VENTILATION AND EXTRACTION STATEMENT

The resubmitted plans propose a 70 m^2 kitchen providing meals for both hotel guests and the public. The kitchen is sited in the south-west corner of the ground floor and has two perimeter walls which face neighbouring properties. At this stage detailed kitchen floor or hotel HVAC plans have not been produced. Neither did these form part of nor were requested during the original May 2016 application.

Nonetheless it is possible to specify certain details in respect of the proposed ventilation and extraction.

1 The kitchen includes all food preparation and dishwashing areas as well as cooking areas; the anticipated volume of the kitchen is 193 m^3 (70 m^2 x 2.76m height).

2 The following are the number of Air Change rates per hour (ACH) relating to the relevant kitchen areas as recommended by HSE (DW/172)

Preparation Areas	20
Dishwasher Areas	30
Kitchen	40

Based on the above, a target of 34 ACH is considered appropriate given the mixed usage of the area. The requirement will therefore be for a system that extracts 6,562 m^3 (34 x 193 m^3) of air per hour.

HSE require dedicated make up (supply) air systems to be 85% of maximum of the extract flow rate,

3 Extraction will either be via individual hoods or a ventilated ceiling which will ducted to the extraction point.

Supply air may either be introduced directly into the kitchen or via an integrated makeup air feature within the extraction hoods/ventilated ceiling.

The supply and extract fans shall be electrically interlocked to maintain a balanced system.

An interlock of the ventilation system to the gas supply serving the cooking equipment shall be installed as required by BS6173. In the event of an air flow failure, the gas supply is switched off.

4 Hoods or ventilated ceilings will be fitted with integrated grease filters as a primary filtration measure to mechanically remove medium and large sized grease particles of 5 to 10 µm in diameter and above. Grease particles below this size will be removed by UV-C lamps (or electrostatic precipitators), again integrated within the hoods/ceiling.

Given that a large proportion of kitchen odours are carried by grease, increasing the number of UV-C lamps to a suitably calculated level will ensure the odours carried by the extracted air will become negligible.

5 Inlet of supply air will be via a wall louver located on part of west elevation facing the neighbouring garden.

Kitchen extract air will be discharged to atmosphere by a vertical stack mounted on a part of the west elevation facing the neighbouring garden.

The length of the stack is unlikely to exceed 2.5m as the discharged air is odour free and resultant noise attenuation is largely achieved as a consequence of the 90^{O} junction between the horizontal kitchen duct and vertical stack (which can be significantly enhanced by an elbow or stack silencer if necessary). The height from ground level to the top of the stack based on a 2.5m stack length is 5.5m approx.

6 It is anticipated that two inline fans will be required (one supply/one extract). All fans will utilise flexible couplings and be fitted on anti-vibration mounts to prevent structure borne vibration.

Additionally, acoustic attenuators may be fitted in the extract ducting (post-fan to atmosphere) and in the supply fan inlet ducting (pre-fan to atmosphere) to achieved desired levels of attenuation.

Suggested Scheme

The installed plant is not yet known and plant noise will be re-assessed at a later date when specific noise information for each item of equipment is known. At this stage the following products have been identified as satisfying ACH requirements and nosie level considerations in respect of sensitive receivers.

The nearest and most directly affected of these receivers has been identified as the Kitchen/Breakfast Room on the south elevation of St Johns Road property. The window of this room is approximately 21m from the proposed supply air wall inlet and 23m from the top of vertical discharge stack (assuming a 2.5m stack length).

<u>Supply Air</u>

Helios GBD EC 450 (Fan)

Motor	3 phase, 400 V EC motor
Air flow	7,320 m^3/h (meets 34 ACH requirements)
Intake Noise L_{WA}	76 dBA

Helios RSD 450/800 (Silencer) – 12 dBA attenuation

The effect of the silencer will be a reduction of the fan sound power level to 64 dBA - equivalent to 56 dBA sound pressure at 1m distance (or 44 dBA at 4m).

Further attenuation of 26.4dB applies at a 21m distance, so the sound pressure at the nearest receiver is **29.6 dBA**.

Note that the barrier attenuation effect of the garage has not been considered. Directivity has also been ignored despite the receiver being approximately 45^{O} to the source.

Extract Air

Helios MBD EC 450 (Fan)

Motor	3 phase, 400 V EC motor
Air flow	6,500 m^3/h (meets 34 ACH requirements)
Max air flow temp	120°C (motor is out of the air stream)
Extract Noise LWA	95 dBA

Helios RSD 400/1200 (Silencer) – 14 dBA attenuation

The effect of the silencer will be a reduction of the fan sound power level to 81 dBA. A second silencer (providing 11 dBA attenuation) may be added to the vertical stack to achieve a 70 dBA sound power level - equivalent to 62 dBA sound pressure at 1m distance (or 46 dBA at 6m / 35 dBA at 23m).

