Acoustic Enclosures

Product and Technical Data

WAKEFIELDACOUSTICS
NOISE CONTROL TECHNOLOGY

INNOVATION AND EXPERTISE IN INDUSTRIAL, COMMERCIAL AND ENVIRONMENTAL NOISE CONTROL SOLUTIONS

Wakefield Acoustics specialises in the design and fabrication of an extensive range of noise control technologies. Since our formation in 1980, the company has developed a wide range of solutions for both industrial and commercial applications and has gone from strength to strength supplying to many blue chip clients throughout the world as the requirement for expertise in noise control technologies continues to increase worldwide.

Acoustic enclosures are utilised to provide sound reduction in a variety of applications. Full acoustic enclosures or drop-over canopies can offer a high level of noise control to assist with noise at work or environmental noise issues.

Wakefield Acoustics' products are fabricated in our modern 40,000 sq. ft. facility in West Yorkshire, and we are accredited to ISO9001:2015, ISO14001:2015 and BS OHSAS18001:2007 hence ensuring our products are fabricated to the highest levels of quality, with health and safety and environmental compliance being at the heart of our operations.

Wakefield Acoustics has extensive experience and capability to undertake a wide variety of projects from large complex free standing enclosures with associated support steelwork, attenuation and electrical systems to close-fitting acoustic canopies to house smaller plant items.

Full acoustic enclosures offer the highest level of noise reduction and require to be fully sealed in order to work most effectively. Access doors / panels and apertures through panels are required in most applications, which can potentially create a transmission path for unwanted noise unless treated and sealed appropriately.

Full assembly and fit out of enclosures can be undertaken within our factory, or alternatively, Wakefield Acoustics offer a full site installation service.

TECHNICAL SPECIFICATION

Wakefield Acoustics' acoustic enclosures are available with panel thicknesses of 50mm, 75mm and 100mm as standard, though thicker panels can be designed for specific applications where a higher level of noise reduction, or increased absorption is a necessity.

Acoustic enclosures can be manufactured from a variety of materials including pre-galvanised sheet steel, pre-coated / coloured steel, stainless steel or aluminium. The outer panel casing is formed from a folded steel tray, which fully encapsulates a layer of absorptive acoustic media (mineral wool) and sound deadening layers. The acoustic media is faced with a glass fibre scrim as standard and protected by perforated steel sheet.

Acoustic insulation materials are odourless, rot proof, non-hygroscopic, do not sustain vermin and will not encourage the growth of fungi, mould or bacteria.

Our range of acoustic enclosures is designed and manufactured to meet both noise reduction specifications and client specific access and maintenance requirements. In order to create a full enclosure acoustic panels are mounted into a support system designed specifically to suit access or maintenance requirements. Small close-fitting enclosures would be normally be formed using a bolted panel-to-panel construction. Large acoustic canopies and screens would comprise of a skeleton frame fabricated from steel hollow-sections or beams, with panels retained by bolted cleat plates or a series of folded C-channels and H-sections depending on future access requirements.

In addition acoustic enclosures can be provided with lighting, electrical systems and fire and gas detection systems in line NORSOK specifications.

ACOUSTIC PERFORMANCE

To ensure a quality installation, and to guarantee a noise reduction solution, our range of acoustic panels have been independently tested at Salford University. Tests have been undertaken to BS EN ISO 10140-2:2010 'International Standard Method for Measurement of Airborne Sound Insulation of Building Elements.

In addition, full enclosure systems with panels fitted into an integrated support steel framework system have been tested to BS EN ISO 11546-1:2009 'International Standard Method for the Determination of Sound Power Insulation Performances of Enclosures' as required by BS EN ISO 15667:2000


Acoustic enclosure for air conditioning plant


Acoustic enclosure at manufacturing facility


Acoustic enclosure for power station transformer

OPTIONS

We can offer a variety of options for incorporation into full enclosure, which can include:

Access and maintenance

- Hinged personnel access doors with slam latch fastening and internal push release. Additionally door closers and retainers, emergency push bare or alternative locks can be incorporated where required
- Access panels – full hinged access panels can be incorporated where required. Smaller access panels can be fitted with toggle catches and handles to suit maintenance access
- Windows – Single and double glazing options, along with secondary glazing (depending on required acoustic performance)
- Service apertures – pipework and cable apertures provided with closure plates, painted to match the enclosure
- Lifting beams – enclosure support steelwork designed to provide a complete lifting solution

