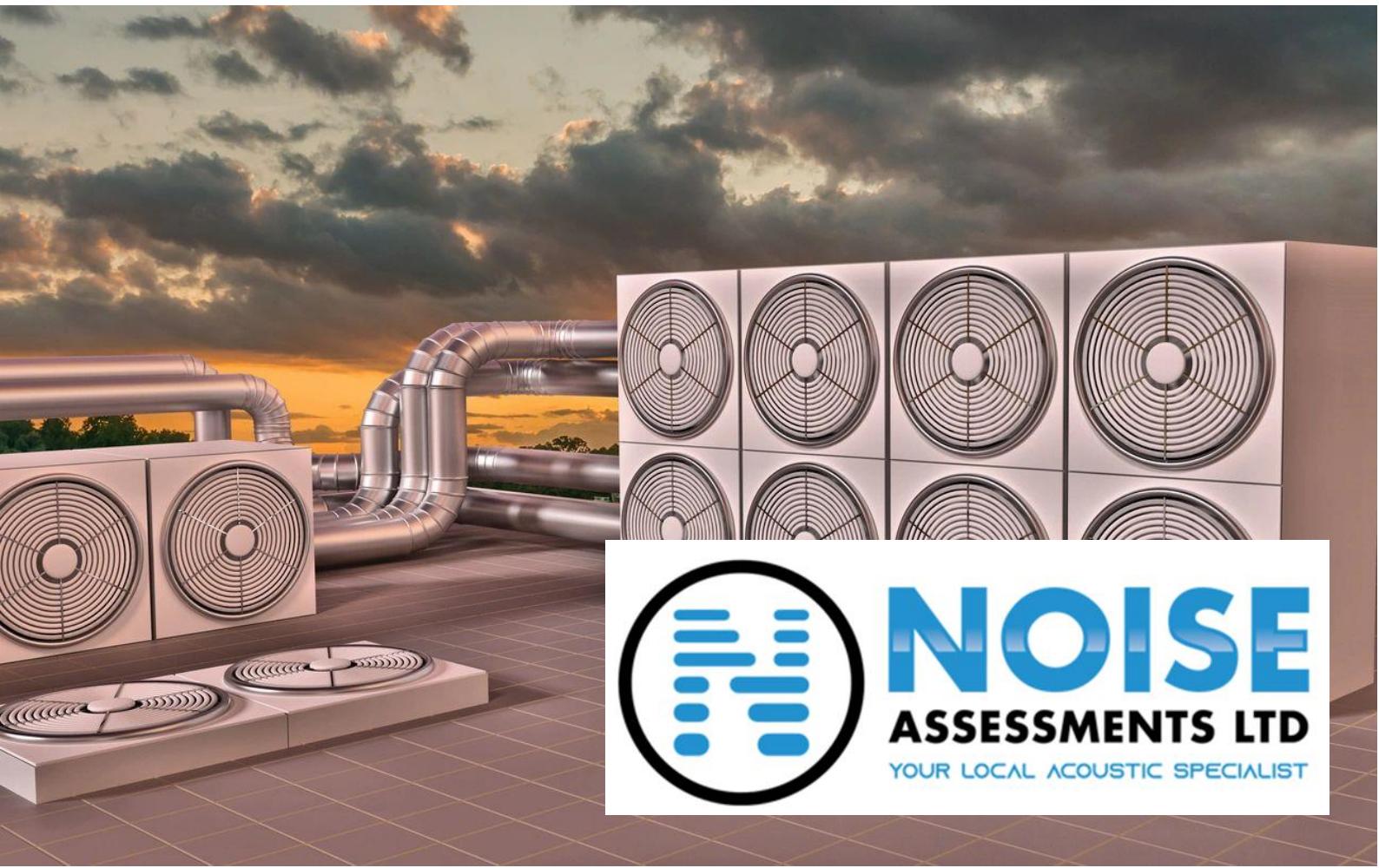


NOISE IMPACT ASSESSMENT

BS 4142:2014+A1:2019

Commercial Noise



NOISE
ASSESSMENTS LTD
YOUR LOCAL ACOUSTIC SPECIALIST

REPORT DETAILS

Client	Melt Diner
Report Title	Noise Assessment: Commercial Noise
Site Address	704 Wilmslow Road, Manchester, M20 2DW
Project No.	NALPRO240122.02
Consultant Contact	jonathan@noiseassessment.org

QUALITY ASSURANCE

Issue No.	Status	Issue Date	Comments	Author	Approved
1	FINAL	23/02/22	-		
2	FINAL	15/07/22	Updated based on council comments	J Mape BSc (Hons) PgDip IOA Cert. Environ. Noise TechIOA Noise Consultant	D Warren Director

This report has been prepared by Noise Assessments the trading name of Noise Assessments Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

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Noise Assessments Limited – Companies House Registered No. 12207511

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Assessment Summary

A two-storey commercial property, Melt Diner (herein referred to as the site) is applying for retrospective planning permission to operate their extraction system and is required to confirm their current external flue complies with external noise guidance. The client has completed a noise assessment at 704 Wilmslow Road, Manchester, M20 2DW.

