



Ref: MDR/J4391a

16th August 2020

Architecture & Interiors Ltd

17 Coleshill Road

Birmingham

B36 8DT

For the attention of Mr G Siddique - Director

Dear Sirs

Re: Pepe's Piri Piri, 109b Oxford Road, Reading, RG1 7UD - Kitchen Extract Ventilation System - External Noise Assessment

Further to the receipt of your instruction, we are pleased to forward our noise assessment for the kitchen extract ventilation system as follows:-

Assessment

We visited the site on 6/8/20 to inspect the kitchen extract ventilation system in operation and measure the external noise. The ventilation system located entirely within the building ground floor, with a low level horizontal discharge cowl located above the rear façade access doors. The nearest residential window is at approximately 10m distance from the discharge cowl, No.4b Zinzan Street, located directly behind the site. The assumed proposed business operating hour are 11.00hrs to 23.00hrs, every day.

Please see the supporting information attached.



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Reading Borough Council require an assessment of the noise that may impact the nearest residential locations when the kitchen extract ventilation system is in operation. The normal design criterion advised by RBC would be all plant external noise sources should be 10dBA less than the prevailing background noise level when measured outside the nearest noise sensitive windows. When plant noise is controlled to be at 10dBA below the background it will have no impact for the residents.

The instrumentation used for the measurements was a Rion NL-52 precision grade real time analysing sound level meter, serial number 00976220. The RTA was calibration checked before and after the measurements and seen to be correct. Please see attached current certification for the instrument.

The methodology for assessing commercial noise impacting residential properties is as advised in BS4142:2014, where basically the normally background noise is measured at the residential location as a LA90 value, without the commercial noise, then the commercial noise is measured at the same location, or estimated for the same location and the two noise levels are compared. Commercial noise in excess of the background would be deemed to cause a nuisance when shown to be 5-10dB in excess, or higher. For the measurement position outside 4b Zinzan Street, during the operational hours of the site the extract ventilation system runs continuously and is clearly audible at the location; this does not allow the measurement of a background LA90 1hr for comparison purposes.

At 13.00hrs on 6/8/20 we measured the kitchen extract discharge noise at a distance of 5m, yielding a value of 55.9dB LAeq 30min and the resultant noise level at 10m distance on the pavement outside 4b Zinzan Street, yielding a level of 50.5dB LAeq 30min. The noise measured outside 4b Zinzan Street was primarily noise from the extract discharge and the difference between the noise level at 5m & 10m is consistent with the noise level reduction with distance expected for the source noise. Whilst we were not able to measure a background noise level without the plant noise, given the location it would be reasonable to assume a background noise level outside 4b Zinzan Street in the late evening could be typically 40dB LA90 1hr. If we assume a background level of 40dB, the commercial source noise in question, the kitchen extract discharge is 10dB higher than the background, where RBC would require the extract discharge noise to be 10dB below the background level, a difference of 20dB between the existing situation and what RBC will require.

Mitigation

The existing kitchen extract ventilation system, located entirely within the building has no silencing applied to the discharge side ductwork connecting the fan to the discharge cowl on the rear façade, this ductwork is just a short length of plain metal duct transforming in section from the square fan casing to the wide low profile cowl on the rear façade doorway.



Ref: MDR/J42391a

For the control of the fan noise as defined there needs to be a discharge duct silencer fitted and there are two options. Either the ventilation system within the building is modified to create the space to locate a discharge duct silencer within the building, or a discharge silencer is fitted externally connecting onto the discharge cowl location.

For illustration purposes we have attached Design Sheet 1 which details the typical rectangular splitter silencer that could be mounted externally to reduce the discharge radiated noise down to 30dBA at 10m distance. The rectangular splitter silencer would be a 20% free area design, nominally 1500mm wide x 900mm high x 600mm long with a flow resistance of approximately 40Pa at an estimated extract airflow of 2.5m³/s. The silencer would require support framing to position it above the access height to the doors and would require a connecting section of ductwork from the cowl position to the silencer.

