7	6	6	
4.5			27	21	17	14	12	11	9	9	7
5.5				26	21	17	15	14	12	12	10
7.5					26	22	19	16	15	13	11
9						26	22	20	19	16	13
10.5							26	23	20	18	15
12								26	23	21	17
13.5									26	24	20
15										26	22
16.5											24
18											26

Correction in Degrees

Example: from performance table, required throw 15m and air vol 610 L/S, using B4 diffuser @ 11 °C gives 2.2m drop/rise, air will need directing up (cooling) 9 °C or down (heating) 9 °C (figs by interpolation).

Example: a 5 degree change of blade angle causes a 10% decrease in throw.

Vertical Vane Angle Setting (Degrees)



Percentage Decrease in Throw

Throw in Metres	Temp in Diff 0 °C	L/S	100	120	140	165	190	210	240	260	280	310
		Size	B1	B1	B1 B2	B1 B2	B1 B2 B3	B1 B2 B3	B1 B2 B3	B1 B2 B3	B1 B2 B3 B4	B1 B2 B3 B4
		Stat press Pa	30	40	50 20	60 30	80 40 20	100 50 30	130 60 30	150 80 40	180 90 40 20	200 100 50 30
		dBA level	22	24	26 22	31 24	33 28 23	36 30 24	38 32 26	40 34 29	41 36 30 24	43 37 32 27
3	5	Drop	0.1	0.1	0.0 0.1	0.1 0.1	0.1 0.1 0.1	0.0 0.0 0.1	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0 0.1	0.0 0.0 0.0 0.1
	11	or	0.2	0.1	0.1 0.2	0.1 0.1	0.1 0.1 0.1	0.0 0.1 0.1	0.0 0.1 0.1	0.0 0.0 0.1	0.0 0.0 0.1 0.1	0.0 0.0 0.1 0.1
	16	rise	0.2	0.1	0.1 0.2	0.1 0.2	0.1 0.1 0.2	0.1 0.1 0.2	0.0 0.1 0.1	0.0 0.1 0.1	0.0 0.1 0.1 0.2	0.0 0.0 0.1 0.1
	22	in m	0.3	0.2	0.2 0.2	0.1 0.2	0.1 0.2 0.2	0.1 0.1 0.2	0.1 0.1 0.2	0.0 0.1 0.1	0.0 0.1 0.1 0.2	0.0 0.1 0.1 0.2
	Residual vel m/s		0.4	0.5	0.6 0.4	0.8 0.6	0.9 0.7 0.4	1.1 0.8 0.6	1.3 0.9 0.6	1.5 1.1 0.7	1.7 1.3 0.8 0.6	1.8 1.3 0.9 0.7
6	5	Drop	0.6	0.1	0.3 0.5	0.2 0.5	0.2 0.3 0.4	0.1 0.2 0.3	0.1 0.2 0.3	0.1 0.2 0.2	0.1 0.1 0.2 0.4	0.1 0.1 0.2 0.3
	11	or	1.1	0.2	0.6 1.0	0.5 0.8	0.3 0.6 0.8	0.3 0.5 0.7	0.2 0.5 0.7	0.2 0.5 0.7	0.2 0.3 0.4 0.8	0.2 0.2 0.4 0.7
	16	rise	2.0	0.2	1.0 1.5	0.6 1.2	0.5 0.9 1.2	0.3 0.8 1.1	0.3 0.6 1.0	0.3 0.6 1.0	0.2 0.5 0.7 1.1	0.2 0.3 0.6 1.0
	22	in m	2.2	0.3	1.2	0.9 1.7	0.6 1.2 1.7	0.6 0.9 1.5	0.5 0.8 1.4	0.5 0.8 1.4	0.3 0.6 0.9 1.5	0.2 0.4 0.7 1.4
	Residual vel m/s		0.2	0.3	0.4 0.3	0.5 0.3	0.6 0.4 0.3	0.6 0.4 0.3	0.7 0.6 0.4	0.7 0.6 0.4	0.9 0.7 0.5 0.4	1.0 0.8 0.5 0.4
9	5	Drop	1.8	1.2	1.0 1.7	0.8 1.5	0.5 1.0 1.4	0.4 0.8 1.2	0.3 0.6 1.1	0.3 0.5 0.8	0.2 0.6 0.7 1.3	0.2 0.4 0.6 1.1
	11	or	3.7	2.4	1.8 3.4	1.2 3.1	0.8 1.9 2.8	0.8 1.6 2.4	0.7 1.2 2.1	0.6 1.1 1.7	0.5 0.9 1.4 2.4	0.4 0.8 1.2 2.2