The noise assessment is required to assess the likely impact from noise generated during the cooking process from the extraction system already installed. The ducting exits on the ground floor, terminating to the rear of the property at second floor level eaves.

The environmental health department of the local planning authority will raise concerns of the noise levels from the use of the extraction fan unit on neighbouring sensitive residential properties during the daytime.

The nearest noise sensitive receptors (NSRs) have been identified as a residential apartment directly adjacent and to the left of the site.

To understand the worst-case flue noise level against the background noise, Sunday was selected as being the quietest day of the week. The lowest daytime background sound level was 48 dB LA90,15min.

The rating level from the flue has been compared to the background sound level to determine the resultant noise impact in accordance with BS4142.

NSR	Rating Level, dB L _{Ar}	Difference, dBA	Impact
1	61	+13	Adverse
2	47	1	Low Impact

Adverse Impact from the external noise has been identified at the NSRs therefore a mitigation scheme is required.

To achieve a 18dB reduction from the flue noise, it is recommended that there is a scheme to install either combination of a single or double lined external ducked riser up to the roof eaves level, such installation should look to achieve an insertion loss of ≥ 10 dBA, and a silencer should also be installed with a reduction in noise level of ≥ 10 dBA, which would result in the cumulative reduction of 20dB and the sound rating level being approximately 5 dBA below the background noise level and indicative of a Low Impact at the NSR location.

1. Proposal

- 1.1 A two-storey commercial property, Melt Diner (herein referred to as the site) is applying for retrospective planning permission to operate their extraction system is required to confirm their current external flue complies with external noise guidance. The client has completed a noise assessment at 704 Wilmslow Road, Manchester, M20 2DW.
- 1.2 The noise assessment is required to assess the likely impact from noise generated during the cooking process from the extraction system already installed. The ducting exits on the ground floor, terminating to the rear of the property at second floor level eaves.
- 1.3 The environmental health department of the local planning authority will raise concerns of the noise levels from the use of the extraction fan unit flue on neighbouring sensitive residential properties during the daytime.
- 1.4 The hours of operation are:
 - Monday to Sunday, 12:00 – 22:00

Author

- 1.5 Jonathan has experience in environmental, noise and vibration monitoring, acoustic consultancy and impact assessment gained over a period of 16 years in the industry, across the UK, Australia, Brunei, Turkey and the Middle East. He has a Degree in Environmental Science, Postgraduate Diploma in Environmental Monitoring and is a member of the Institute of Acoustics (TechIOA). He has also completed the IOA Certificate in Environmental Noise, from the University of Liverpool.
- 1.6 Jonathan specialises in the measurement and assessment of noise and vibration for a wide range of planning applications, including those requiring EIA, across the industrial, commercial, residential, and mineral extraction sectors. Jonathan is also involved in undertaking various aspects of indoor occupational monitoring and reporting for projects relating to worker health.

2. Existing Context

- 2.1 The site (two floors) is set within a commercial row of 2-storey attached buildings located along a busy main street. The site is surrounded by a mixture of commercial shops/offices, restaurants, and residential apartments to the rear and left of the site.
- 2.2 The environmental health department of the local planning authority raised concerns of noise emissions from the use of the fan extraction unit venting on neighbouring noise sensitive residential properties at the rear of the site during the daytime.

3. Criteria

- 3.1 The following targets have been selected in accordance with 'BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound.' This will be achieved when the Rating Level is 5dB below the representative background sound level.

4. Noise Policy and Guidance

Noise Policy Statement for England (NPSE)

- 4.1 The NPSE sets out the Government's policy on noise and includes the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.
- 4.2 This long-term vision is supported by the following aims:
- 4.3 Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:
- avoid significant adverse impacts on health and quality of life;
 - mitigate and minimise adverse impacts on health and quality of life; and
 - where possible, contribute to the improvement of health and quality of life.
- 4.4 There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:
- NOEL (No Observed Effect Level) – this is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise;
 - LOAEL (Lowest Observed Adverse Effect Level) – this is the level above which adverse effects on health and quality of life can be detected.
- 4.5 Extending these concepts further, NPSE leads to the concept of a significant observed adverse effect level:
- SOAEL (Significant Observed Adverse Effect Level) – this is the level above which significant adverse effects on health and quality of life occur.
- 4.6 NPSE acknowledges that it is not possible to have a single objective noise-based measure that defines NOEL, LOAEL and SOAEL that is applicable to all sources of noise in all situations. It is therefore suggested that more specific advice from other applicable noise standards and guidance could be employed to determine suitable noise level criteria within the overall principles of the NPSE.

National Planning Policy Framework (NPPF)

- 4.7 The revised NPPF was updated on 19 February 2019 and sets out the government's planning policies for England and how these are expected to be applied. This document replaces the first NPPF published in March 2012 and includes minor clarifications to the revised version published in July 2018.
- 4.8 Where issues of noise impact are concerned the NPPF provides brief guidance in Chapter 15 '*Conserving and enhancing the natural environment*' as follows:

Paragraph 170:

Planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.