Should you wish to consider the option of fitting a discharge duct silencer within the building, an equivalent silencer of 42% free area design nominally 700mm wide x 700mm high to suite the fan casing dimensions would need to be 1800mm long.

Conclusion

The existing kitchen extract ventilation system which does not include any extract discharge silencing radiates sufficient noise from the horizontal discharge located on the rear facade of the building to create excessive noise at the nearest residential window location at 10m distance. Mitigation advised, fitting a discharge silencer would reduce the discharge noise measured at 10m to 30dBA, a level likely to be 10dBA below background, eliminating any noise impact to the nearest residents.

The discharge duct silencer required can be designed to be located within the building if the ventilation system can be modified to accommodate this or externally in the rear yard area.



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

Yours faithfully

A handwritten signature in black ink, appearing to read 'MD Randall', written in a cursive style.

M D Randall BSc(Eng) CEng MCIBSE MIOA





CERTIFICATE OF CALIBRATION



0653

Date of Issue: 04 September 2019**Certificate Number: UCRT19/1983**

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.ukWeb: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

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	00976220
Rion	Firmware		2.0
Rion	Pre Amplifier	NH-25	76337
Rion	Microphone	UC-59	15747
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

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** 27 August 2019**ANV Job No.** UKAS19/08564**Date Calibrated** 04 September 2019

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
	09 October 2018	UCRT18/2027	0653

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.



CERTIFICATE OF CALIBRATION	Certificate Number UCRT19/1983
UKAS Accredited Calibration Laboratory No. 0653	Page 2 of 2 Pages

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-74-002	
Calibrator cal. date	04 September 2019	
Calibrator cert. number	UCRT19/1974	
Calibrator cal cert issued by	0653	
Calibrator SPL @ STP	93.97	dB Calibration reference sound pressure level
Calibrator frequency	1001.86	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	22.58	22.54	± 0.30 °C
Humidity	42.8	45.8	± 3.00 %RH
Ambient Pressure	100.38	100.35	± 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
	11.7	15.3	21.6
	dB	dB	dB
	UR	UR	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.