SILENCERS

SUPPLY

			Hz	Total	125	250	500	1k	2k	4k	8k
GBD EC 450 (fan)		Intake	dBA	76	55	67	69	71	70	65	58
RSD 450/ 800 (silencer)			dBA		-6	-7	-13	-18	-13	-12	-9
reduction	12	dBA		64	49	60	56	53	57	53	49

EXTRACT

			Hz	Total	125	250	500	1k	2k	4k	8k
MBD EC 400 (fan)		Extract	dBA	95	75	88	90	90	88	83	77
RSD 400/ 1200 (silencer #1)			dBA		-7	-10	-14	-22	-18	-13	-9
reduction	14	dBA		81	68	78	76	68	70	70	68
RSD 400/ 1200 (silencer #2)					-7	-10	-14	-22	-18	-13	-9
reduction	11	dBA		70	61	68	62	46	52	57	59

The effect on the nearest sensitive receiver (window on St Johns Road south elevation) is not considered material as there will be a significant directivity correction in the calculated sound pressure of **35 dBA** at 23m due to the vertical discharge.

The nearest hotel bedroom window will be approximately 6m from the top of the stack – the calculated sound pressure of 46 dBA at 6m will again be lower when directivity is factored in. If the eventual/actual sound pressure at hotel bedroom windows is found to be an issue at detailed design stage, mitigating measures will be taken, eg increased levels of (silencer) attenuation and/or ensuring the point of discharge at the top of the stack is slightly angled to point in a south-westerly direction (away from the windows).

The final issue is the effect of fan noise upon the outdoor amenity of neighbouring properties – relevant here in respect of potential noise disturbance caused to the St Johns Road garden area by the supply fan, which faces the garden and will be 4m from the mutual boundary.

Guidance for acceptable outdoor noise levels are taken from the World Health Organisation:

Community Noise Guidelines 1999 (relating to anonymous noise)

• 50dB(A) / 55dB(A) outdoors (day time)

[45dB(A) steady / 60dB(A) occasional maxima outside dwellings]

Night Noise Guidelines for Europe 2009

• No observable effect limit (NOEL) at night 30dB(A) outdoors

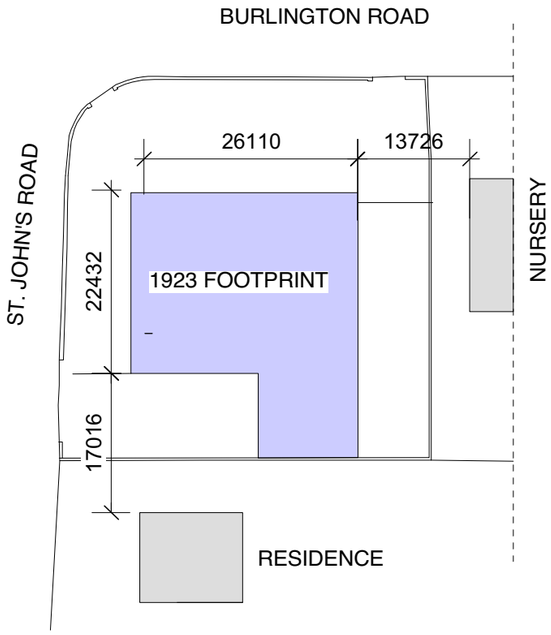
• No observable adverse effect limit (NOAEL) at night 40dB(A) outdoors

• Recommended Lnight,outside **target 40dB(A)**, interim target 55dB(A)

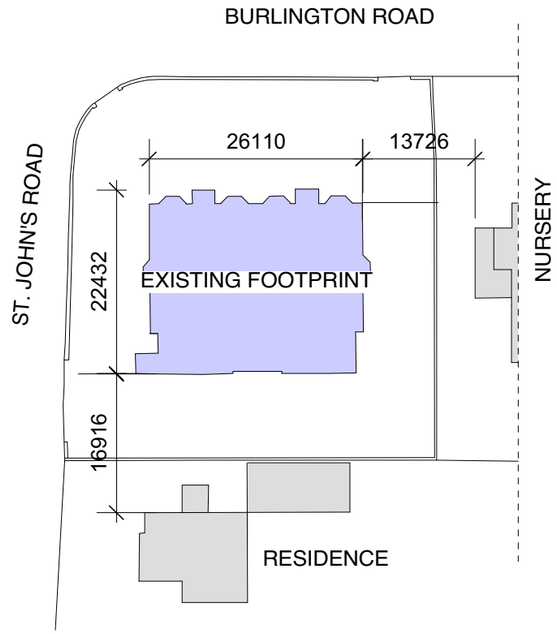
The above calculated sound pressure for the inlet fan at 4m (distance to St Johns Road garden boundary) is **44 dBA**, which is only 4 dBA more than the recommended night time target (and 11 dBA below the interim target).

Should final design calculations conclude that that boundary sound pressure levels were significantly (10%) higher than 44 dBA, further attenuation measures such as an acoustic louvre or an acoustic louvre panel (mounted behind a standard weather louvre) will be considered.

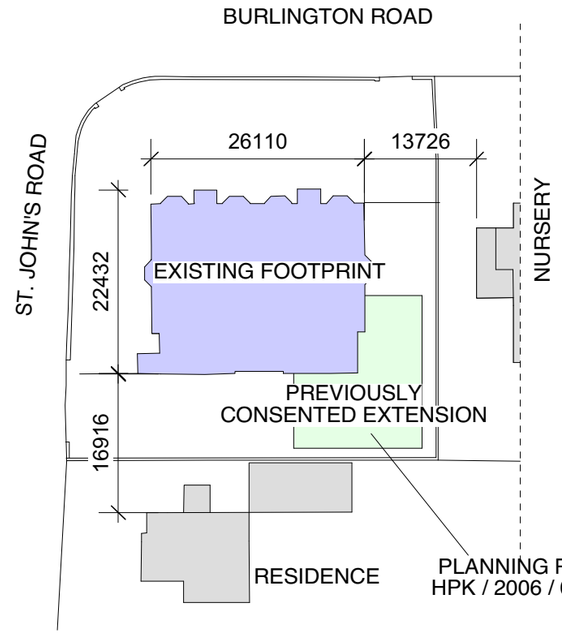
Manufacture's data and supporting calculations are shown on the following pages.



