Ref: MDR/J5651a

11th July 2024

KRS Steel Services Ltd

Unit 6 Meadway Industrial Estate

429 Meadway

Kitts Green

Birmingham

B33 0DX

For the attention of Mr A Marsh

Dear Sirs

Re: Pepe's Piri Piri, 3 Byron Place, Uxbridge, UX10 0LZ - Proposed Kitchen Supply & Extract Ventilation Systems - External Noise Assessment

Further to the receipt of your ventilation design information, we are pleased to forward our noise assessment for the proposed kitchen supply & extract ventilation systems as follows:-

We visited the site on 9/7/24 to inspect the proposed location for the proposed ventilation systems. The nearest residential windows to the proposed supply intake and extract discharge positions are 1st floor windows on the rear of the building. The extract discharge & supply intake on the rear façade will be approximately 4m from the nearest window. The intended operation times for the site are from 11.00hrs to 23.00hrs. At 22.30hrs on the rear access flat roof area to the 1st floor flats, 1m in front of the 1st floor residential windows, the background noise level was 44.0dB $L_{A90\ 30min}$; a level primarily created by traffic noise in the locality.

Ref: MDR/J5651a

The instrumentation used for the noise measurements was a Rion NL-52 precision grade real time analysing sound level meter, serial number 00231668. The instrument was calibration checked before and after the measurements and seen to be calibrated correctly. Please see the attached current certificate of calibration. The noise measurements were undertaken in satisfactory weather condition, with no significant wind or precipitation.

The design criteria we advise to be applied to the proposed ventilation systems external noise to be measured at 4m distance from the extract discharge and 4m distance from the supply intake, as a combined noise level, is to be at least 10dB below the prevailing background $L_{A90\,t}$ values measured on 9/7/24, equating to no more than 34dBA at the nearest windows. BS4142:2014 assessment methodology compares the background noise level with a plant rating noise level. For this site, the noise- controlled ventilation systems will have no distinct tonal characteristics or intermittency which would require correction to the plant source noise to derive a rating level. Controlling the proposed plant noise sources to be at least 10dBA below background ensures no adverse addition to the background noise level outside the nearest residential windows.

For the proposed kitchen extract ventilation system, the fan discharge silencer advised would be a splitter silencer, 20% free area, typically 750mm wide x 750mm high x 2400mm long. The silencer should reduce the radiated discharge noise to approximately 29dBA at 4m distance.

For the proposed kitchen supply air ventilation system, the fan intake silencer would be a circular 5silencer with pod, typically 355mm i/d x 510mm o/d x 315mm long. The silencer should reduce the radiated intake noise to 31dBA at 4m distance.

The combined noise level of the extract discharge at 4m & supply intake at 4m equates to 33dBA.

In addition, the fans and ductwork systems should be supported off the building structure using anti-vibration mounts/hangers to avoid vibration transmission into the structure.

Ref: MDR/J5621a

We have attached our noise level design calculation sheets and supporting information for your reference.

We trust the noise assessment meets with your approval and we remain.

Yours faithfully

M D Randall BSc(Eng) CEng MCIBSE MIOA

MEMBER

RandTech Consulting Ltd 3 Melbourne Lane Duston Village Northampton NN5 6HS
Tel 01604 451213 Mob 07966 913809 / 07772 691280 E-mail mdrand1@aol.com
www.randtech–consulting.co.uk Company Number 13751425

CERTIFICATE OF CALIBRATION

0653

Date of Issue: 09 January 2024

Certificate Number: UCRT24/1042

Calibrated at & Certificate issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Approved Signatory

K. Mistry

Customer	ANV Measurement Systems Beaufort Court 17 Roebuck Way Milton Keynes MK5 8HL
Order No.	ANV MS HIRE
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00231668
	Rion	Firmware		2.0
	Rion	Pre Amplifier	NH-25	21612
	Rion	Microphone	UC-59	04713
	Rion	Calibrator	NC-75	34334830
		Calibrator adaptor type if applicable		NC-75-022