	16	rise		4.0	3.0 5.2	2.8 4.3	1.8 3.1 4.3	1.4 2.4 3.7	1.0 2.0 3.4	0.8 1.5 2.4	0.7 1.3 2.3 4.0	0.6 1.1 1.8 3.4
	22	in m		5.2	4.3	3.0	2.1 4.0 5.5	1.7 3.1 4.9	1.4 2.6 4.6	1.1 2.1 3.4	1.0 1.7 3.1 5.2	0.8 1.4 2.4 4.3
	Residual vel m/s		0.2	0.2	0.3 0.2	0.4 0.2	0.4 0.3 0.2	0.5 0.3 0.2	0.6 0.4 0.3	0.6 0.5 0.3	0.7 0.5 0.3 0.3	0.8 0.6 0.4 0.3
12	5	Drop	4.3	3.1	2.4 4.1	1.8 3.4	1.2 2.4 3.4	1.1 1.8 3.0	0.8 1.5 2.8	0.7 1.2 2.0	0.6 1.0 1.8 3.1	0.5 0.9 1.4 2.6
	11	or		5.5	4.3	3.1 5.5	2.3 4.6 5.5	1.8 3.7 5.5	1.5 3.1 4.9	1.2 2.4 3.7	1.1 1.7 3.4 6.1	1.0 1.8 2.9 5.2
	16	rise			6.8	5.2	3.7 6.4	3.1 5.5	2.6 4.3 6.7	2.1 3.7 5.5	2.0 2.8 5.2	1.7 2.6 4.3
	22	in m				6.4	5.2	4.0 6.7	3.4 5.5	2.6 4.9	2.3 4.0 6.1	2.0 3.7 5.8
	Residual vel m/s		0.1	0.2	0.2 0.2	0.3 0.2	0.3 0.2 0.2	0.4 0.3 0.2	0.4 0.3 0.2	0.6 0.5 0.2	0.7 0.4 0.3 0.2	0.6 0.4 0.3 0.2
15	5	Drop	7.9	5.5	4.6 7.3	3.4 5.5	2.4 4.6 5.5	2.0 3.7 5.5	1.6 2.9 4.9	1.3 2.4 4.0	1.1 2.0 3.7 5.8	1.0 1.7 2.8 5.2
	11	or			7.0	5.5	4.0	3.4 6.4	2.8 5.5 8.2	2.3 4.9 6.7	2.0 4.0 6.1	1.7 3.4 5.5
	16	rise					6.7	5.5	4.9 7.6	4.0 6.4	3.4 5.5	2.8 4.9 7.9
	22	in m						7.3	5.8	5.2	4.3 7.0	4.0 6.1
	Residual vel m/s		0.1	0.1	0.2 0.1	0.2 0.1	0.3 0.2 0.1	0.3 0.2 0.2	0.4 0.3 0.2	0.4 0.3 0.2	0.5 0.4 0.2 0.2	0.5 0.4 0.3 0.2
18	5	Drop	9.2	7.0	5.8	9.5 4.3	7.3 9.5	3.7 5.8 8.5	2.8 4.9 7.3	2.2 4.0 6.1	2.0 3.4 5.5 8.5	1.7 3.1 4.9 7.6
	11	or				8.2	6.7	5.8	4.6 8.5	4.0 7.6	3.4 6.1 9.5	3.0 5.8 8.9
	16	rise						9.5	7.6	6.1	5.5 8.9	5.2 7.9 7.9
	22	in m							9.8	8.2	7.0	6.1 6.1
	Residual vel m/s		0.1	0.1	0.1 0.1	0.2 0.1	0.2 0.2 0.1	0.3 0.2 0.1	0.3 0.2 0.1	0.4 0.3 0.2	0.4 0.3 0.2 0.5	0.3 0.2 0.2
21	5	Drop			11.0	8.9	5.8 11.3	5.5 8.9	4.6 7.3	3.7 6.1 9.5	3.1 5.5 8.2	2.7 4.6 7.3
	11	or					9.5	7.9	6.7	5.5 11.0	4.9 9.5	4.6 8.5
	16	rise								9.5	8.2	7.3
	22	in m									10.7	9.2
	Residual vel m/s		0.1	0.1	0.1 0.1	0.2 0.1	0.2 0.1 0.1	0.2 0.2 0.1	0.3 0.2 0.1	0.3 0.2 0.2 0.4	0.3 0.2 0.1 0.4	0.3 0.2 0.2
24	5	Drop										
	11	or										
	16	rise										
	22	in m										
	Residual vel m/s											

Throw in Metres	Temp in Diff 0 °C	L/S	330				380			425				470				520				570				610				
		Size	B1	B2	B3	B4	B2	B3	B4	B2	B3	B4	E5	B2	B3	B4	E5	B3	B4	E5	E6	B3	B4	E5	E6	B3	B4	E5	E6	E7
		Stat press Pa	240	120	60	40	150	80	40	190	90	50	30	230	110	60	30	140	80	40	30	170	90	50	30	190	100	50	30	30