Paragraph 180:

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

Paragraph 182:

Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

Planning Practice Guidance (PPG)

- 4.9 PPG is written in support of the NPPF and provides an increased level of specific planning guidance.
- 4.10 It suggests that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It is also suggested that noise should not be considered in isolation and separately from issues such as the economic, social and other environmental dimensions of proposed development.
- 4.11 Local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so consider:
- whether or not a significant adverse effect is occurring or likely to occur;
 - whether or not an adverse effect is occurring or likely to occur; and
 - whether or not a good standard of amenity can be achieved.

Technical Guidance

BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound'

BS4142 Is a recognised standard for assessing the noise impact of fixed plant machinery via relation of noise emissions to current background noise levels.

5. Nearest Sensitive Receptor Locations

- 5.1 The nearest noise sensitive receptors (NSRs) have been identified as a residential apartment adjacent to the site.

6. Subjective Impressions

- 6.1 The noise climate at the rear of the site is dominated by bird song, noise from a nearby fast-food outlets and car park. Secondary noise sources have been identified as road traffic throughout the day and evening including cars and HGVs / LGVs where tyre / road interaction noise was most prominent from Wilmslow Road, Barlow Moor Road and Crossway.

7. Measurement Locations

- 7.1 Unattended background noise measurements were undertaken outside the rear of the nearest sensitive receptor. The data collected during this period has been used to characterise the existing acoustic environment around the site.
- 7.2 Measurement and NSR locations are shown in figure 1 below:

Figure 1: Site & Measurement Location



- Background measurement location M1
- ▬ Site location
- ★ NSR1 ★ NSR2

8. Measurement Procedure

- 8.1 Noise levels were measured on Sunday 6th February 2022. Full measurement times and durations can be found in **Appendix B**.

9. Measurement Equipment

- 9.1 Measurements were undertaken using a calibrated, Pulsar N45 class 1 sound level meter. Full equipment details can be found in **Appendix C**.
- 9.2 During all measurements the microphone was protected with an outdoor windshield.
- 9.3 The calibration level of the meter was checked before and after the survey with a Pulsar N45 sound calibrator with no variation in the levels observed.
- 9.4 The sound level meters were set to measure various noise parameters including LAeq and LAmx values using a 'fast' time weighting.
- 9.5 Full calibration details can be found in **Appendix D**.

10. Weather Conditions

10.1 Weather conditions were deemed acceptable for background noise measurement. Full meteorological conditions are detailed in **Appendix E**.

11. Noise Source Levels

11.1 The noise level of the extraction unit has been measured in-situ.

11.2 The outlet noise level is tabulated below:

Table 2: Measured Noise Level

Equipment	LAeq (dB)	r, m
Extractor fan outlet	72	2.0

BS4142:2014 Assessment

12. Specific Sound Levels

12.1 The specific sound level is denoted LAs and is the A-weighted, equivalent noise level at the NSR locations over the reference time period.

12.2 The NSRs are located adjacent to and directly above the site. See Figure 1 for the location of sensitive receptors. Full calculations are shown in **Appendix F**:

12.3 The Specific Sound Level of the air vented from the internal extractor fan unit at the nearest NSR locations at the rear of the site are summarised below:

Table 3: Specific Sound Levels

NSR	Specific Sound Level, dB L _{As}
1 (9m)	58
2 (16m)	44

13. Background Sound Level

13.1 Environmental noise levels were measured on site 6th February 2022.

13.2 To understand the worst-case flue noise level against the background noise, Sunday was selected as being the quietest day of the week. The lowest daytime background sound level was 48 dB LA90,15min.

14. Rating Level

14.1 The specific sound level may be corrected for certain characteristics that make a sound more noticeable at the NSR locations. Corrections for tonality, impulsivity and intermittency may be applied.

14.2 The associated rating penalties and resultant sound rating levels, dB L_{Ar}, are tabulated below:

Table 4: Rating Penalties, dB, and Sound Rating Levels

NSR	dB L _{As}	Tonality	Impulsivity	Intermittency	dB L _{Ar}
1	58	3	0	0	61
2	44	3	0	0	47

15. Rating Level Vs Background

15.1 The rating level is to be compared to the background sound level to determine the resultant noise impact in accordance with BS4142:

A Sound Rating Level at or below the background noise level is indicative of *Low Impact*;

A Sound Rating Level that exceeds the background noise level by around + 5dB is likely an indication of *Adverse Impact*, depending on the context;

A Sound Rating Level that exceeds the background noise level by around + 10dB is likely an indication of *Significant Adverse Impact*, depending on the context.