Performance Class	1			
Test Procedure	TP 2.SLM 61672-3 TPS-49 *Procedures from IEC 61672-3:2006 were used to perform the periodic tests.*			
Type Approved to IEC 61672-1:2002	YES	Approval Number	21.21 / 13.02	
	If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003			
Date Received	05 January 2024	ANV Job No.	UKAS24/01009	
Date Calibrated	09 January 2024			

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	24 January 2023	UCRT23/1113	0653

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0653

Certificate Number
UCRT24/1042

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter NL-42 / NL-52		
SLM instruction manual ref / issue	11-03		
SLM instruction manual source	Manufacturer		
Internet download date if applicable	N/A		
Case corrections available	Yes		
Uncertainties of case corrections	Yes		
Source of case data	Manufacturer		
Wind screen corrections available	Yes		
Uncertainties of wind screen corrections	Yes		
Source of wind screen data	Manufacturer		
Mic pressure to free field corrections	Yes		
Uncertainties of Mic to F.F. corrections	Yes		
Source of Mic to F.F. corrections	Manufacturer		
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes		
Specified or equivalent Calibrator	Specified		
Customer or Lab Calibrator	Lab Calibrator		
Calibrator adaptor type if applicable	NC-75-022		
Calibrator cal. date	18 December 2023		
Calibrator cert. number	UCRT23/2596		
Calibrator cal cert issued by	0653		
Calibrator SPL @ STP	94.01	dB	Calibration reference sound pressure level
Calibrator frequency	1000.00	Hz	Calibration check frequency
Reference level range	25 - 130	dB	

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End		
Temperature	22.26	22.33	± 0.30	°C
Humidity	32.8	33.7	± 3.00	%RH
Ambient Pressure	102.21	102.22	± 0.03	kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.0	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±				0.10	dB

Self Generated Noise — This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device - UR = Under Range indicated

Weighting	A			C			Z		
	11.9	dB	UR	17.1	dB	UR	22.2	dB	UR
Uncertainty of the electrical self generated noise ±						0.12		dB	

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

..... END .....

Calibrated by: C. Hirlav R 3

Additional Comments The results on this certificate only relate to the items calibrated as identified above.
None