Finish

- Self finish, pre-coated steel, powder coat, and wet paint systems available, up to C5-M conditions as per ISO 12944

Ventilation

- Natural and forced ventilation systems for general air movement and plant cooling. All ventilation systems fitted with acoustic louvres or attenuators as required to reduce noise emissions. For large enclosures requiring a high level of ventilation, a ductwork distribution system may be incorporated, including filtration, weather louvres and motorised dampers

Electrics

- Lighting and small power can be factory fitted to reduce installation timescales
- Fire and Gas detection – Detection and suppression systems can be incorporated into the enclosure design and factory fitted

Panel Type WA-ACP-A50/75/100

Acoustic Enclosure Panel

Specification: Modular acoustic enclosure comprises of steel acoustic panels filled with mineral fibre acoustic insulation, faced with glass fibre and retained by perforated sheet steel for mechanical protection. Acoustic panels are mounted into a steel support frame.

Enclosure Panel Acoustic performance
Sound Reduction Index to ISO 10140-2:2010

Acoustic Panel		Sound Reduction (dB) at Octave Band Centre Frequency (Hz)								Rw (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
50mm	WA-ACP-A50	14	19	23	32	43	50	50	50	36
75mm	WA-ACP-A75	14	19	24	36	46	50	50	50	37
100mm	WA-ACP-A100	15	20	25	39	48	50	50	50	39
100mm	WA-ACP-A100P	16	21	30	43	49	50	50	50	42
100mm	WA-ACP-A100S	17	23	35	50	50	50	50	50	44

Acoustic Enclosure performance
Sound Power Insulation to ISO 11546-1:2009

Acoustic Panel		Enclosure Sound Power Insulation (dB) at Octave Band Centre Frequency (Hz)								Dw,w' (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
50mm	WA-ACP-A50	4	10	21	30	36	32	33	38	30
75mm	WA-ACP-A75	5	11	25	36	36	36	34	40	33
100mm	WA-ACP-A100	5	13	28	37	37	38	36	42	35
100mm	WA-ACP-A100P	6	15	29	37	38	39	37	43	36
100mm	WA-ACP-A100S	6	15	34	44	42	41	44	43	39

*Performance based upon fixed and sealed panel design.

For removable panel design, typical reduction in performance is approx. 3dBA

Specification Example: Acoustic enclosure formed with Wakefield Acoustics' panel type WA-ACP-A75. System to be powder coated to RAL…. Enclosure formed with 'x' no. personnel access doors.

Panel Type WA-ACP-B50/75/100

Acoustic Enclosure Panel

Specification: Modular acoustic enclosure comprises of steel acoustic panels filled with mineral fibre acoustic insulation, faced with glass fibre and retained by perforated sheet steel for mechanical protection. Acoustic panels are mounted into a steel support frame.

Enclosure Panel Acoustic performance
Sound Reduction Index to ISO 10140-2:2010

Acoustic Panel		Sound Reduction (dB) at Octave Band Centre Frequency (Hz)								Rw (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
50mm	WA-ACP-B50	16	20	26	35	44	50	50	50	38
75mm	WA-ACP-B75	16	20	27	39	47	50	50	50	40
100mm	WA-ACP-B100	17	20	28	42	50	50	50	50	41
100mm	WA-ACP-B100P	18	20	33	46	50	50	50	50	43
100mm	WA-ACP-B100S	18	19	34	45	50	50	50	50	43

Acoustic Enclosure performance
Sound Power Insulation to ISO 11546-1:2009

Acoustic Panel		Enclosure Sound Power Insulation (dB) at Octave Band Centre Frequency (Hz)								Dw,w' (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
50mm	WA-ACP-B50	7	11	23	32	38	36	39	42	32
75mm	WA-ACP-B75	7	11	27	37	36	41	38	42	34
100mm	WA-ACP-B100	8	14	28	37	36	39	37	43	35
100mm	WA-ACP-B100P	8	14	34	44	40	41	43	43	38
100mm	WA-ACP-B100S	8	15	35	44	38	37	45	43	36

*Performance based upon fixed and sealed panel design.