15.2 The noise impact during the daytime is tabulated below:

Table 5: Noise Impact

NSR	Rating Level, dB L _{Ar}	Difference, dBA	Impact
1	61	+13	Adverse
2	47	1	Low Impact

15.3 Adverse Impact from the external noise has been identified at the NSRs therefore mitigation is required.

15.4 To achieve a 18dB reduction from the flue noise, it is recommended to install a combination of a single or double lined external ducted riser up to the roof eaves level, such installation should look to achieve an insertion loss of ≥ 10 dBA, and a silencer should also be installed with a reduction in noise level of ≥ 10 dBA, which would result in the cumulative reduction of 20dB and the sound rating level being approximately 5 dBA below the background noise level and be indicative of a Low Impact at the NSR location.

16. Summary

- 16.1 A two-storey commercial property, Melt Diner (herein referred to as the site) is applying for retrospective planning permission to operate their extraction system and is required to confirm their current external flue complies with external noise guidance. The client has completed a noise assessment at 704 Wilmslow Road, Manchester, M20 2DW.
- 16.2 The noise assessment is required to assess the likely impact from noise generated during the cooking process from the extraction system already installed. The ducting exits on the ground floor, terminating to the rear of the property at second floor level eaves.
- 16.3 The environmental health department of the local planning authority will raise concerns of the noise levels from the use of the extraction fan unit on neighbouring sensitive residential properties during the daytime.
- 16.4 The nearest noise sensitive receptors (NSRs) have been identified as a residential apartment directly adjacent and to the left of the site.
- 16.5 To understand the worst-case flue noise level against the background noise, Sunday was selected as being the quietest day of the week. The lowest daytime background sound level was 48 dB LA90,15min.
- 16.6 The rating level from the flue has been compared to the background sound level to determine the resultant noise impact in accordance with BS4142.

NSR	Rating Level, dB L _{Ar}	Difference, dBA	Impact
1	61	+13	Adverse
2	47	1	Low Impact

- 16.7 Adverse Impact from the external noise has been identified at the NSRs therefore a mitigation scheme is required.
- 16.8 To achieve a 18dB reduction from the flue noise, it is recommended to install a scheme with either combination of a single or double lined external ducked riser up to the roof eaves level, such installation should look to achieve an insertion loss of ≥ 10 dBA, and a silencer should also be installed with a reduction in noise level of ≥ 10 dBA, which would result in the cumulative reduction of 20dB and the sound rating level being approximately 5 dBA below the background noise level and indicative of a Low Impact at the NSR location.

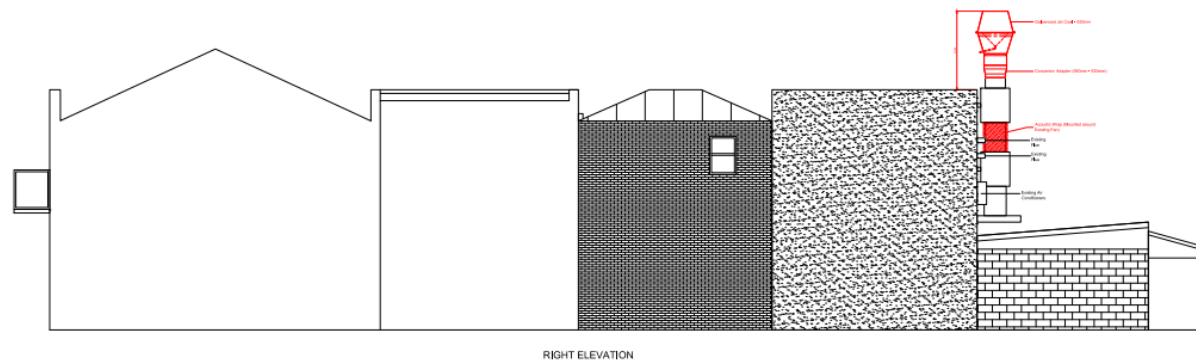
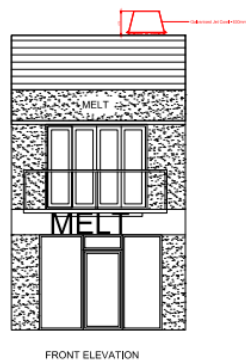
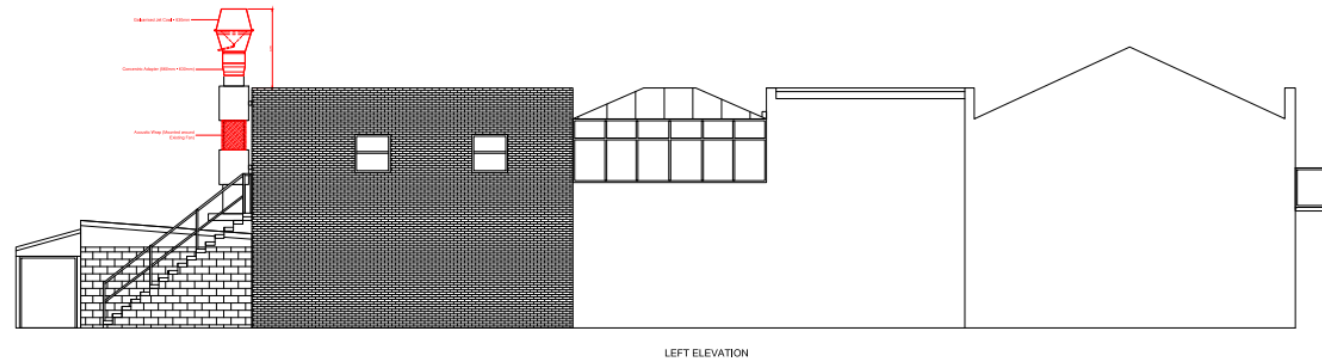
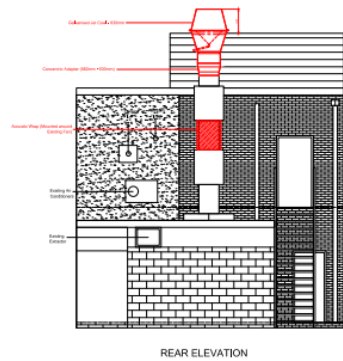
17. Uncertainties