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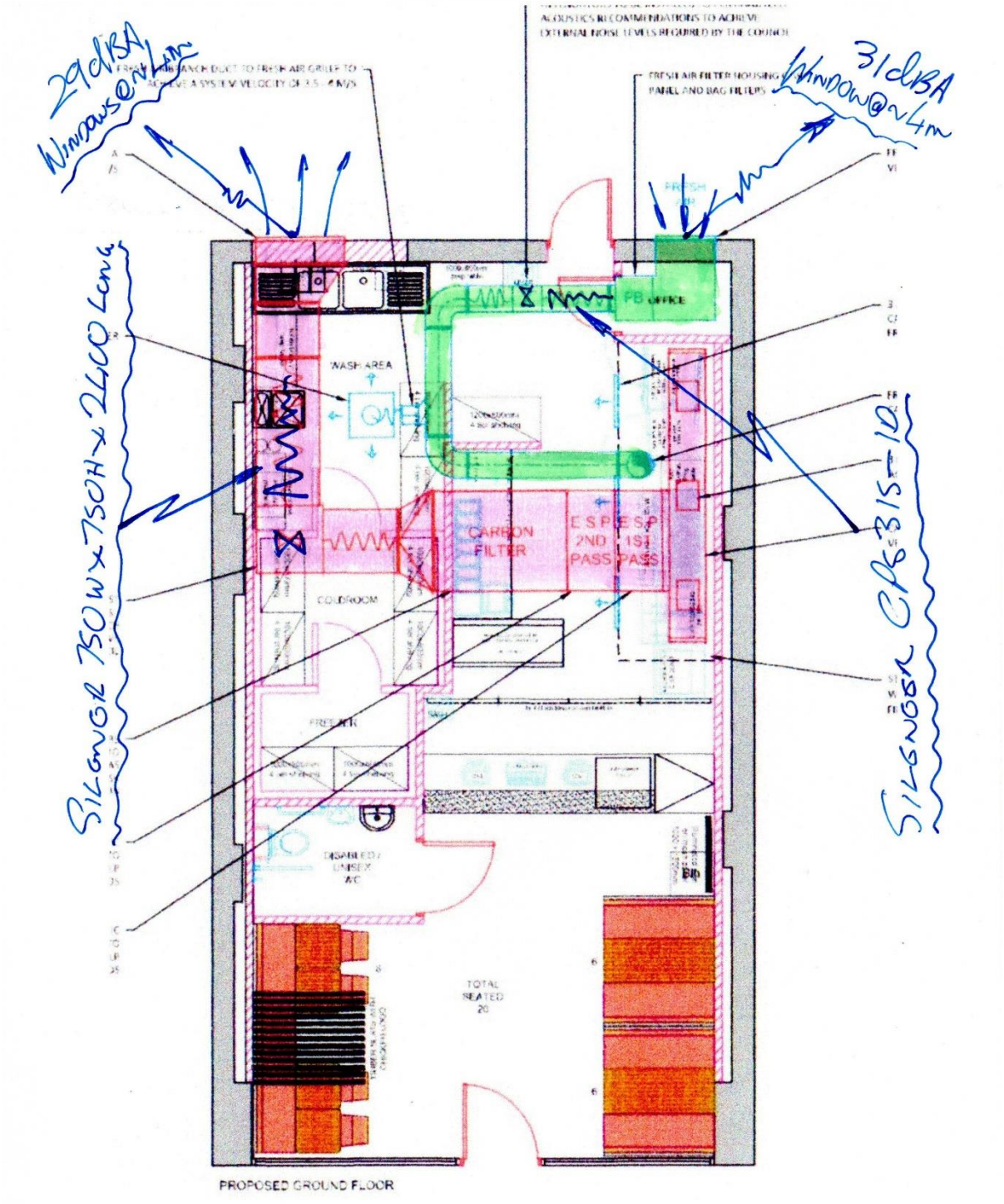