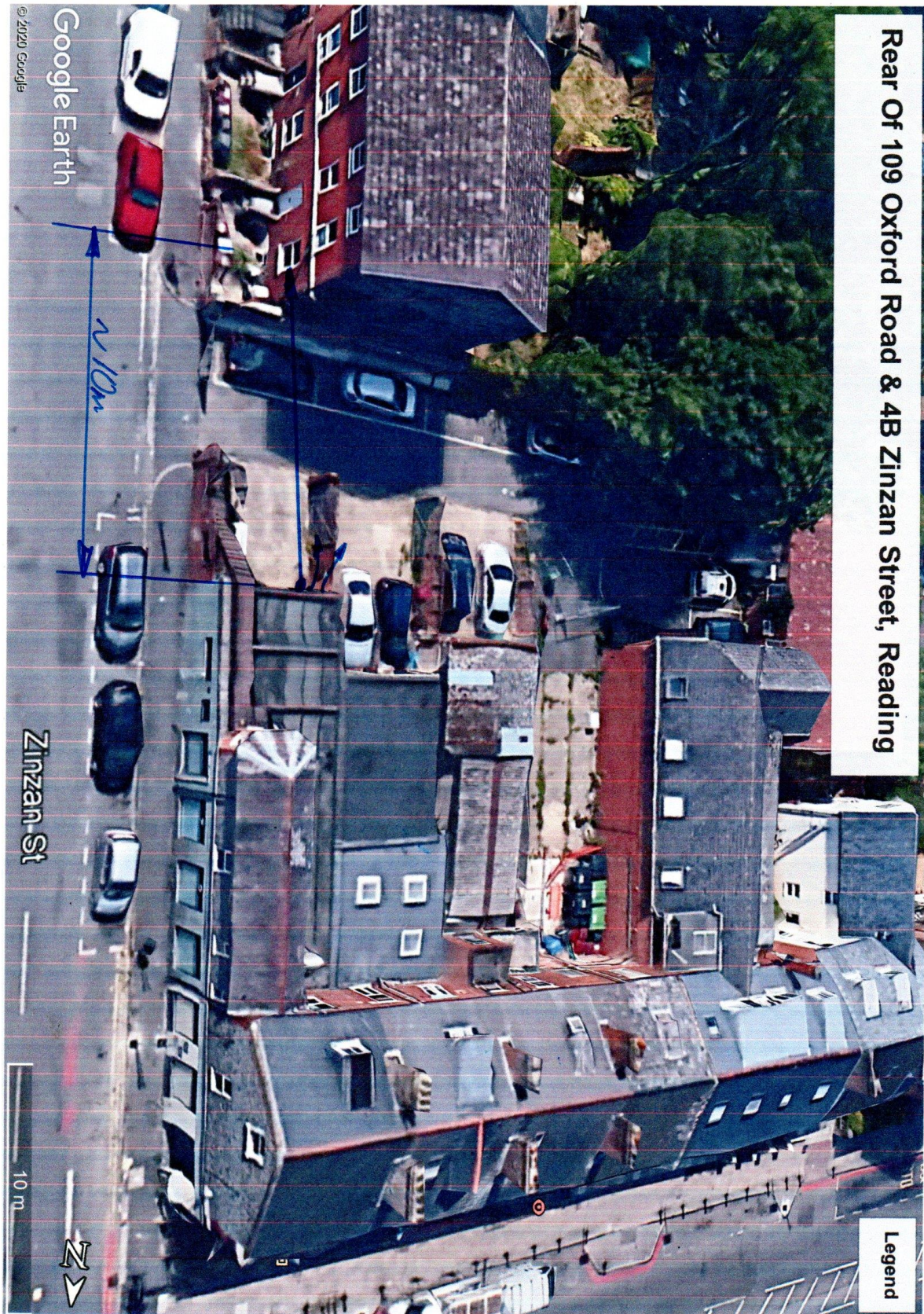
END

Calibrated by: B. Bogdan

R 2

Additional Comments The results on this certificate only relate to the items calibrated as identified above.