- 17.1 Uncertainty can arise when a calculation method, such as distance correction, is used to determine an overall noise level at an NSR location.

17.2 The monitoring equipment is subject to a 1dB error margin, however calibration before and after measurements allows the drift within the margin to be monitored and thus demonstrates that minimal drift occurred throughout the measurements.

Appendices

APPENDIX A – Flue diagram



APPENDIX B - Measurement Details				
Measurement	Start Date	Start Time	End Date	End Time
M1	05/02/22	16:00	07/02/22	18:30

APPENDIX C - Equipment Details				
Equipment	Make	Model	Class	Serial Number
Sound Meter	Pulsar	N45	1	1365
Calibrator	Pulsar	PM1	1	011121C

APPENDIX D - Calibration Details					
Measurement	Calibrator Ref Level (dB)	Level Before (dB)	Deviation Before (dB)	Level After (dB)	Deviation After (dB)
M1	94.0	94.0	0	94.0	0

APPENDIX E - Meteorology Details						
Date	Temp C	Wind Speed m/s*	Wind Direction	Humidity %	Precipitation mm	Cloud Cover (Oktas)
05-07/02/22	8	2.9	ssw	82	0.0	3/8

*Windspeeds measured on site using a Skywatch Xplorer 2 Anemo-Thermometer.

APPENDIX F - Noise Attenuation

Utilising Measured Levels

Equipment	Measured Data, dB L _{Aeq,T}	r ₁ , m	r ₂ , m	Barrier	Level at NSR ₂
Flue extractor	72	10.0	2.0	-	58 (NSR1)
		16.0	2.0	-	44 (NSR2)

Barrier attenuation assumed as 5 dB and 10 dB for the partial and complete blockage of the line of sight respectively between source and receiver as per 'BS5228-1:2009 – Noise and vibration control on construction and open sites' pg. 130.

Point source distance attenuation

$$L_y = 20 \times \log \frac{r_1}{r_2}$$

Where L_y is the distance attenuation factor and r_{1,2} are the source -> measurement distance and source -> NSR distance in metres respectively

Date	Time	LAF90 (dB)
06/02/2022	12:00	54.8
06/02/2022	12:15	52.9
06/02/2022	12:30	53.1
06/02/2022	12:45	55.4
06/02/2022	13:00	55.7
06/02/2022	13:15	54.1
06/02/2022	13:30	53.3
06/02/2022	13:45	52.5
06/02/2022	14:00	54
06/02/2022	14:15	52.5
06/02/2022	14:30	49.7
06/02/2022	14:45	48.3
06/02/2022	15:00	51.2
06/02/2022	15:15	51.2
06/02/2022	15:30	52.2
06/02/2022	15:45	52.3
06/02/2022	16:00	53.9
06/02/2022	16:15	52.6
06/02/2022	16:30	53.3
06/02/2022	16:45	53
06/02/2022	17:00	55.2
06/02/2022	17:15	54.8
06/02/2022	17:30	54.7
06/02/2022	17:45	53.4
06/02/2022	18:00	54.8
06/02/2022	18:15	53.2
06/02/2022	18:30	52.8
06/02/2022	18:45	54.5
06/02/2022	19:00	50.7
06/02/2022	19:15	53.9
06/02/2022	19:30	53.6
06/02/2022	19:45	49.1
06/02/2022	20:00	50.8
06/02/2022	20:15	48.9
06/02/2022	20:30	48.7
06/02/2022	20:45	48.4
06/02/2022	21:00	48.7
06/02/2022	21:15	49.2
06/02/2022	21:30	49.2
06/02/2022	21:45	48.6
06/02/2022	22:00	49
06/02/2022	20:45	49.1
06/02/2022	21:00	49.3
06/02/2022	21:15	49
06/02/2022	21:30	48.9
06/02/2022	21:45	48.9
06/02/2022	22:00	49.5