		dBA level	44	39	33	29	42	36	31	44	38	33	28	46	40	35	31	42	38	32	28	44	39	34	31	46	41	35	32	29
3	5	Drop	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0													
	11	or	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1													
	16	rise	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1													
	22	in m	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1													
	Residual vel m/s		2.0	1.5	1.0	0.8	1.8	1.2	0.9	2.0	1.5	1.0	0.8	2.5	1.6	1.3	0.9													
6	5	Drop	0.1	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.2	0.2
	11	or	0.1	0.2	0.3	0.5	0.2	0.2	0.4	0.1	0.2	0.3	0.5	0.1	0.2	0.3	0.4	0.1	0.2	0.4	0.5	0.1	0.2	0.3	0.4	0.1	0.2	0.2	0.4	0.5
	16	rise	0.2	0.3	0.5	0.8	0.2	0.4	0.7	0.2	0.3	0.5	0.8	0.2	0.2	0.4	0.6	0.2	0.3	0.5	0.7	0.2	0.3	0.4	0.6	0.1	0.2	0.5	0.6	0.7
	22	in m	0.2	0.3	0.6	1.0	0.3	0.5	0.9	0.3	0.4	0.7	1.1	0.2	0.3	0.6	0.9	0.2	0.4	0.7	0.9	0.2	0.4	0.6	0.8	0.2	0.3	0.5	0.8	0.9
	Residual vel m/s		1.2	0.9	0.6	0.5	1.0	0.7	0.6	1.3	0.8	0.6	0.4	1.5	0.9	0.7	0.5	1.0	0.8	0.6	0.4	2.5	1.6	1.3	0.9	1.3	1.1	0.7	0.6	0.5
9	5	Drop	0.2	0.3	0.5	0.8	0.2	0.4	0.7	0.2	0.3	0.6	0.9	0.2	0.2	0.5	0.7	0.2	0.4	0.6	0.8	0.4	0.8	1.2	1.8	0.2	0.3	0.5	0.6	0.8
	11	or	0.3	0.5	1.0	1.7	0.5	0.8	1.4	0.4	0.6	1.1	1.8	0.3	0.5	1.0	1.4	0.4	0.7	1.5	1.7	0.8	1.5	2.4	3.7	0.3	0.6	0.9	1.3	1.6
	16	rise	0.5	1.0	1.5	2.5	0.8	1.2	2.3	0.6	0.9	1.8	2.8	0.5	0.8	1.4	2.3	0.6	1.1	1.8	2.4	1.2	2.3	4.0	5.2	0.4	0.9	1.4	2.0	2.4
	22	in m	0.7	1.3	2.1	3.4	1.0	1.6	2.8	0.8	1.2	2.4	3.7	0.7	1.0	1.9	3.1	0.8	1.4	2.4	3.4	1.6	3.1	4.9	6.1	0.6	1.1	1.8	2.6	3.1
	Residual vel m/s		0.9	0.6	0.4	0.4	0.7	0.5	0.4	0.9	0.6	0.5	0.3	1.1	0.7	0.6	0.4	0.8	0.7	0.4	0.3	0.7	0.6	0.4	0.3	1.0	0.8	0.5	0.4	0.4
12	5	Drop	0.4	0.7	1.2	2.0	0.6	1.0	1.7	0.5	0.7	1.4	2.3	0.4	0.6	1.1	1.8	0.5	0.9	1.5	2.0	0.4	0.8	1.2	1.8	0.4	0.7	1.1	1.5	1.8
	11	or	0.8	1.5	2.3	4.0	1.2	1.9	3.4	1.0	1.4	2.8	4.6	0.8	1.2	2.2	3.4	1.0	1.0	3.1	4.0	0.8	1.5	2.4	3.7	0.7	1.3	2.2	3.1	3.7
	16	rise	1.4	2.3	3.7	6.1	1.7	2.9	5.5	1.4	2.2	4.0	6.4	1.2	1.7	3.4	5.5	1.5	1.1	4.6	6.1	1.2	2.3	4.0	5.2	1.1	1.9	3.4	4.6	5.8
	22	in m	1.7	3.0	4.6		2.3	3.7	6.4	2.0	2.9	5.5		1.6	2.3	4.3	6.4	1.9	1.5	6.1		1.6	3.1	4.9	6.1	1.4	2.5	4.3	5.8
	Residual vel m/s		0.7	0.5	0.3	0.3	0.6	0.4	0.3	0.7	0.5	0.4	0.2	0.8	0.6	0.4	0.3	0.6	0.5	0.3	0.3	0.7	0.6	0.4	0.3	0.8	0.6	0.4	0.3	0.3
15	5	Drop	0.9	1.5	2.4	4.0	1.1	1.8	3.4	1.0	1.4	2.8	4.3	0.8	1.2	2.3	3.4	1.0	1.7	3.1	4.0	0.8	1.5	2.4	3.7	0.7	1.3	2.2	3.1	3.7