GF: MWK/15651

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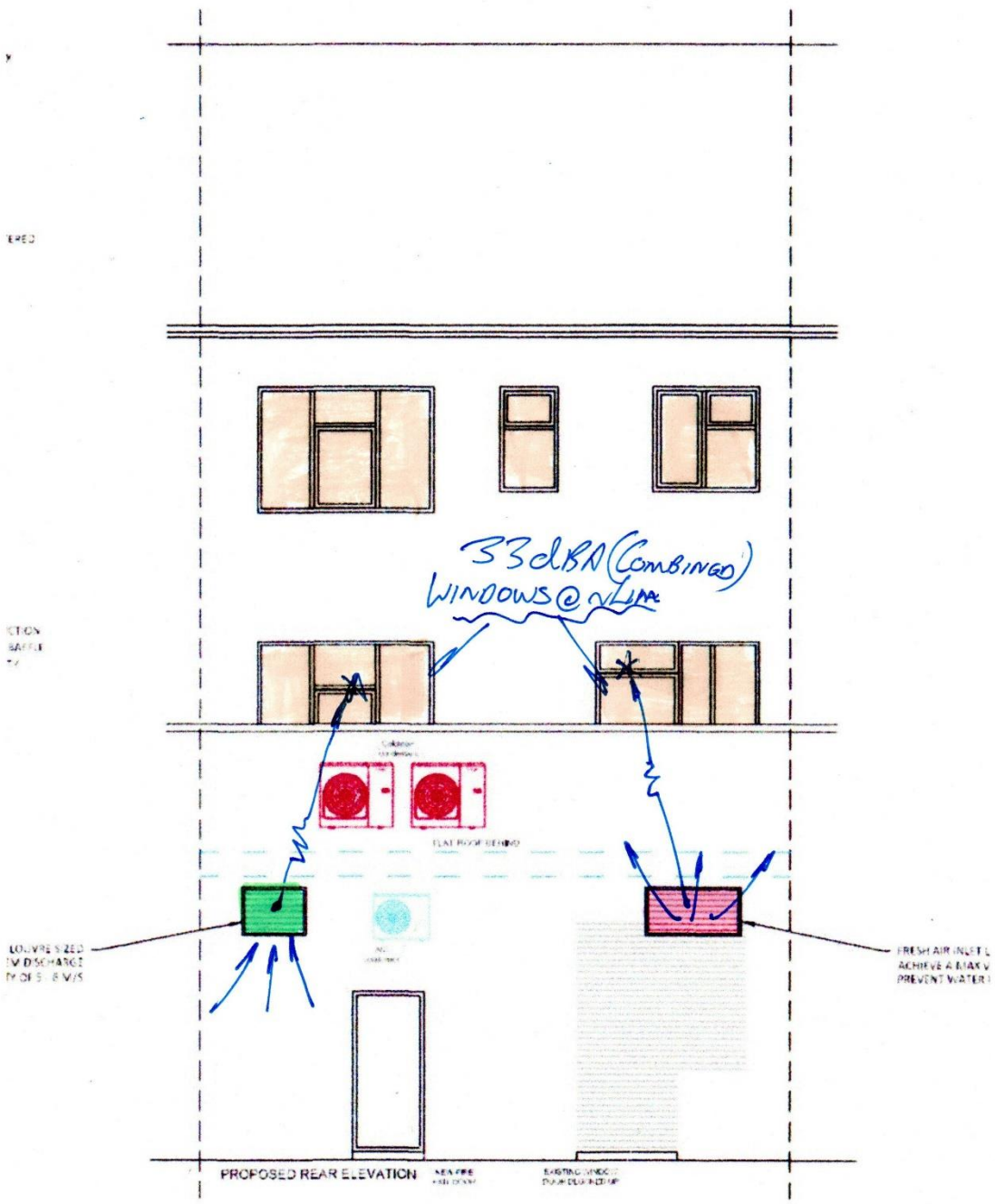

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Design Sheet (1)

Pope's Uxbridge, UX10 0LZ — Extract Discharge Noise

	L/A	63	125	250	500	1k	2k	4k	8k
Extract Fan Woods									
Powerbox3 80-630-3 SWL		95	105	89	87	86	86	85	82
720×720 Duct × 2m		1	1	0	0	0	0	0	0
600×1200 Louvre 0·72m² GA		6	2	0	0	0	0	0	0
SWL @ Discharge		88	102	89	87	86	86	85	82
SWL → SPL @ 4m		20	20	20	20	20	20	20	20
Hemispherical Radiation									
SPL @ 4m		68	82	69	67	66	66	65	62
'A'-Weighting		-26	-16	-9	-3	0	+1	+1	-1
		42	66	60	64	66	67	66	61
			66		65		70		67
				69				72	
						74dBA			
Silencer Required									
Rds 20/50/2400 Splitter		19	38	55	55	55	55	55	55
Silencer 20% FA, 750mm Wide		23	28	5	9	11	12	11	6
×750mm High ×2400mm Long			29		10		15		12
ΔP~180Pa @ 2.1m³/s				29				17	
* Resultant SPL A @ 4m with Silencer						29dBA			

Ref: MDR/JSGS1

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Design Stage (2)