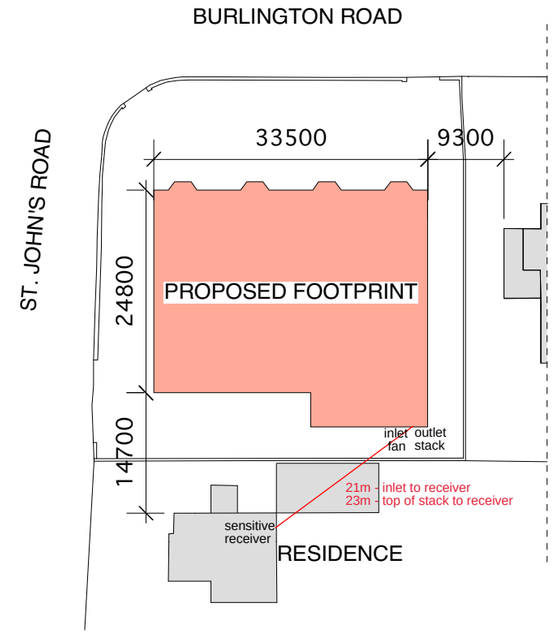
Existing Footprint Area: 738 m2



Existing Footprint Area: 561 m2



Total Footprint Area: 561 + 214 = 775 m2



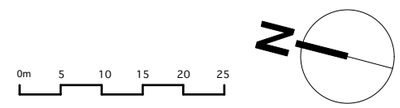
Proposed Overall Footprint Area : 917 m2

1 1923 Footprint
Scale: 1:750

2 Existing Footprint
Scale: 1:750

3 Previously Consented Footprint
Scale: 1:750

4 Poposed Footprint
Scale: 1:750



project : Buckingham Hotel, Buxton
title : Building Footprint
scale : 1:750 @ A3
dwg no: BH_28
status : Planning Application
date : May 2018

boyarsky murphy architects
64 oakley square
london nw1 1nj
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450 mm ø GigaBox EC-centrifugal fan

Helios

Models GB EC

Arbitrary installation position and assembly by five possible discharge directions.

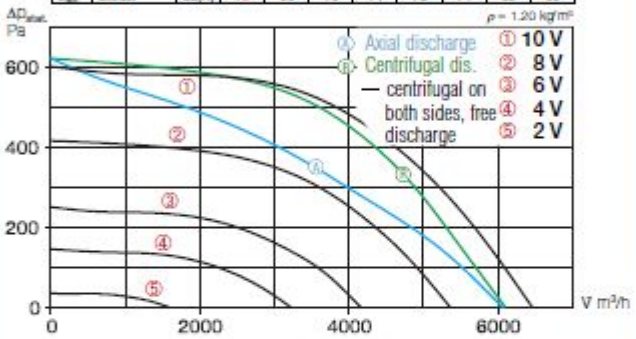
Ⓐ Axial discharge

Ⓡ Centrifugal discharge

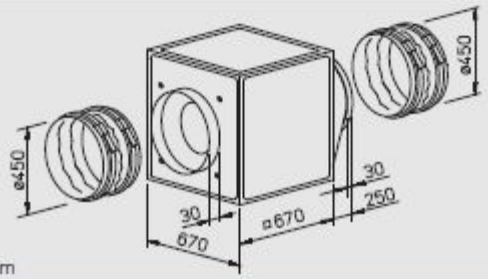
— centrifugal on both sides, free discharge

GBW EC 450

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Case breakout	dB(A)	58	48	56	48	47	46	42	31
L_{WA}	Intake	dB(A)	75	54	66	68	70	69	64	57
L_{WA}	Extract	dB(A)	79	60	70	74	75	74	65	60



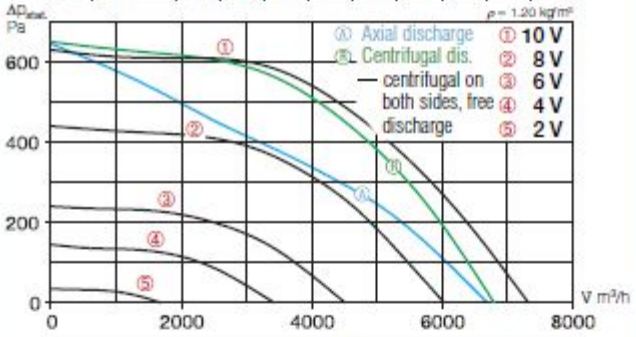
	unimpeded					
Voltage V	n min⁻¹	V̇ m³/h	P W	I A	Lp dB(A)	SFP kW/m³/s
10	1450	6460	614	3.71	38	0.34
8	1200	5360	363	2.35	35	0.24
6	930	4160	185	1.27	31	0.16
4	710	3220	92	0.68	26	0.10