For removable panel design, typical reduction in performance is approx. 3dBA

Specification Example: Acoustic enclosure formed with Wakefield Acoustics' panel type WA-ACP-B75. System to be powder coated to RAL…. Enclosure formed with 'x' no. personnel access doors.

Panel Type WA-ACP-C75/100/150

Acoustic Enclosure Panel

Specification: Modular acoustic enclosure comprises of steel acoustic panels filled with mineral fibre acoustic insulation, faced with glass fibre and retained by perforated sheet steel for mechanical protection. Acoustic panels are mounted into a steel support frame.

Enclosure Panel Acoustic performance
Sound Reduction Indices to ISO 10140-2:2010

Acoustic Panel		Sound Reduction (dB) at Octave Band Centre Frequency (Hz)								Rw (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
75mm	WA-ACP-C75	20	25	29	41	50	50	50	50	43
100mm	WA-ACP-C100	20	24	31	44	50	50	50	50	44
100mm	WA-ACP-C100P	20	23	35	48	50	50	50	50	47
100mm	WA-ACP-C100S	20	23	37	47	50	50	50	50	47
150mm	WA-ACP-C150	21	24	36	46	50	50	50	50	47

Acoustic Enclosure performance
Sound Power Insulation in dB to ISO 11546-1:2009

Acoustic Panel		Enclosure Sound Power Insulation (dB) at Octave Band Centre Frequency (Hz)								Dw,w' (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
75mm	WA-ACP-C75	8	12	27	38	34	40	37	43	34
100mm	WA-ACP-C100	9	13	29	39	38	39	37	44	36
100mm	WA-ACP-C100P	10	15	30	39	38	40	38	44	37
100mm	WA-ACP-C100S	10	15	32	39	37	40	40	44	36
150mm	WA-ACP-C150	11	14	35	41	37	41	40	44	36

*Performance based upon fixed and sealed panel design.

For removable panel design, typical reduction in performance is approx. 3dBA

Specification Example: Acoustic enclosure formed with Wakefield Acoustics' panel type WA-ACP-C75. System to be powder coated to RAL…. Enclosure formed with 'x' no. personnel access doors.

Panel Type WA-ACP-D75/100/150

Acoustic Enclosure Panel

Specification: Modular acoustic enclosure comprises of steel acoustic panels filled with mineral fibre acoustic insulation, faced with glass fibre and retained by perforated sheet steel for mechanical protection. Acoustic panels are mounted into a steel support frame.

Enclosure Panel Acoustic performance
Sound Reduction Indices to ISO 10140-2:2010

Acoustic Panel		Sound Reduction (dB) at Octave Band Centre Frequency (Hz)								Rw (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
75mm	WA-ACP-D75	20	25	33	41	50	50	50	50	44
100mm	WA-ACP-D100	20	25	35	44	50	50	50	50	45
100mm	WA-ACP-D100P	20	25	40	48	50	50	50	50	48
100mm	WA-ACP-D100S	20	25	41	48	50	50	50	50	48
150mm	WA-ACP-D150	21	25	40	46	50	50	50	50	48

Acoustic Enclosure performance
Sound Power Insulation in dB to ISO 11546-1:2009

Acoustic Panel		Enclosure Sound Power Insulation (dB) at Octave Band Centre Frequency (Hz)								Dw,w' (dB)
Depth	**Product Code**	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	
75mm	WA-ACP-D75	8	12	38	38	40	40	34	44	35
100mm	WA-ACP-D100	9	13	39	39	40	39	34	44	36
100mm	WA-ACP-D100P	12	17	39	39	40	40	35	44	38
100mm	WA-ACP-D100S	13	18	38	39	40	40	39	44	37
150mm	WA-ACP-D150	12	17	38	41	41	40	40	44	37

*Performance based upon fixed and sealed panel design.

For removable panel design, typical reduction in performance is approx. 3dBA

Specification Example: Acoustic enclosure formed with Wakefield Acoustics' panel type WA-ACP-D75. System to be powder coated to RAL…. Enclosure formed with 'x' no. personnel access doors.

WAKEFIELDACOUSTICS
NOISE CONTROL TECHNOLOGY

Flush Mills, Westgate, Heckmondwike, WF16 0EN
Tel: +44 (0) 1924 418 940 Fax: +44 (0) 1924 418 950
E:noise@wakefieldacoustics.co.uk

www.wakefieldacoustics.co.uk