None





EXTRACT DISCHARGES ABOVE DOOR



ZINEAN STREET VIEW

Ref: Mon/16301





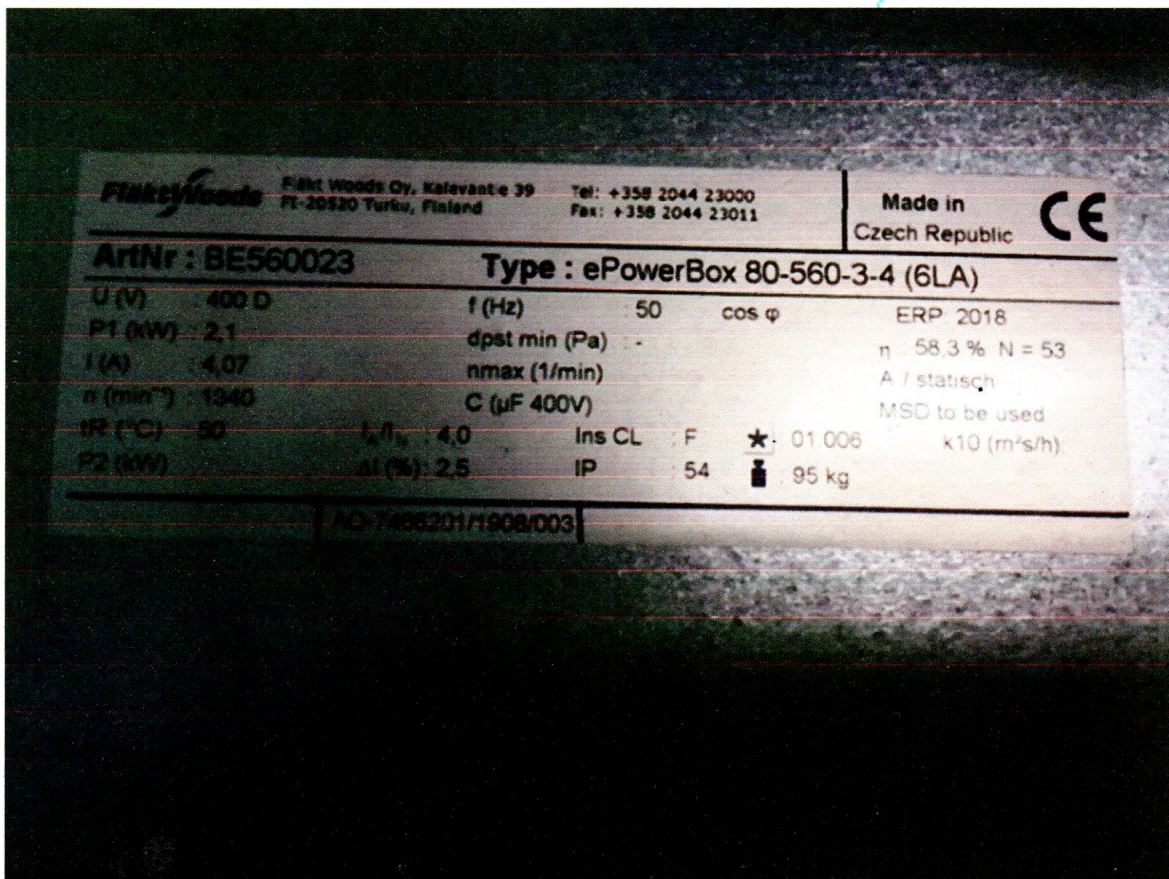
EXTRACT DISCHARGE ABOVE DOOR

Ref: 11/04/2011



KITCHEN EXTRACT FAN AND DUCT DISCHARGE UNIT

Ref: M004/JL391



KITCHEN EXTRACT FAN PLATE

Ref: AMW/S6391



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POWERBOX FANS - ESTOC

FEATURES

- Sizes from 355 to 710 mm diameter
- Air flow up to 5.2 m³/s
- Static pressures up to 1130 Pa
- Speed controllable external rotor motors
- Multiple outlet orientations
- All panels interchangeable to offer flexible outlet position

ELECTRICAL SUPPLY

220-240V/50Hz/1 ϕ
380-420V/50Hz/3 ϕ

TEMPERATURE RANGE

Maximum temperature from +40°C to +70°C (depending on the model)

SIZES

355, 400, 450, 500, 560, 630 and 710.

FEATURES AND CONSTRUCTION

The Estoc casing is made from galvanized sheet steel with PentaPost construction and acoustic insulation made from mineral wool with a thickness of 20 mm.

IMPELLER

The Estoc has a backward curved centrifugal impellers made of plastic with galvanised steel support plates for those up to 450 mm. Fans with a diameter of 500 mm and larger have high efficiency backward curved centrifugal impellers made of aluminium.

MOTOR

The impellers together with the external rotor motors are dynamically balanced to quality standard G2.5 DIN ISO 19410

SPEED CONTROLLERS

Speed is 100% infinitely variable using auto transformers or inverter control (please see pages 219-267).

NB; Performance reduction in straight through configuration. Please refer to performance curve



PRODUCT CODE

Estoc 50-355-3

- ESTOC - Product Name
- 50 = Box Size
le, 50 = 500mm; 67 = 670mm;
80 = 800mm; 102 = 1020mm
- 355 = Spigot Diameter size
- 1 = 1 ϕ or 3 = 3 ϕ

ACCESSORIES (Pages 143-150) - CONTROLLERS (Pages 219-267)

The range of accessories include dampers, flexible connectors, service doors, outlet covers, guards, side covering and insulating connections. A quick reference guide is shown below.