	11	or	1.5	3.1	4.6	7.0	2.3	3.7	6.1	1.9	2.9	5.2	8.2	1.6	2.3	4	6.4	1.9	1.7	5.8	7.6	1.6	2.9	4.9	6.1	1.4	2.2	4.3	6.1	6.7
	16	rise	2.6	4.3	6.4		3.4	5.5		1.5	4.8	7.9		2.4	3.7	6.4		2.9	2.5			2.4	4.6	7.0		2.1	4.0	6.1		
	22	in m	3.4	5.8			4.6	6.7		3.7	5.5	9.8		3.1	4.9	7.6		3.7	3.4			3.1	5.5	8.9		2.8	5.2	8.2		
	Residual vel m/s		0.6	0.4	0.3	0.2	0.5	0.4	0.3	0.6	0.4	0.3	0.2	0.7	0.5	0.4	0.3	0.6	0.4	0.3	0.2	0.6	0.5	0.3	0.3	0.7	0.5	0.4	0.3	0.2
18	5	Drop	1.6	2.6	4.0	6.1	2.0	3.1	5.8	1.7	2.5	4.6	7.0	1.3	2.0	3.7	6.1	1.7	2.9	5.2	6.4	1.3	2.6	4.3	5.8	1.2	2.2	3.7	5.5	5.8
	11	or	2.5	5.2	7.0		4.0	6.1	9.8	3.4	4.9	7.9		2.7	4.0	6.7		3.2	5.8	9.5		2.8	4.9	8.2		2.4	4.3	7.3	9.5	
	16	rise	4.3	6.7			5.8	8.5		2.9	7.0			4.0	5.8			4.9	8.5			4.3	7.0			3.7	6.1			
	22	in m	5.8	9.2			7.6			5.8	8.5			5.2	7.6			6.1				5.2	8.5			4.6	8.2			
	Residual vel m/s		0.5	0.4	0.3	0.2	0.5	0.3	0.2	0.5	0.4	0.3	0.2	0.6	0.4	0.3	0.2	0.5	0.4	0.2	0.2	0.5	0.4	0.3	0.2	0.6	0.5	0.3	0.2	0.2
21	5	Drop	2.3	4.0	6.1	9.2	3.1	5.2	8.2	2.7	4.0	6.7	10.7	2.1	3.4	5.8	8.9	2.8	4.6	7.6	10.1	2.1	4.0	6.4	8.5	1.9	3.5	5.8	7.9	9.2
	11	or	4.0	7.6	10.7		6.1	9.2		5.2	7.0			4.3	5.8	10.4		5.2	7.9			4.3	6.7			4.0	6.1			
	16	rise	6.4	10.1			8.5			6.7	10.7			6.1	8.5			7.0				6.1	10.7			5.5	9.8			
	22	in m	8.5				11.0			8.5				7.9				8.9				7.9				6.7				
	Residual vel m/s		2.5	0.3	0.2	0.2	0.4	0.3	0.2	0.5	0.3	0.2	0.2	0.6	0.4	0.3	0.2	0.5	0.3	0.2	0.2	0.5	0.4	0.2	0.2	0.5	0.4	0.3	0.2	0.2
24	5	Drop																4.0	6.1	13.1		3.1	5.8	9.5	12.5	3.0	5.2	8.5	11.6	
	11	or																7.0	11.9			6.1	9.8			5.5	8.9			
	16	rise																10.4				8.6				7.9				
	22	in m																				10.7				9.8				
	Residual vel m/s																	0.4	0.3	0.2	0.1	0.4	0.3	0.2	0.2	0.5	0.4	0.2	0.2	0.2

Throw in Metres	Temp in Diff 0 °C	L/S	660					710				760					850					940				
		Size	B3	B4	E5	E6	E7	B4	E5	E6	E7	B4	E5	E6	E7	E8	B4	E5	E6	E7	E8	B4	E5	E6	E7	E8
		Stat press Pa	220	120	60	40	30	140	70	40	30	150	80	50	40	30	190	100	60	50	30	230	110	80	60	40
		dBA level	47	42	37	33	31	43	38	34	32	45	39	36	34	32	47	41	38	36	33	49	43	39	36	35
6	5	Drop	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.2					
	11	or	0.1	0.2	0.2	0.3	0.4	0.1	0.2	0.3	0.3	0.1	0.2	0.2	0.3	0.4	0.1	0.1	0.2	0.2	0.3					
	16	rise	0.1	0.2	0.3	0.5	0.7	0.2	0.3	0.4	0.5	0.2	0.2	0.4	0.4	0.7	0.1	0.2	0.2	0.4	0.5					
	22	in m	0.2	0.3	0.5	0.16	0.8	0.2	0.4	0.6	0.7	0.2	0.3	0.5	0.6	0.9	0.2	0.3	0.4	0.5	0.6					