Poppis Uxbridge, UX10 0LZ — Supply / Intake Noise

	L/A	63	125	250	500	1k	2k	4k	8k
Supply Fan Delta SBL									
355/2-1A2 SWL		/	47	64	70	75	74	71	64
315ø Duct 1m		/	0	0	0	0	0	0	0
Filter		/	3	3	3	3	3	3	3
800 Square Bend		/	0	1	8	7	4	3	3
Intake 800×600 0.48m² Gr		/	2	0	0	0	0	0	0
SWL @ Intake		/	42	60	59	65	67	65	58
SWL → SPL @ 4m		/	20	20	20	20	20	20	20
Hemispherical Radiation									
SPL @ 4m		/	22	40	39	45	47	45	38
'A'-Weighting		/	-16	-9	-3	0	+1	+1	-1
		/	6	31	36	45	48	46	37
				31		46		50	37
					46			50	
						51 dB(A)			
Silencer Rosenlöw									
CPS 315-10 Circular		/	7	8	14	22	25	22	19
Silencer with 100, 315mm ø/o		/	0	23	22	23	23	24	18
×465mm ø/o × 315mm Long				23		26		27	18
					28			28	
* Resultant SPL @ 4m with Silencer						31 dB(A)			*
* Combined Supply/Intake @ 4m					31	}	33 dB(A)		*
* Extract Discharge @ 4m					29	}			*

Ref: Mech/5651

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Woods Air Movement
Fan Selector - Technical Datasheet

Project : **Customer :** **Project Code :**

Quotation : **Date :** Wednesday, June 26, 2024

PowerBox3

Powerbox3 80-630-3

Lead time may vary based on stock availability at time of order. Please refresh the lead time in the project or reselect the fan before placing an order.

PRODUCT

Model Code	Powerbox3 80-630-3
Fan Diameter	630 mm
Installation	Type D

PERFORMANCE

Requested Duty	2.10 m³/s @ 930 Pa (Static)
Outlet Dynamic Pressure	11.0 Pa
Velocity	4.29 m/s

MOTOR

Motor Rating	4.64 kW [Integral Frame]
Full Load Current	8.47 A
Starting Current	8.47 A
Electrical Supply	380 - 415 Volts 50 Hz 3 Phase
Motor Winding	Standard
Motor Type	Class F Insulation

EFFICIENCY GRADES

Regulation 1253 - 2014	
UVU Efficiency	51.6% (ErP Compliant) ✓
Nominal Flow Rate	2.44 m³/s @ 753 Pa
Effective Input Power	3.56 kW
Nominal RPM	1250 rpm

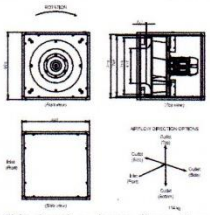
ENVIRONMENT

Air Density	1.2 kg/m³ / 20 °C / 0 m / 40% RH
Smoke Venting	No Smoke Venting
Operating Environment	Normal

RUNNING COSTS

Power from mains	3.58 KW
Energy Consumption	7,152.97 kWh (2,000.00 h/Year)
Running Cost / Year	£1,788.24
CO2 per Year	2,514.70 kgCO2e
SFP value	1.70 W/l/s @ Actual Duty

PRODUCT DIMENSIONS



This drawing shows dimensions that should be used as a guide only and are subject to change. Certified drawings are available on request.

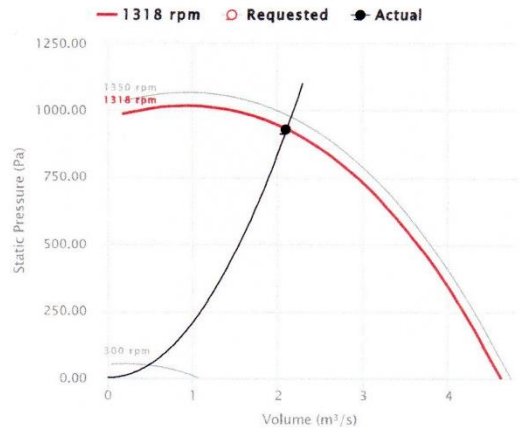
MECHANICAL

Operating Temperatures	-20 °C to 50 °C (95% Max Relative Humidity)
Weight	114kg

⚠ COMMENTS

Lang_PowerBoxInverter

FAN PERFORMANCE CURVE



ACOUSTICS

	Sound Spectrum (Hz)								Overall		Distance (3 m)
	63	125	250	500	1k	2k	4k	8k	Lw*	LwA*	LpA @ 3 m **
Inlet	94	99	90	84	85	86	83	79	101	92	71
Outlet	95	105	89	87	86	86	85	82	106	94	74
Breakout	80	91	79	61	57	55	55	48	92	77	56