SFC



SWR



CIG



SOC



Mounting track/SMT



Controls Inverter



Controls Transformer



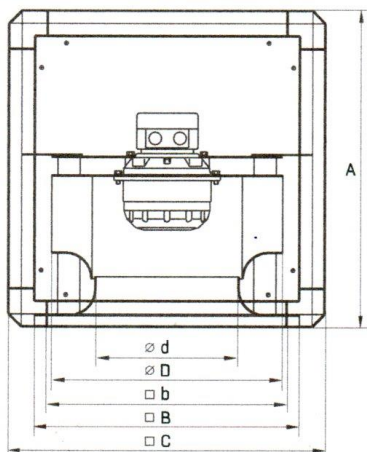
PRODUCT AND ELECTRICAL DETAILS

Product Code	Product Number	Speed rpm	Motor Frame	Electrical Supply	Electrical Current			Wiring Diagrams	**Speed Controllers	Maximum Operating Temp °C	Breakout *Sound Level dB(A) (3m)
					Motor (kW)	Full Load Current (A)	Starting Current (A)				
ESTOC 50-355-1	UB503514	1325	Integral	220-240 V-50 Hz-1 Ph	0.28	1.25	2.5	CD3028	TEB 1.5	55	33
ESTOC 67-400-1	UB674114	1360	Integral	220-240 V-50 Hz-1 Ph	0.53	2.4	4.9	CD3028	TEB 2.2	45	45
ESTOC 67-450-1	UB674514	1270	Integral	220-240 V-50 Hz-1 Ph	0.76	3.5	7.35	CD3028	TEB 3.5	45	41
ESTOC 67-500-1	UB675514	1310	Integral	220-240 V-50 Hz-1 Ph	1.57	7.3	16.78	CD3028	TEB 7.5	40	45
ESTOC 50-355-3	BI01216	1355	Integral	380-420V-50 Hz-3 Ph	0.3	0.66	2.18	CD3030	IDXFS4 2.2	50	34
ESTOC 67-400-3	BI01217	1335	Integral	380-420V-50 Hz-3 Ph	0.48	0.9	2.88	CD3030	IDXFS4 2.2	50	37
ESTOC 67-450-3	BI01218	1240	Integral	380-420V-50 Hz-3 Ph	0.67	1.33	3.46	CD3030	IDXFS4 2.2	50	37
ESTOC 67-500-3	BI01219	1380	Integral	380-420V-50 Hz-3 Ph	1.8	3.7	17.76	CD3030	IDXFS4 3.7	40	44
ESTOC 80-560-3	BI01220	1350	Integral	380-420V-50 Hz-3 Ph	2.5	4.8	20.16	CD3030	IDXFS4 5.3	40	47
ESTOC 80-630-3	BI01221	1380	Integral	380-420V-50 Hz-3 Ph	3.65	6.6	27.72	CD3030	IDXFS4 7.2	45	55
ESTOC 102-710-3	BI01222	880	Integral	380-420V-50 Hz-3 Ph	2.45	4.7	18.8	CD3030	IDXFS4 5.3	45	48

*Sound power levels are average dBA at 3 metres distance over sphere, under free field conditions and are presented for comparative purposes only. Values shown are those at the mid-point of the performance curve.

** For speed controllers, please see pages 219-267. For ErP efficiency ratings and grades please refer to our Fan Selector for more information.