	Residual vel m/s		1.5	1.3	0.8	1.6	0.5	1.3	0.9	0.7	0.6	1.5	0.9	0.7	0.7	0.5	1.9	1.1	0.9	0.7	0.6					
9	5	Drop	0.1	0.2	0.4	0.6	0.8	0.2	0.3	0.6	0.6	0.2	0.3	0.4	0.5	0.7	0.2	0.2	0.4	0.4	0.6	0.1	0.2	0.3	0.3	0.5
	11	or	0.2	0.5	0.7	1.1	1.5	0.4	0.6	1.1	1.2	0.4	0.6	0.8	1.0	1.4	0.3	0.5	0.7	0.9	1.1	0.2	0.4	0.5	0.7	0.9
	16	rise	0.4	0.7	1.1	1.7	2.1	0.6	1.0	1.6	1.7	0.6	0.9	1.3	1.5	2.1	0.5	0.7	1.0	1.3	1.6	0.4	0.6	0.8	1.0	1.4
	22	in m	0.5	1.0	1.6	2.2	2.9	0.8	1.3	2.1	2.3	0.9	1.2	1.8	2.1	2.9	0.6	1.0	1.4	1.7	2.1	0.5	0.8	1.0	1.4	1.8
	Residual vel m/s		1.1	0.9	0.6	0.4	0.4	0.9	0.6	0.5	0.4	1.1	0.6	0.5	0.5	0.4	1.3	08	0.6	0.5	0.5	1.5	0.9	0.7	0.7	0.5
12	5	Drop	0.3	0.6	0.9	1.3	1.8	0.5	0.8	1.3	1.4	0.4	0.7	1.1	1.2	1.7	0.3	0.6	0.9	1.0	1.4	0.3	0.5	0.7	0.8	1.1
	11	or	0.6	1.1	1.8	2.8	3.7	1.0	1.6	2.6	2.8	0.8	1.4	2.1	2.4	3.4	0.7	1.1	1.7	2.1	2.7	0.6	0.9	1.3	1.6	2.3
	16	rise	0.9	1.7	2.9	4.0	5.2	1.5	2.5	3.7	4.6	1.3	2.1	3.1	3.7	5.2	1.0	1.7	2.4	3.0	4.0	0.9	1.4	1.8	2.4	3.4
	22	in m	1.2	2.4	3.4	5.5	6.1	1.9	3.4	4.9	5.8	1.7	2.9	4.3	4.9	6.4	1.4	2.3	3.4	4.0	5.5	1.1	1.8	2.6	3.4	4.6
	Residual vel m/s		0.8	0.7	0.5	0.3	0.3	0.8	0.5	0.4	0.3	0.8	0.5	0.4	0.4	0.3	1.0	0.6	0.5	0.4	0.4	1.2	0.7	0.6	0.5	0.4
15	5	Drop	0.6	1.1	1.8	2.8	3.4	0.1	1.6	2.5	2.8	0.8	1.4	2.1	2.4	3.4	0.7	1.1	1.7	2.0	2.6	0.6	0.9	1.3	1.7	2.3
	11	or	1.2	2.1	3.7	5.5	6.4	1.8	3.1	5.2	5.8	1.6	2.9	4.3	4.6	6.4	1.3	2.3	3.4	4.0	5.2	1.0	1.8	2.5	3.1	4.6
	16	rise	1.8	3.4	5.5	7.6		2.8	4.9	7.0	8.2	2.4	4.3	6.1	7.0		2.0	3.4	4.6	5.8	7.3	1.7	2.8	3.7	4.9	6.4
	22	in m	2.4	4.3	6.4	9.5		3.7	6.1			3.4	5.8	7.9			2.8	4.3	6.1	7.6		2.1	3.4	4.9	6.1	8.2
	Residual vel m/s		0.7	0.6	0.4	0.3	0.2	0.7	0.5	0.3	0.3	0.7	0.5	0.4	0.3	0.3	0.9	0.5	0.4	0.4	0.3	0.9	0.6	0.5	0.4	0.3
18	5	Drop	1.1	1.9	3.4	4.6	5.8	1.6	2.8	4.3	4.9	1.4	2.4	3.7	4.3	5.8	1.2	2.0	2.8	3.4	4.3	1.0	1.6	2.2	2.8	4.0
	11	or	2.1	3.7	6.1	8.5		3.1	5.8	8.2	8.9	2.8	2.8	6.7	7.6		2.3	4.0	5.5	6.4	8.2	1.8	3.1	4.6	5.5	7.3
	16	rise	3.1	5.8	9.5			4.9	8.2			4.6	7.3				3.7	5.5	7.6	9.5		2.8	4.9	6.1	7.6	
	22	in m	4.3	7.0				7.3				5.8	8.9				4.6	7.0				3.7	6.1	8.2		
	Residual vel m/s		0.7	0.5	0.3	0.3	0.2	0.6	0.4	0.3	0.2	1.6	0.4	0.3	0.3	0.2	0.7	0.5	0.4	0.3	0.3	0.8	0.5	0.4	0.4	0.3
21	5	Drop	1.7	2.9	5.2	7.0	8.2	2.2	4.6	6.4	7.0	2.3	4.0	5.8	6.1	8.5	1.8	3.1	4.3	5.5	6.4	1.5	2.6	3.4	4.6	6.1
	11	or	3.4	5.8	9.8			4.9	8.2			4.6	7.9	10.4			3.5	6.1	8.2	10.1		2.9	5.2	6.7	8.2	