APPENDIX G – Calibration Certificates

CERTIFICATE OF CALIBRATION		
ISSUED BY	Pulsar Instruments Plc	
DATE OF ISSUE	05 July 2021	CERTIFICATE NUMBER 159501
 Pulsar Instruments Plc Acoustic House Bridlington Road Hunmanby North Yorkshire YO14 0PH United Kingdom		Page 1 of 2 Approved signatory R.Thomas Electronically signed: 
Sound Level Meter : IEC 61672-3:2013		
Instrument information		
Manufacturer:	Pulsar Instruments Plc	Notes:
Model:	Model 45	
Serial number:	PN1432	
Class:	1	
Firmware version:	2.5.0.296	
Test summary		
Date of calibration: 05 July 2021		
The calibration was performed respecting the requirements of ISO/IEC 17025:2017. Periodic tests were performed in accordance with procedures from IEC 61672-3:2013.		
The sound level meter submitted for testing successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.		
As evidence was publicly available, from an independent testing organisation responsible for approving the results of pattern-evaluation tests performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the specifications in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 specifications in IEC 61672-1:2013.		
Notes		
This certificate 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. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.		

CERTIFICATE OF CALIBRATION

ISSUED BY **Pulsar Instruments Plc**
DATE OF ISSUE **05/07/21** CERTIFICATE NUMBER **159502**



Pulsar Instruments Plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Page 1 of 2

Test engineer:
D.Swalwell
Electronically signed:

A handwritten signature in black ink, appearing to be 'D. Swalwell', written over a horizontal line.

Microphone

Microphone capsule

Manufacturer: Pulsar Instruments

Model: PM1

Serial Number: 011121C

Calibration procedure

Date of calibration: 28 June 2021

Open circuit: 50.4 mV/Pa

Sensitivity at 1 kHz: -25.9 dB rel 1 V/Pa

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using an electrostatic actuator in accordance with BS EN 61094-6:2005 with the free-field response derived via standard correction data traceable to a National Measurement Institute.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

Environmental conditions

Pressure: 101.00 kPa

Temperature: 21.0 °C

Humidity: 55.0 %

CERTIFICATE OF CALIBRATION

ISSUED BY **Pulsar Instruments Plc**

DATE OF ISSUE **05 July 2021**

CERTIFICATE NUMBER **159503**



Pulsar Instruments Plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Page 1 of 2

Approved signatory

R. Thomas

Electronically signed:

Sound Calibrator : IEC 60942:2003

Instrument information

Manufacturer: Pulsar Instruments

Notes:

Model: MODEL 105

Serial number: 77511

Class: 1

Test summary

Date of calibration: 05 July 2021

The sound calibrator detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC60942_2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer's data.

The manufacturer's product information indicates that this model of sound calibrator has been formally pattern approved to IEC60942_2003 Annex A to Class 1. This has been confirmed with the Physikalisch-Technische Bundesanstalt (PTB).

Notes:

This certificate 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. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%.

APPENDIX H – Terminology and Definitions

Noise

Sound only becomes noise (often defined as ‘unwanted sound’ or sound that is considered undesirable or disruptive) when it causes or contributes to some harmful or otherwise unwanted effect, like annoyance or sleep disturbance.

Acoustic Environment

Sound from all sound sources as modified by the environment.

Equivalent continuous A-weighted sound pressure level $L_{Aeq,T}$

Value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval T , has the same mean square sound pressure as a sound under consideration whose level varies with time.

A-weighting

The human ear is most sensitive to frequencies in the range 1 kHz to 5 kHz. On each side of this range the sensitivity falls off. A-weighting is used in sound level meters to replicate this sensitivity and respond in the same way as the human ear.

Octave Band

Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.

Maximum Sound Pressure Level $L_{Amax,T}$

Highest value of the A-weighted sound pressure level with a specified time weighting that occurs during a given event or measuring period.

The $L_{A10,T}$ Sound Level

The A-weighted sound pressure that is exceeded for 10% of a given time interval, T . It is often used to evaluate road traffic noise.

The $L_{A90,T}$ Sound Level

The A-weighted sound pressure that is exceeded for 90% of a given time interval, T , measured using time weighting F . It is often referred to as the background noise level and which might in part be an indication of relative quietness at a given location

Free-field Level

The sound pressure level away from reflecting surfaces.

NOTE Measurements made 1.2 m to 1.5 m above the ground and at least 3.5 m away from other reflecting surfaces are usually regarded as free-field. To minimize the effect of reflections the measuring position has to be at least 3.5 m to the side of the reflecting surface (i.e. not 3.5 m from the reflecting surface in the direction of the source).

Façade Level

The sound pressure level 1 m in front of the façade.

NOTE Facade level measurements of LpA are typically 1 dB to 2 dB higher than corresponding free-field measurements because of the reflection from the facade.