Dim. in mm

GBD EC 450

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Case breakout	dB(A)	59	49	57	49	48	47	43	32
L_{WA}	Intake	dB(A)	76	55	67	69	71	70	65	58
L_{WA}	Extract	dB(A)	80	61	71	75	76	75	66	61



	unimpeded					
Voltage V	n min⁻¹	V̇ m³/h	P W	I A	Lp dB(A)	SFP kW/m³/s
10	1500	7320	640	1.20	39	0.31
8	1250	6030	380	0.80	36	0.23
6	990	4510	170	0.45	31	0.14
4	710	3420	90	0.27	28	0.10

ECgreen Vent **60% saving*** * with speed control

Specification

Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal airflow, spigot and flexible connector for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Impeller and remaining device version see description on the opposite page.

Accessories

Anti vibration mounts for installation indoors. Set of 4.
SDD-U Ref. No. 5627

Wall bracket for wall mounting.
GB-WK 450 Ref. No. 5626

External weather louvers to cover exhaust opening.
GB-WSG 450 Ref. No. 5639

Outdoor cover hood for outdoor installation.
GB-WSD 450 Ref. No. 5748

Condensate collector with condensate spigot (center) for pipe connection.
GB-KW 450 Ref. No. 5644

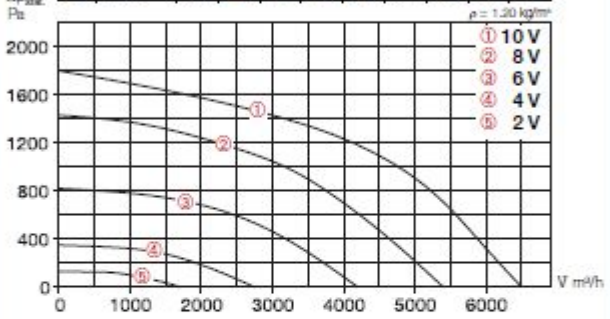
Accessory-Details	Page
Universal control system, speed potentiometer	78 on

Type	Ref. No.	Connection Ø	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power	Current	Wiring diagramm	max. air flow temperature	Nominal weight (net)	universal control system		Speed potentiometer flush mounted		surface mounted	
1 phase motor, 230 V, 50 Hz, EC-motor, protection to IP 54																
GBW EC 450	5811	450	6460	1450	38	1.00	5.70	976	50	55.0	**EUR EC**	1347	**PU 24**	1736	**PA 24**	1737
3 phase motor, 400 V, 50 Hz, EC-motor, protection to IP 54																
GBD EC 450	5812	450	7320	1500	39	1.00	1.80	976	55	52.0	**EUR EC**	1347	**PU 24**	1736	**PA 24**	1737

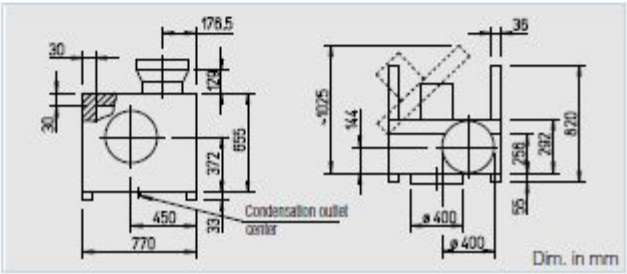
Models MB EC

MBD EC 400

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Case breakout	dB(A)	75	55	68	70	70	68	63	57
L_{WA}	Intake	dB(A)	93	71	86	88	84	85	84	79
L_{WA}	Extract	dB(A)	95	75	88	90	90	88	83	77



	unimpeded					
Voltage V	n min⁻¹	V̇ m³/h	P W	I A	Lp dB(A)	SFP kW/m³/s
10	2600	6500	2400	3.7	67	1.32
8	2300	5400	1600	2.6	65	1.06
6	1800	4200	780	1.5	60	0.67
4	1200	2750	260	0.6	52	0.34



ECgreen Vent **55% saving*** * with speed control

Casing
Acoustically lined double skinned galvanised steel casing with 30 mm thick mineral fibreboard. Swing out motor and impeller unit, fixed with robust die-cast hinges. Intake and exhaust spigots with twin-seal rubber gasket. Condensation drain and drip protection with the door opened as standard. Easy installation with 2 sturdy mounting rails, manufactured from galvanised steel complete with anti vibration mounts.

Impeller
Backward curved high output centrifugal-impeller, made from galvanised steel, mounted directly to the motor shaft. High efficiency, low noise level. Dynamically balanced to DIN ISO 1940 Pt.1 – class 6.3.

Motor
Energy-saving, speed controllable EC-internal rotor motor with highest efficiency, out of the air stream, protection to IP 55. With ball bearings, maintenance-free and radio suppressed.

Electrical connection
Terminal box fitted externally on the motor as standard (IP 55).

Motor protection
Integrated electronic temperature monitoring for EC-motor and electronics. In the event that the maximum permitted motor temperature is exceeded an automatic speed reduction takes place, which is regulated after cooling down again on the originally set value.

Speed control
Stepless speed control with potentiometer or stepless speed control with universal control system (see table). Duties at different speeds are exemplarily given in the performance curve.