	16	rise	5.2	8.5				7.0				6.4	11.0				5.8	8.5				4.6	7.3	9.8		
	22	in m	6.1	11.0				11.0				8.2					6.7	11.3				5.8	8.9			
	Residual vel m/s		0.6	0.5	03	0.2	0.2	0.5	0.3	0.2	0.2	0.6	0.4	0.3	0.2	0.2	0.7	0.4	0.3	0.3	0.2	0.7	0.5	0.4	0.3	0.3
24	5	Drop	2.6	4.6	7.3	10.4	11.9	3.7	6.4	9.8	10.1	3.4	5.8	7.9	9.2	12.2	2.8	4.6	6.1	7.6	9.8	2.2	3.7	5.5	6.1	8.5
	11	or	5.2	7.9				6.7	11.9			6.1	11.0				5.2	8.6	12.2			4.3	7.0	10.1	11.9	
	16	rise	7.0	12.5				10.4				9.5					7.6	12.2				6.4	10.7			
	22	in m	8.9									11.9					9.5					8.5	12.8			
	Residual vel m/s		0.5	0.4	0.3	0.2	0.2	0.5	0.3	0.2	0.2	0.5	0.3	0.2	0.2	0.2	0.6	0.4	0.3	0.3	0.2	0.7	0.4	0.3	0.3	0.2
27	5	Drop																				3.0	5.2	7.3	8.9	11.9
	11	or																				5.8	8.9	14.0		
	16	rise																				9.2				
	22	in m																				11.3				
	Residual vel m/s																					0.6	0.4	0.3	0.3	0.2
30	5	Drop																				4.3	6.7	9.5	11.6	
	11	or																				7.6	13.7			
	16	rise																				12.2				
	22	in m																				15.0				
	Residual vel m/s																					0.6	0.4	0.3	0.2	0.2
36	5	Drop																				6.7	11.3	16.2		
	11	or																				12.2				
	16	rise																								
	22	in m																								
	Residual vel m/s																					0.5	0.3	0.2	0.2	0.2

Throw in Metres	Temp in Diff 0 °C	L/S / Size / Stat press Pa / dBA level	1040				1130				1230				1320				1420				1650			1890		2125		2360
		Size	E5	E6	E7	E8	E5	E6	E7	E8	E5	E6	E7	E8	E5	E6	E7	E8	E5	E6	E7	E8	E6	E7	E8	E7	E8	E7	E8	E8
		Stat press Pa	140	90	70	50	170	110	80	60	190	130	90	70	220	140	100	80	250	160	120	80	220	160	110	210	150	250	180	220
		dBA level	46	42	40	37	46	42	40	37	49	46	43	40	46	42	40	37	52	48	46	43	52	49	46	52	49	53	51	54
6	5	Drop																												
	11	or																												
	16	rise																												
	22	in m																												
	Residual vel m/s																													
9	5	Drop	0.2	0.2	0.3	0.4	0.1	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1
	11	or	0.3	0.4	0.6	0.8	0.2	0.4	0.5	0.6	0.2	0.3	0.4	0.5	0.2	0.3	0.3	0.5	0.2	0.2	0.3	0.4	0.2	0.2	0.3	0.4	0.5	0.1	0.2	0.2
	16	rise	0.5	0.7	0.9	1.1	0.4	0.6	0.7	0.9	0.3	0.5	0.6	0.7	0.3	0.4	0.5	0.7	0.2	0.3	0.5	0.6	0.2	03	0.3	0.6	0.8	0.2	0.3	0.2
	22	in m	0.6	0.9	1.1	1.5	0.5	0.7	0.9	1.2	0.4	0.6	0.8	1.1	0.4	0.6	0.7	0.9	0.3	0.5	0.6	0.8	0.4	0.4	0.6	0.9	1.0	0.3	0.4	0.3