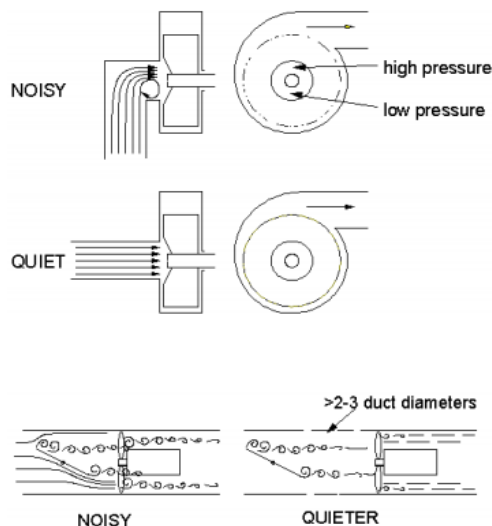
Indoor Ambient Noise

Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants.

APPENDIX I – Noise Control Technique Examples

FAN INSTALLATIONS

Typical applications Axial flow or centrifugal fans. Technique Maximum fan efficiency coincides precisely with minimum noise. Any fan installation feature that tends to reduce fan efficiency is therefore likely to increase noise. Two of the most common examples are bends close to the fan (intake side in particular) and dampers (close to the fan intake or exhaust).



Ideally, for maximum fan efficiency and minimum noise, make sure there is at least 2 - 3 duct diameters of straight duct between any feature that may disturb the flow and the fan itself. Noise reductions of 3 - 12 dB are often possible.

DUCTWORK

Typical applications Extraction, ventilation, cooling, openings in walls and enclosures. Technique Instead of fitting silencers, it is often possible to achieve a 10 - 20 dB reduction in airborne noise from a duct or opening by lining the last bend in the ductwork with acoustic absorbent (foam or rockwool / fibreglass). Alternatively, construct a simple absorbent lined right-angled bend to fit on the opening. Ideally, either side of the bend should be lined along a length equivalent to twice the duct diameter. Where flow velocities are high (> 3m/s), consider using cloth faced absorbent.



NORTHERN FAN SUPPLIES LTD

Unit E1 Longford Trading Estate, Thomas Street, Stretford, Manchester, M32 0JT
Tel: 0161-864-1777 E-mail: nfs@nfan.co.uk Fax: 0161-864-2777

Acoustic Lagging Information

1. Product	
Product Name:	AG-Lag H N-Type
Description:	Foil faced polymeric barrier bonded to Black, Class '0' Acoustic Foam.

2. Product Coding	
AG-Lag H5/N12:	5Kg barrier with 12mm foam
AG-Lag H5/N25:	5Kg barrier with 25mm foam
AG-Lag H5/N50:	5Kg barrier with 50mm foam
AG-Lag H10/N12:	10Kg barrier with 12mm foam
AG-Lag H10/N25:	10Kg barrier with 25mm foam
AG-Lag H10/N50:	10Kg barrier with 50mm foam

3. Sheet Size	
Standard:	2000 x 1200mm

4. Fire Rating	
Regulations:	Building Regulations 1976 Section E15: Class '0' BS476 Part 6 Index 1 10.3 Sub-Index 1 5.3 BS476 Part 7 Class '1'

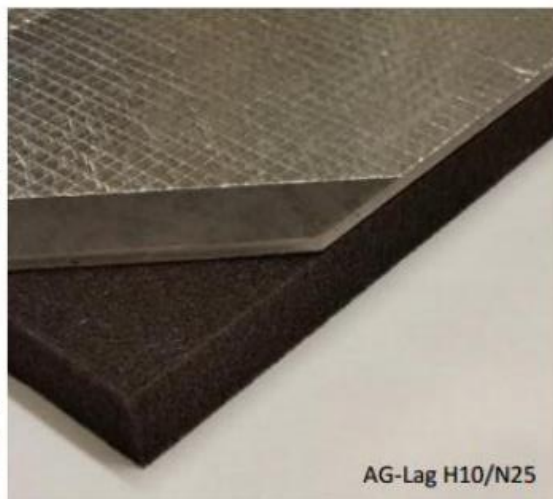
5. Applications	
AG-Lag H is ideal for lagging all types of ducting and services in food, electronic or pharmaceutical environments.	

6. Full Description	
Description:	A laminated sheet giving high sound transmission loss and sound absorption properties. AG-Lag H is a lamination of either a 5Kg/m ² or 10Kg/m ² polymeric barrier with a reinforced Class '0' foil face, bonded to a black Class '0' acoustic foam of either 12mm, 25mm or 50mm thick.

7. Storage and Handling	
Storage:	No Special Precautions are required.
Handling:	No special precautions are required. Dust masks and goggles may be advisable if dust is being emitted.

8. Installation	
Notes:	Can be banded around ducts or taped using AG-Lag foil tape.

9. Acoustic Performance: Sound Transmission Loss							
	125	250	500	1000	2000	4000	
dB	15	18	23	28	37	41	AG-Lag H5/N12
dB	19	24	27	28	41	51	AG-Lag H10/N12



AG-Lag H10/N25

CP03 - CA - 0315 Silencer

Available in two standard lengths C Series silencers have excellent attenuation properties, achieved with sound absorbing infill retained in the attenuator casing by a perforated liner. The central pod (code P) is an option to increase the insertion loss, however it will add resistance.