Sound Data At Requested Duty. * Lw dB re 10^{-12} W ** dBA re $2x10^{-5}$ Pa

FAN & ACCESSORIES

Item Description	Qty
Powerbox3 80-630-3	1

EXTRACT FAN

TOP? MARK/35651

Axial Way
Colchester Essex CO4 5DZ
+44 (0) 1206 222 555
UK

Version 14/6/2024 Rev.35274 (19/6/2024 Rev.1 PRODUCTION)

Multiflow SEL

Performance, SFP & Electrical Data

AC

SINGLE Phase - 220V to 240V / 50Hz

Product Image	Product Code	Speed r/min	Airflow SFP	Airflow m³ / s @static Pressure Pa												At Best Efficiency Point			Peak Amps	dBA @ 3m	
				0	25	50	75	100	150	200	250	300	350	400	500	Overall Efficiency %	FMEG	Input kW			
	SEL250/2-1AC	2684	m³ / s	0.453	0.442	0.431	0.419	0.407	0.380	0.350	0.313	0.108	0.064	0.031		46.9	65.7	0.162	0.70	Inlet	51
			W / (L/s)	0.33	0.34	0.35	0.37	0.38	0.42	0.47	0.52	1.14	2.07	4.48						Outlet	53
																				Breakout	29
	SEL315/2B-1AC	2776	m³ / s	0.975	0.963	0.951	0.938	0.924	0.894	0.862	0.828	0.791	0.750	0.703	0.230	52.7	66.2	0.515	2.40	Inlet	55
			W / (L/s)	0.50	0.51	0.52	0.53	0.54	0.57	0.60	0.63	0.67	0.71	0.76	1.66					Outlet	61
																				Breakout	40
	SEL315/2A-1AC	2819	m³ / s	0.654	0.644	0.633	0.621	0.608	0.579	0.545	0.506	0.459	0.388	0.150	0.057	50.8	67.4	0.263	1.20	Inlet	54
			W / (L/s)	0.39	0.40	0.40	0.42	0.43	0.46	0.50	0.55	0.60	0.66	1.36	4.03					Outlet	58
																				Breakout	37
	SEL355/2-1AC	2776	m³ / s	1.372	1.358	1.344	1.330	1.315	1.283	1.250	1.215	1.177	1.137	1.093	0.988	50.5	61.2	0.955	4.30	Inlet	59
			W / (L/s)	0.64	0.65	0.66	0.67	0.68	0.70	0.73	0.77	0.81	0.85	0.89	0.99					Outlet	63
																				Breakout	42
	SEL355/4-1AC	1438	m³ / s	0.714	0.691	0.663	0.629	0.590	0.484	0.098	0.030					46.8	66	0.150	0.70	Inlet	43
			W / (L/s)	0.20	0.21	0.22	0.24	0.26	0.31	1.28	4.60									Outlet	45
																				Breakout	26
	SEL400/4-1AC	1440	m³ / s	0.957	0.930	0.900	0.866	0.825	0.700	0.287	0.135	0.053				45.8	63.4	0.211	0.90	Inlet	49
			W / (L/s)	0.20	0.21	0.23	0.24	0.26	0.31	0.60	1.35	3.68								Outlet	53
																				Breakout	39
	SEL450/4-1AC	1435	m³ / s	1.445	1.414	1.380	1.345	1.307	1.223	1.119	0.959	0.265	0.159	0.063		50.0	64.2	0.445	2.40	Inlet	50
			W / (L/s)	0.29	0.30	0.31	0.32	0.33	0.37	0.41	0.46	1.37	2.41	6.41						Outlet	55
																				Breakout	44
	SEL500/4-1AC	1352	m³ / s	1.950	1.902	1.857	1.814	1.772	1.685	1.591	1.479	1.315	0.343	0.196		48.7	60.5	0.747	3.30	Inlet	54
			W / (L/s)	0.34	0.35	0.36	0.37	0.39	0.42	0.46	0.50	0.56	1.68	3.15						Outlet	55
																				Breakout	46
	SEL560/4-1AC	1401	m³ / s	2.645	2.610	2.571	2.530	2.485	2.380	2.253	2.094	1.883	1.491	0.693	0.339	49.0	59.3	1.035	5.50	Inlet	61
			W / (L/s)	0.38	0.39	0.40	0.41	0.42	0.45	0.49	0.53	0.57	0.66	1.23	2.72					Outlet	64
																				Breakout	54
	SEL630/4-1AC	1371	m³ / s	3.887	3.831	3.775	3.717	3.660	3.544	3.425	3.304	3.176	3.039	2.887	2.447	55.3	62.3	2.140	9.60	Inlet	62
			W / (L/s)	0.49	0.50	0.51	0.52	0.53	0.55	0.58	0.62	0.66	0.70	0.74	0.86					Outlet	64
																				Breakout	53