DRAWING AND DIMENSIONS



Product Code	A	B	b	C	D	d	Weight max (kg)
ESTOC 50-355	500	450	420	500	365	224	33
ESTOC 67-400	670	620	590	670	404	253	49
ESTOC 67-450	670	620	590	670	454	296	58
ESTOC 67-500	670	620	590	670	504	321	66
ESTOC 80-560	800	720	690	800	570	361	95
ESTOC 80-630	800	720	690	800	634	407	105
ESTOC 102-710	1020	940	910	1020	718	438	157

All dimensions shown in mm

Products in **bold** are available from our UK Distributors on next day delivery, if ordered by 4pm. Please call to confirm availability on 01206 222 555.



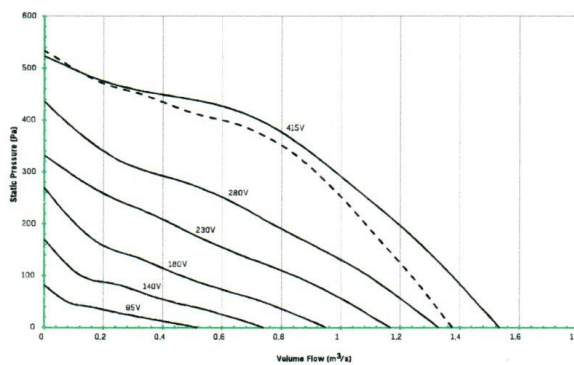
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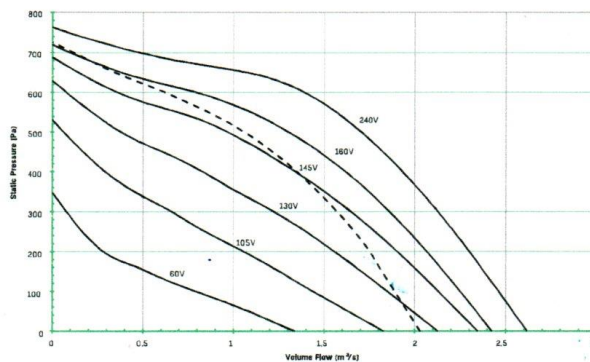
PERFORMANCE CHARTS

ESTOC 67-450-3 - B1101218

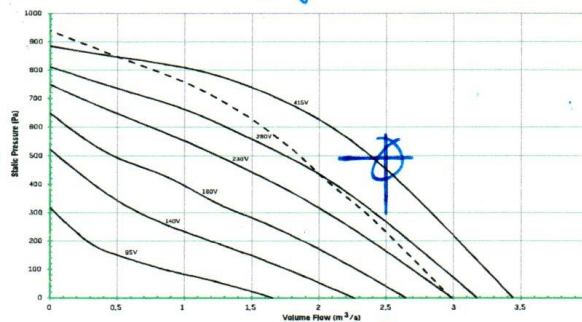


Please note : -The dotted line represents the unit configured for straight through (axial) airflow at 'full speed'.

ESTOC 67-500-3 - B1101219



ESTOC 80-560-3 - B1101220



Flakt Woods 9513 GB 2015.08

Specifications are subject to alteration without notice

Ref: MW/54391



Design Sheet ①

ROSS - 109 Osgood Road, Reading - Kitchen Exhaust Discharge Noise

L/A	63	125	250	500	1k	2k	4k	8k
Discharge Noise @ 10m 500BA	33	38	38	44	47	41	33	26

Background Level ~ 40dBA

Design Criterion ~ 10dBA Below L₉₀ ≡ 30dBA @ 10m

SILENCER REQUIRED

FITTING LOCATED OUTSIDE

ABOVE DOORWAY 20% FA

SPLITTER, MINIMUM LENGTH 600mm

SIZE 1500mm WIDE x 900mm HIGH

x 600mm LONG ΔP = 40Pa

0.2-5.0/s FLOW

Insertion Loss

6 12 22 31 40 40 40 30

27 26 16 13 7 1 0 0

30 18 8 0

30 8

* SILENCED DISCHARGE SPL_A @ 10m

30dBA

*

Ref: NW/51391