Sound levels
Total sound power levels and the spectrum figures in dB(A) are given for:
- sound level case breakout
- sound level intake
- sound level exhaust

In the table below as well as underneath the performance curve you can find additionally the case breakout level at 1 m (freefield conditions).

Accessories

Wall bracket, from galv. steel
MB-WK EC400 No. 5528

Rain repellent roof, from galv. sheet steel, mounting above the motor.
MB-WSD No. 1856

Flexible sleeve for installation between fan and ducting.
– max. temperature +70 °C
FM 400 No. 1675
– max. temperature +120 °C
FM 400 T120 No. 1659

Accessory-Details	Page
Universal control system, speed potentiometer	78 on

Type	Ref. No.	Connection ⌀	Air flow volume (FID)	R.P.M.	Sound press. level case breakout	Motor power	Current	Wiring diagramm	max. air flow temperature	Nominal weight (net)	universal control system		Speed potentiometer flush mounted		surface mounted	
		mm	V m³/h	min⁻¹	dB(A) in 1 m	kW	A	No.	+ °C	kg	Type	Ref. No.	Type	Ref. No.	Type	Ref. No.
3 phase motor, 400 V, 50 Hz, EC-motor, protection to IP 55																
MBD EC 400	5848	400	6500	2600	67	2.70	4.20	988	120	72.0	**EUR EC**	1347	**PU 10**	1734	**PA 10**	1735

Design – Installation

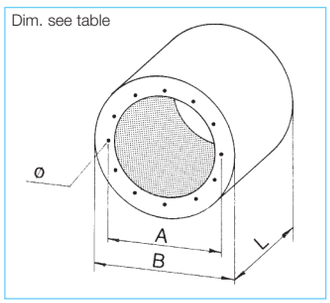
Casing made of galvanised sheet steel. Cladding with high-quality mineral wool covered with fleece to prevent abrasion. Dimensions and fixing holes of all sizes fit the nominal diameter of the fan (R 20). Fixing holes according to DIN 24155, Pt. 2.

Insertion insulation

For larger insertion insulation, several attenuators with the same diameter can be installed in-line.

Pressure loss

The resistance of the RSD attenuators is very low. When designing the system, twice the friction resistance should be into account.



RSD

Information	Page
Selection acoustic calculation	434

Type Nominal Ø	Ref. no	Basic length	Dimensions in mm L	A	B	Hole Ø	Weight approx. kg	Insertion insulation level D_e dB 125	250	500	1000	2000	4000	8000	average insulation
RSD 225/ 300	8734	1	300	259	404	6 x M 6	7	2	5	9	14	13	8	6	8
RSD 225/ 600	8735	2	600	259	404	6 x M 6	12	4	10	17	27	25	17	14	15
RSD 225/ 900	8736	3	900	259	404	6 x M 6	17	7	13	25	33	31	20	16	20
RSD 250/ 300	8737	1	300	286	404	6 x M 6	7	3	5	8	8	9	7	5	8
RSD 250/ 600	8738	2	600	286	404	6 x M 6	12	5	10	16	24	19	14	10	15
RSD 250/ 900	8739	3	900	286	404	6 x M 6	16	6	12	22	28	21	15	11	18
RSD 280/ 400	8740	1	400	322	454	8 x M 8	10	4	5	8	14	9	8	6	8
RSD 280/ 800	8741	2	800	322	454	8 x M 8	18	7	9	16	28	18	17	14	14
RSD 280/1200	8742	3	1200	322	454	8 x M 8	25	9	12	23	37	23	20	16	18
RSD 315/ 400	8743	1	400	356	504	8 x M 8	11	3	3	7	13	8	7	5	5
RSD 315/ 800	8744	2	800	356	504	8 x M 8	19	6	8	14	26	16	12	9	12
RSD 315/1200	8745	3	1200	356	504	8 x M 8	28	9	12	21	36	18	17	14	18
RSD 355/ 400	8746	1	400	395	564	8 x M 8	13	3	4	7	11	7	6	4	6
RSD 355/ 800	8747	2	800	395	564	8 x M 8	23	6	7	13	22	14	12	8	11
RSD 355/1200	8748	3	1200	395	564	8 x M 8	33	8	11	17	29	18	15	10	17
RSD 400/ 400	8749	1	400	438	564	12 x M 8	12	3	4	6	9	7	5	3	6
RSD 400/ 800	8750	2	800	438	564	12 x M 8	21	6	6	12	18	13	12	8	9
RSD 400/1200	8751	3	1200	438	564	12 x M 8	30	7	10	14	22	18	13	9	15
RSD 450/ 400	8752	1	400	487	634	12 x M 8	17	4	5	8	10	8	7	5	8
RSD 450/ 800	8753	2	800	487	634	12 x M 8	27	6	7	13	18	13	12	9	11
RSD 450/1200	8754	3	1200	487	634	12 x M 8	38	8	10	18	23	17	14	10	15
RSD 500/ 600	8755	1	600	541	714	12 x M 8	27	4	5	9	11	9	9	6	8
RSD 500/ 900	8756	2	900	541	714	12 x M 8	36	6	8	14	16	13	13	9	12
RSD 500/1200	8757	3	1200	541	714	12 x M 8	45	8	11	22	24	17	16	12	17
RSD 560/ 600	8758	1	600	605	804	8 x M 10	32	3	5	9	9	8	8	6	8
RSD 560/1200	8759	2	1200	605	804	8 x M 10	52	6	10	19	19	16	13	10	15
RSD 630/ 600	8760	1	600	674	900	8 x M 10	44	3	5	8	8	8	7	5	8
RSD 630/1200	8761	2	1200	674	900	8 x M 10	68	5	10	16	15	15	11	8	15
RSD 710/ 600	8762	1	600	751	1000	8 x M 10	51	3	5	7	7	7	6	4	8
RSD 710/1200	8763	2	1200	751	1000	8 x M 10	80	5	10	14	13	13	10	7	15
RSD 800/ 600	8764	1	600	837	1100	12 x M 10	57	2	5	7	6	6	5	4	8
RSD 800/1200	8765	2	1200	837	1100	12 x M 10	88	5	9	13	11	11	9	6	14
RSD 900/ 900	8766	1	900	934	1220	12 x M 10	82	2	4	10	9	6	5	4	6
RSD 900/1800	8767	2	1800	934	1220	12 x M 10	135	4	9	21	17	13	9	8	14
RSD 1000/ 900	8768	1	900	1043	1350	12 x M 10	96	2	4	8	7	5	4	3	6
RSD 1000/1800	8769	2	1800	1043	1350	12 x M 10	157	4	7	16	14	10	7	6	11
RSD 1120/ 900	8770	1	900	1174	1350	12 x M 10	81	2	3	7	6	4	3	3	5
RSD 1120/1800	8771	2	1800	1174	1350	12 x M 10	136	3	6	14	11	8	6	5	9
RSD 1250/ 900	8772	1	900	1311	1460	12 x M 10	86	1	2	5	4	3	2	2	3
RSD 1250/1800	8773	2	1800	1311	1460	12 x M 10	146	2	4	11	9	7	5	4	6