	Residual vel m/s		1.1	0.9	0.8	0.6	1.1	0.9	0.8	0.7	1.4	1.0	0.9	0.7	1.5	1.2	1.0	0.9	1.8	1.2	1.1	0.9	1.6	1.4	1.1	1.2	1.0	1.9	1.6	1.8
12	5	Drop	0.4	0.5	0.7	1.0	0.3	0.5	0.6	0.8	0.3	0.4	0.5	0.6	0.2	0.3	0.4	0.6	0.2	0.3	0.4	0.5	0.2	0.2	0.4	0.2	0.3	0.2	0.2	0.2
	11	or	0.7	1.1	1.4	1.9	0.6	0.9	1.1	1.5	0.5	0.8	1.0	1.3	0.4	0.6	0.8	1.1	0.4	0.6	0.7	1.0	0.4	0.5	0.7	0.5	0.5	0.3	0.4	0.3
	16	rise	1.1	1.7	2.2	2.8	0.9	1.3	1.7	2.1	0.8	1.1	1.5	2.0	0.6	1.0	1.2	1.7	0.6	0.8	1.1	1.5	0.6	0.8	1.1	0.6	0.8	0.5	0.7	0.5
	22	in m	1.3	2.1	2.8	3.7	1.2	1.8	2.2	2.7	1.1	1.4	2.0	2.6	0.9	1.3	1.6	2.1	0.8	1.1	1.4	2.0	0.9	1.0	1.5	0.7	1.1	0.6	0.9	0.8
	Residual vel m/s		0.9	0.7	0.6	0.5	0.9	0.7	0.6	0.5	1.1	0.9	0.7	0.6	1.2	0.9	0.8	0.7	1.3	1.0	0.9	0.7	1.2	1.0	0.9	1.1	1.0	1.5	1.2	1.4
15	5	Drop	0.7	1.1	1.4	1.9	0.6	0.9	1.1	1.5	0.5	0.8	1.0	1.2	0.5	0.6	0.8	1.1	0.4	0.6	0.7	1.0	0.4	0.5	0.7	0.4	0.5	0.3	0.4	0.3
	11	or	1.4	2.2	2.8	3.7	0.8	1.8	2.2	3.1	1.0	1.5	2.0	2.5	0.9	1.2	1.6	2.1	0.7	1.1	1.4	2.0	0.8	1.0	1.4	0.8	1.0	0.6	0.9	0.7
	16	rise	2.3	3.1	4.0	5.8	1.8	2.7	3.4	4.6	1.6	2.2	3.0	3.7	1.3	1.9	2.4	3.4	1.1	1.6	2.1	3.1	1.2	1.5	2.1	1.2	1.7	1.0	1.4	1.1
	22	in m	2.9	4.3	5.2	6.7	2.4	3.7	4.3	6.1	2.1	2.9	3.7	5.2	1.7	2.6	3.4	4.3	1.5	2.1	3.1	4.0	1.7	2.0	2.9	1.5	2.2	1.3	1.8	1.4
	Residual vel m/s		0.8	0.6	0.5	0.4	0.8	0.6	0.5	0.5	0.9	0.7	0.6	0.5	1.0	0.8	0.7	0.6	1.1	0.8	0.7	0.6	1.1	0.9	0.7	0.9	0.9	1.3	1.1	1.2
18	5	Drop	1.3	1.2	2.4	3.4	1.0	1.5	2.3	2.6	0.9	1.3	1.7	2.1	0.8	1.1	1.4	1.8	0.7	1.0	1.3	1.8	0.7	0.9	1.2	0.7	0.9	0.6	0.8	0.6
	11	or	2.5	3.7	4.6	6.1	2.1	3.1	4.0	5.5	1.8	2.6	3.4	4.6	1.5	2.3	2.8	4.0	1.3	1.8	2.6	3.4	1.4	1.7	2.4	1.4	1.7	1.1	1.5	1.2
	16	rise	3.7	5.5	6.4	9.2	3.4	4.6	5.5	7.3	2.9	4.0	4.9	6.1	2.3	3.4	4.3	5.8	2.0	2.8	3.7	5.2	2.1	2.6	3.7	2.0	2.8	1.7	2.4	1.8
	22	in m	4.9	7.0	8.2		4.0	6.1	7.0	9.5	3.4	5.2	6.1	8.2	3.1	4.6	5.8	7.0	2.7	3.7	5.2	6.1	2.9	3.4	4.6	2.7	3.4	2.1	3.1	2.4
	Residual vel m/s		0.6	0.5	0.4	0.3	0.7	0.5	0.5	0.4	0.8	0.6	0.5	0.4	0.9	0.7	0.6	0.5	0.9	0.7	0.6	0.5	0.9	0.8	0.7	1.1	1.0	1.1	0.9	1.0
21	5	Drop	2.1	3.1	3.7	5.2	1.7	2.4	3.1	4.3	1.8	2.1	2.7	3.4	1.2	1.8	2.2	3.1	1.1	1.5	2.0	2.8	1.1	1.4	2.0	1.1	1.5	0.9	1.2	0.9
	11	or	4.0	5.5	6.7	9.8	3.4	4.9	5.8	7.9	2.8	4.3	5.2	6.7	2.4	3.7	4.6	6.1	2.1	3.1	4.0	5.2	2.4	2.8	4.0	2.1	2.9	1.8	2.4	2.0
	16	rise	5.8	8.2	10.1		5.8	7.0	8.5	11.0	4.6	6.1	7.6	9.5	4.0	5.5	6.4	8.5	3.4	4.6	6.1	7.6	3.4	4.0	5.8	3.4	4.6	2.8	3.7	3.0