Data in accordance with ErP Directive 327/2011 of the European Parliament. Peak Amps @ 230V / 1PH / 50Hz.
The overall A-weighted sound pressure level is at a distance of 3m with spherical free-field propagation. It is expressed in dB re-20μPa and is presented for comparative purposes only.

SUPPLY FAN SEL 355/2-1AC

Ref: MDR/15651

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Multiflow SEL

Sound Data

SINGLE Phase - 220V to 240V / 50Hz

Product Code		Sound Power Level dBW @ Octave Band Hz								Total dB
		63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz	
SEL250/2-1AC	Inlet	-	36	47	57	63	68	67	56	70
	Outlet	-	41	57	63	69	69	65	54	74
	Breakout	-	36	35	34	45	44	41	35	49
SEL315/2B-1AC	Inlet	-	48	64	69	70	70	69	86	76
	Outlet	-	50	70	75	78	75	71	65	81
	Breakout	-	46	50	52	57	54	53	46	61
SEL315/2A-1AC	Inlet	-	49	63	68	70	69	66	57	75
	Outlet	-	50	69	73	75	73	66	58	79
	Breakout	-	44	46	49	53	51	49	45	57
SEL355/2-1AC	Inlet	-	47	64	70	75	74	71	64	79
	Outlet	-	54	70	76	80	77	72	64	83
	Breakout	-	45	55	55	56	56	55	45	63
SEL355/4-1AC	Inlet	-	44	55	58	60	57	55	44	64
	Outlet	-	54	56	62	63	57	53	41	67
	Breakout	-	42	39	40	43	39	39	28	48
SEL400/4-1AC	Inlet	-	49	56	67	64	63	57	47	70
	Outlet	-	61	60	71	70	65	60	50	75
	Breakout	-	48	44	58	57	49	48	37	61
SEL450/4-1AC	Inlet	-	56	62	65	67	65	59	50	72
	Outlet	-	64	65	72	72	67	62	52	77
	Breakout	-	52	60	61	62	56	50	39	66
SEL500/4-1AC	Inlet	29	60	66	70	71	67	63	52	75
	Outlet	29	66	66	73	71	67	63	52	77
	Breakout	-	47	61	65	63	59	53	39	66
SEL560/4-1AC	Inlet	-	68	76	78	76	75	69	59	83
	Outlet	-	72	81	84	78	75	70	61	87
	Breakout	-	69	76	75	67	65	58	50	79
SEL630/4-1AC	Inlet	-	69	78	80	76	75	68	61	84
	Outlet	-	72	78	83	80	77	73	62	86
	Breakout	-	67	73	72	68	66	60	49	77

Data provided at standard air density of 1.2 kg/m³. Tests and preparation of the sound data have been carried out at operating point with the highest static efficiency. The Sound Power Level Spectra are in dB re-1pW.

SUPPLY FAN SEL 355/2-1AC

REF: MDR/JS651

Please Note:
Why not use the facility in our "Fans by Elta" interactive CD Rom to do the work for you?
Tests and preparation of the sound data have been carried out in accordance with EN ISO 3741:2011-01
The Sound Power Level Spectra are in dB re-1pW.

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