Sound Pressure Level (SPL) calculation

The application uses a usual data output from a SPL test , in this case the result of a pump test. The measure instrument gives the SPL for the respective octave band.
The total SPL is calculated according the following equation

$$L_{\Sigma} = 10 \cdot Log\left[10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} + 10^{\frac{L_3}{10}} + \ldots\ldots 10^{\frac{L_n}{10}} + \right] \qquad [2]$$

The evaluation of the test data is made in the following table

Octave bande	SPL dB(A)	SPL / 10	10^(SPL /10)
32.5	0	0	1
64.5	0	0	1
125	49	4.9	79,433
250	60	6	1,000,000
500	56	5.6	398,107
1000	53	5.3	199,526
2000	57	5.7	501,187
4000	53	5.3	199,526
8000	49	4.9	79,433
		Sum =	2,457,215
		10*Log(Sum) =	63.9 dB(A)

Inverse Square Law Calculator

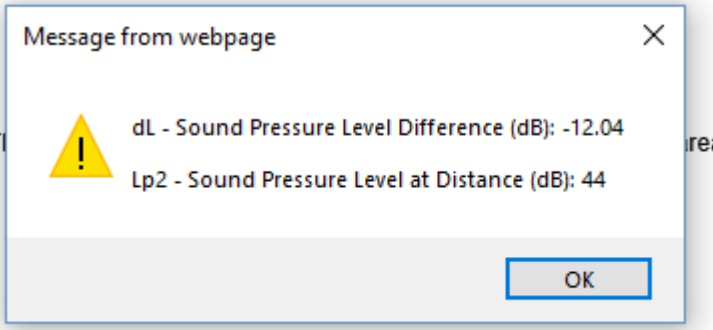
Use the calculator below to calculate the sound pressure level at distance.

56 L_{p1} - *sound pressure level at location 1 (dB)*

1 R_1 - *distance from source to location 1 (m, ft)*

4 L_{p1} - *distance from source to location 2 (m, ft)*

Calculate!



Example - Noise from a Machine

The noise from a machine in distance *1 m* is measured to *110 dB*. Th rea at dis can be calculated as

dL = 20 log ((5 m) / (1 m))

= 14 dB

The sound pressure level in the working area can be calculated as

L_p = (110 dB) - (14 dB)

Inverse Square Law Calculator

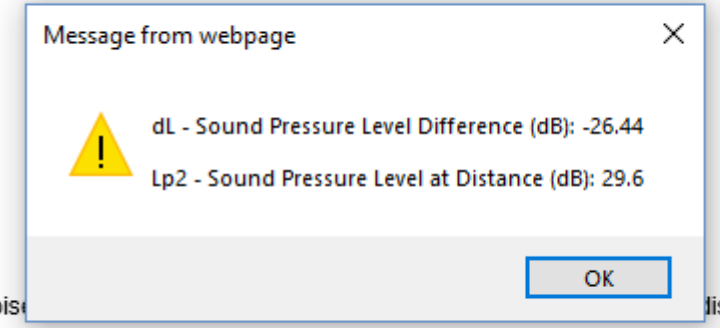
Use the calculator below to calculate the sound pressure level at distance.

56 L_{p1} - *sound pressure level at location 1 (dB)*

1 R_1 - *distance from source to location 1 (m, ft)*

21 L_{p1} - *distance from source to location 2 (m, ft)*

Calculate!