- Fits directly onto 315mm diameter fans
- Standard lengths 315mm (1D) & 630mm (2D)
- Use up to 70°C (standard construction)
- Systems up to 1000 Pascals
- Special lengths on request



Insertion Loss (dB) - Centre Band Frequency

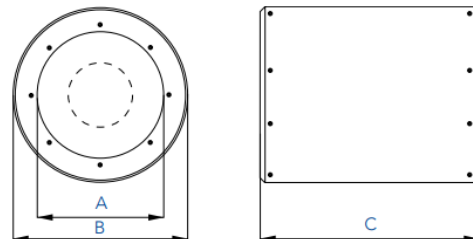
Product Code	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
CP03 - CA - 0315 - 1D	1	2	4	9	11	10	9	7
CP03 - CA - 0315 - 2D	2	2	4	9	11	10	9	7
CP03 - CAP - 0315 - 1D	2	7	8	14	22	25	22	19
CP03 - CAP - 0315 - 2D	3	13	14	23	30	30	25	20

Insertion loss data is derived from continual testing to BS4718 and other standards in independent UKAS certified laboratories, which includes where appropriate, re-generated or self noise testing in both forward and reverse flow conditions. If you request system analysis from our technicians all predictions will be assessed using the relevant certified insertion loss data together with relevant dynamic corrections.

Dimensional Data

Product Code	A (mm)	B (mm)	C (mm)	Weight (kg)
CP03 - CA - 0315 - 1D	315	418	315	9
CP03 - CA - 0315 - 2D	315	418	630	11
CP03 - CAP - 0315 - 1D	315	418	315	15
CP03 - CAP - 0315 - 2D	315	418	630	18

8 off M8 on 355 PCD



High Velocity Jet cowl (HNU)



Description

Ventilation hood for air exit above roof, suitable for both industrial and comfort ventilation. The air is ejected in an upwards-directed jet. This avoids contaminating the air in the vicinity of the hood, and soiling of the area around the hood. The ejection is so effective that you can install a fresh air inlet in the immediate vicinity of the hood, without any special precautions.

NOTE! When fans are not running there is always a risk for drifting snow and damp to penetrate into ducts. At some occasions also condensation can cause trouble.

The hood is made of galvanised sheet steel, and can also be supplied in other materials such as stainless steel sheet 1.4301, stainless acid-resistant steel sheet 1.4404, aluzinc AZ185 and painted in various colours, to special order. It has a net over the opening and an internal rain funnel to collect rainwater and snow, which is drained out of the hood through a hose. The hose can withstand temperatures of between -45 and +65 °C.

The hood has a flange connection, which includes a mating flange.

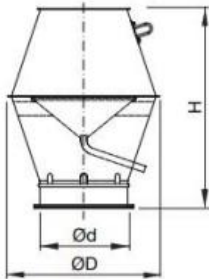
To avoid damage to the net in the opening the hood is supplied with transport protection. This must be removed before the hood is taken into service.

The hood is delivered with lifting and anchoring loops. A single wire-loop shall not be exposed for forces exceeding 1500 N.

Ordering example

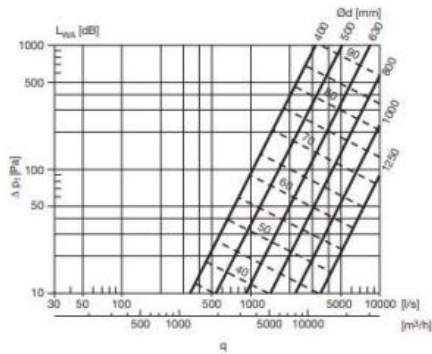
Product **HF** **630**
Dimension Ød

Dimensions



Ød nom	ØD (mm)	H (mm)	m (kg)	Roof through con- nection TGR	
				50 [mm]	100 [mm]
400	685	905	11,1	5	6
500	855	1055	20,0	6	7
630	1075	1295	38,0	8	9
800	1360	1640	63,0	9	10
1000	1600	2110	89,1	11	12
1250	2020	2615	118	14	15

Technical data





Call on 033 3303 1422 or info@noiseassessments.org

HERE TO HELP

We undertake various noise assessments and noise survey for a wide range of clients to meet their noise requirements and obligations, including for Planning Applications, new developments, building extensions, change of use, small businesses, restaurants, shops and much more.

QUALIFIED AND EXPERIENCED

Over 15 years UK and international acoustic engineering experience of undertaking Noise Monitoring, acoustic solutions, noise survey and Reporting.

Members of the Institute of Acoustics. Undertaken projects in Manchester, North West and across the UK.

GET THE PROJECT DONE

We offer competitive, cost effective acoustic solutions, delivering a noise survey report which complies with Local Planning Authority requirements and sound insulation or health and safety obligations.

We can also undertake Noise Modelling if required.