	22	in m	7.0	11.0			6.1	9.5	11.0		5.5	6.7	9.8		4.9	6.7	8.2	10.7	4.3	5.8	7.6	9.5	4.6	5.2	7.0	4.3	5.8	3.4	4.9	4.0
	Residual vel m/s		0.6	0.4	0.4	0.3	0.6	0.5	0.4	0.4	0.7	0.5	0.5	0.4	0.8	0.6	0.5	0.4	0.8	0.7	0.6	0.5	0.8	0.7	0.6	0.7	0.7	0.9	0.8	0.9
24	5	Drop	3.1	4.4	5.5	7.0	2.6	3.7	4.6	6.1	2.2	3.1	4.0	5.2	1.8	2.8	3.4	4.6	1.6	2.2	3.1	4.0	1.7	2.1	2.9	1.6	2.3	1.4	1.8	1.4
	11	or	5.8	8.2	10.4		5.2	7.0	8.5	11.3	4.3	6.1	7.3	9.8	3.8	5.5	6.4	8.9	3.1	4.6	5.8	7.3	3.4	4.3	5.8	3.4	4.6	2.8	3.7	3.0
	16	rise	8.5	11.9			7.3	10.1	12.5		6.4	8.5	10.7		5.5	7.6	9.5	12.2	5.2	6.4	8.2	10.7	5.2	6.1	8.2	4.9	6.1	4.1	5.5	4.6
	22	in m	10.4				8.9				7.6	11.0			7.0	9.8	12.2		6.1	8.2	11.0		6.4	7.3	10.1	6.1	8.2	5.2	6.4	5.8
	Residual vel m/s		0.5	0.4	0.3	0.3	0.6	0.4	0.4	0.3	0.6	0.5	0.4	0.4	0.7	0.5	0.5	0.4	0.8	0.6	0.5	0.4	0.7	0.6	0.5	0.7	0.6	0.9	0.7	0.8
27	5	Drop	4.4	6.1	7.3	10.1	3.5	5.2	6.1	8.2	3.4	4.4	5.8	7.0	2.8	4.0	4.9	6.1	2.3	3.1	4.6	5.5	2.4	2.9	4.0	2.3	3.4	1.8	2.6	2.0
	11	or	8.2	11.3	14.0		6.7	9.5	11.3		6.1	8.2	10.4	14.0	5.2	7.3	9.2	11.9	4.6	6.1	8.2	10.4	5.2	5.8	7.9	4.7	6.1	3.8	5.2	4.3
	16	rise	12.2				10.1				9.2	12.2			7.9	10.7	13.1		6.7	9.2	11.3	15.3	7.0	8.2	11.0	6.4	8.9	5.8	7.3	6.1
	22	in m					12.2				10.7				9.5	12.2			8.5	11.3			9.2	10.4		8.2	11.0	7.0	9.5	7.9
	Residual vel m/s		0.5	0.4	0.3	0.2	0.5	0.4	0.3	0.3	0.6	0.5	0.4	0.3	0.6	0.5	0.4	0.4	0.7	0.5	0.5	0.4	0.7	0.6	0.5	0.6	0.6	0.8	0.7	0.8
30	5	Drop	5.8	8.2	9.8	13.4	5.2	6.4	8.2	10.7	4.4	6.1	7.3	9.5	3.8	5.3	6.1	8.2	3.2	4.0	5.8	7.3	3.4	4.1	5.5	3.4	4.3	2.7	3.4	2.8
	11	or	11.3	15.3			9.5	13.4			8.2	11.0	14.0		7.3	9.8	12.2		6.1	8.2	11.0	14.3	6.4	7.6	10.4	6.1	8.2	5.5	6.4	5.8
	16	rise					14.0				11.9				10.7	14.6			9.5	11.9			9.5	10.7	15.6	8.9	11.9	7.3	9.8	8.2
	22	in m									14.3				12.8				11.6				12.2	14.3		11.3	15.6	9.5	12.2	10.4
	Residual vel m/s		0.4	0.3	0.3	0.2	0.5	0.4	0.3	0.3	0.5	0.4	0.3	0.3	0.6	0.5	0.4	0.3	0.6	0.5	0.4	0.4	0.6	0.5	0.4	0.6	0.5	0.7	0.6	0.7
36	5	Drop	9.5	13.4	16.2		8.2	10.7	14.3		7.0	9.5	11.9	16.2	6.6	8.2	10.4	13.7	5.6	7.0	9.2	11.9	6.0	6.4	8.5	5.6	6.7	4.6	6.1	4.9
	11	or					15.9				13.4				11.9	16.8			10.1	14.3	18.6		11.7	12.8	18.3	10.4	14.0	8.5	11.0	9.5
	16	rise													18.3				16.2				15.9	18.3		14.6		12.2	16.8	13.4
	22	in m																										16.2		18.3
			0.4	0.3	0.2	0.2	0.4	0.3	0.3	0.2	0.5	0.4	0.3	0.3	0.5	0.4	0.3	0.3	0.6	0.4	0.4	0.3	0.5	0.5	0.4	0.5	0.5	0.6	0.5	0.6