Example - Noise from a Machine

The noise from a machine in distance *1 m* is measured to *110 dB*. The noise ... distance *5 m* can be calculated as

dL = 20 log ((5 m) / (1 m))

Sound Pressure Level (SPL) calculation

The application uses a usual data output from a SPL test , in this case the result of a pump test. The measure instrument gives the SPL for the respective octave band.
The total SPL is calculated according the following equation

$$L_{\Sigma} = 10 \cdot Log\left[10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} + 10^{\frac{L_3}{10}} + \ldots\ldots 10^{\frac{L_n}{10}} + \right] \qquad [2]$$

The evaluation of the test data is made in the following table

Octave bande	SPL dB(A)	SPL / 10	10^(SPL /10)
32.5	0	0	1
64.5	0	0	1
125	68	6.8	6,309,573
250	78	7.8	63,095,734
500	76	7.6	39,810,717
1000	68	6.8	6,309,573
2000	70	7	10,000,000
4000	70	7	10,000,000
8000	68	6.8	6,309,573
		Sum =	141,835,174
		10*Log(Sum) =	81.5 dB(A)

Sound Pressure Level (SPL) calculation

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The total SPL is calculated according the following equation

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The evaluation of the test data is made in the following table

Octave bande	SPL dB(A)	SPL / 10	10^(SPL /10)
32.5	0	0	1
64.5	0	0	1
125	61	6.1	1,258,925
250	68	6.8	6,309,573
500	62	6.2	1,584,893
1000	46	4.6	39,811
2000	52	5.2	158,489
4000	57	5.7	501,187
8000	59	5.9	794,328
		Sum =	10,647,210
		10*Log(Sum) =	70.3 dB(A)

Sound power	Theoretical average sound pressure level [dB(A)]									
L_{WA}	1m	3m	4m	5m	7m	8m	9m	15m	16m	30.5m
80	72	62.5	60	58	55.1	54	53	48.5	47.9	42.3
85	77	67.5	65	63	60.1	59	58	53.5	52.9	47.3
90	82	72.5	70	68	65.1	64	63	58.5	57.9	52.3
95	87	77.5	75	73	70.1	69	68	63.5	62.9	57.3
100	92	82.5	80	78	75.1	74	73	68.5	67.9	62.3
105	97	87.5	85	83	80.1	79	78	73.5	72.9	67.3
110	102	92.5	90	88	85.1	84	83	78.5	77.9	72.3
115	107	97.5	95	93	90.1	89	88	83.5	82.9	77.3
120	112	102.5	100	98	95.1	94	93	88.5	87.9	82.3
reduction	8	17.5	20	22	24.9	26	27	31.5	32.1	37.7

L_{WA}95 corresponds to 70dB(A) at 7m from the noise source.
72dB(A) at 7m from the noise source corresponds to L_{WA}97.
For some daily examples, check the decibel chart.

UVF

Capture Jet™ hood combined with Capture Ray™ technology and low velocity supply

- **HACCP* certified (PE-567-HM02I).**
- **30 to 40% reduction in exhaust airflow rates thanks to the Capture Jet™ technology.**
- **Double stage filtration with KSA multi-cyclone filters (UL, NSF and LPS 1263 classified).**
- **Neutralization of the remaining grease particles and vapours (Capture Ray™ technology).**
- **Prevention of the build-up of grease deposits, which pose a serious hygiene and fire hazard.**
- **Duct cleaning costs significantly reduced.**
- **Significantly reduces odours in exhausted air.**
- **Draught-free integrated supply air system for enhanced smoke capture and comfort.**
- Integrated Capture Ray™ Ultraviolet cassette with complete safety features.
- Plug and Play CE-certified control system with Halton's LCD Touch Screen as optional user interface.
- Performance tested independently in accordance with the ASTM 1704 standard.
- Exhaust airflow rates based on ASTM performance and a calculation method of the real heat loads.
- Accurate and effective commissioning due to "ready to install" standard delivery packages.

The UVF hood with the new generation of peripheral, vertical and horizontal Capture Jet™ technology is a highly efficient kitchen ventilation hood that removes contaminated air and excess heat emitted by cooking equipment, while delivering compensation air to the kitchen at low velocity. Overall, the system requires 30% to 40% less exhaust air volume than traditional hoods to remove an equal heat load.

Indoor and outdoor air quality is becoming a major concern. Many kitchens will require emission control solutions in their exhaust systems to comply with growing demands for environmentally-friendly operation.

The UVF hood is also equipped with the Capture Ray™ technology. It keeps the plenum and duct virtually grease-free and reduces part of the cooking odours and emissions. It is based on the use of Ultraviolet lamps (UV-C) which neutralises grease vapours and particles.

* Hazard Analysis Critical Control Point

Acoustic Louvre

INTRODUCTION

As part of the Colt Universal Louvre range, Colt can provide acoustic louvre panels for mounting behind the louvre.

Plant room openings, cooling towers, condenser plant etc., will produce sound pressure levels which may exceed existing or required noise criteria at prescribed distances from the building. Colt is able to provide attenuation for the Colt Universal Louvre System that will meet the most stringent criteria.

If a single bank of elements does not provide the required noise control, a double bank may be specified. As an alternative, duct silencers may be selected to give the desired noise reduction.

To ensure the most economic solution, noise control must be considered at the earliest possible design stage. Retrofit installations can be significantly more expensive. If in doubt, please contact Colt International.

ACOUSTIC RANGE

There are two acoustic louvre models:

Type R

Optimum acoustic performance with normal pressure drop.

Type LP

Normal acoustic performance with minimum pressure drop.

MATERIAL

The outer casing shall be of no less than 1.2mm galvanised mild steel sheet. The acoustic louvre blades shall be of aerofoil configuration formed from 0.7mm perforated galvanised mild steel sheet on the inner surface and 0.7mm galvanised mild steel sheet externally.

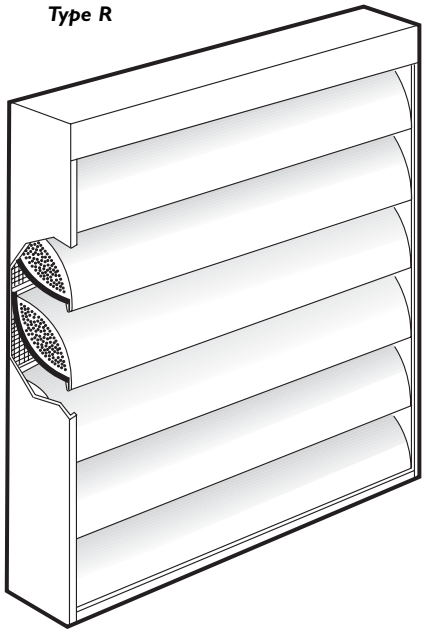
Modules

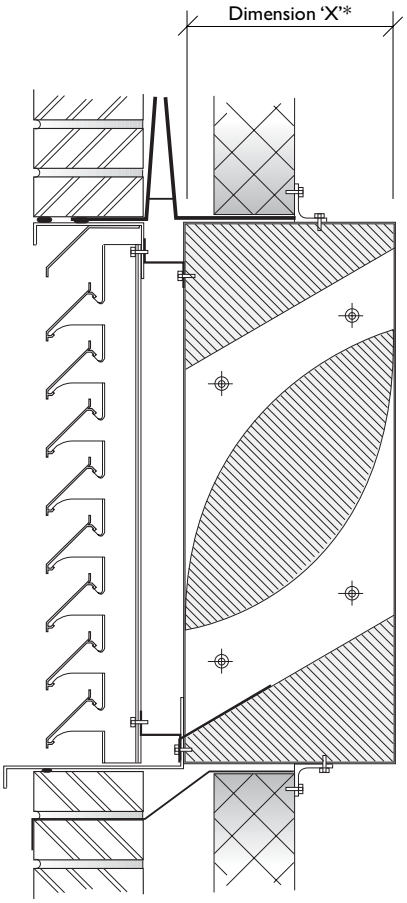
Acoustic louvre banks over 1220mm wide and/or 3660mm high will normally be supplied as two or more modules for site assembly.

Infill

The infill shall be in organic mineral wool or glass fibre of 47kg/m^3 density and packed under not less than 5% compression to eliminate voids due to settlement. The infill shall be inert, as well as vermin, rot and moisture proof.

Type R

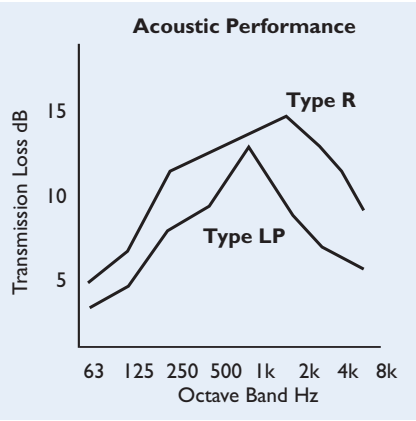


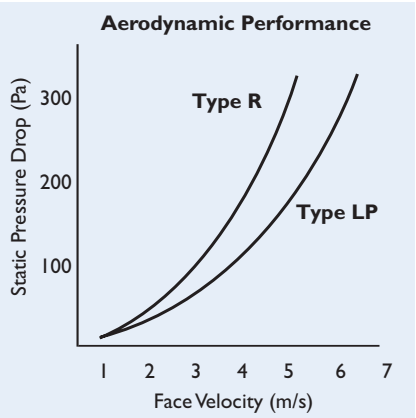


Vertical section through Colt 'E' Series ESC 75 pitch louvre panel with acoustic module into brickwork opening.

** Dimension 'X' is a minimum of 300mm or greater depending on the acoustic performance requirements.*

PERFORMANCE





ACOUSTIC PERFORMANCE

Octave Band Centre Frequency, Hz	1 63	2 125	3 250	4 500	5 1k	6 2k	7 4k	8 8k
Model R	5	7	11	12	13	14	12	9
Model LP	4	5	8	9	12	9	7	8

AERODYNAMIC PERFORMANCE

Acoustic Louvre Model	Aerodynamic Coefficient (cv)	Pressure Loss (ζ)
Model R	0.24	17.3
Model LP	0.29	11.5

DIMENSIONS

Acoustic Louvre Model	Module Width (mm)	Module Height (mm)
Model R	610, 914 or 1219	305 to 3653 in 305mm increments
Model LP	610, 914 or 1219	356 to 3556 in 356mm increments