SonoTEC® Technology

Sonobex have pioneered the development of an award winning noise reduction technology, called SonoTEC®, using our experience and understanding of acoustic metamaterials.

We have designed and developed a complete range of our modular NoiseTrap® acoustic panel system, incorporating SonoTEC®, a metamaterial structure that comprises an array of coupled resonators.

With enhanced low-frequency performance, specifically targeted for industrial applications, a NoiseTrap® panel achieves superior transmission loss and absorption properties compared to conventional products.

No acoustic infill
to degrade ensures through life performance

Pre-assembled modular panelsare flexible and easy to install

Integral supports reduces structural steelwork and overall project costs

Application Areas

The NoiseTrap® LF Series of acoustic panels is suitable for most industrial applications including:

- Power and distribution transformers
- Gas / steam turbines
- Pumps and compressors
- Mechanical plant machinery
- Diesel and gas generators
- Process industries

Key Features

The NoiseTrap® LF Series has a variety of unique benefits over conventional solutions including:

- Superior low frequency performance
- High transmission loss
- Designed to specific frequency ranges
- Natural ventilation
- No acoustic infill
- Through-life performance
- Pre-assembled modular panels
- Free-draining structure
- IP protected technology*

<table>
<thead>
<tr>
<th>NoiseTrap® LF Panel 100Hz Performance</th>
<th>LF150</th>
<th>LF250(A)</th>
<th>LF250</th>
<th>LF350</th>
<th>LF450(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission Loss / dB</td>
<td>29.5</td>
<td>21.3</td>
<td>34.0</td>
<td>34.0</td>
<td>38.8</td>
</tr>
<tr>
<td>Absorption Coefficient</td>
<td>0.62</td>
<td>1.13</td>
<td>1.13</td>
<td>-</td>
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</table>

Representative performance values for power generation applications

*Coefficients greater than 1.0 result from edge diffraction effects. Do not use sound absorption values greater than 0.95
Product Description

The NoiseTrap® LF Series of acoustic panels have been specifically designed to ensure the highest performance in the reduction of airborne noise from low frequency noise sources.

Our ground breaking technology enables far greater acoustic performance than traditional passive noise control measures, by using a series of tuned resonators.

The patent protected technology has been independently tested achieving extremely high transmission loss and absorption.

Our innovative solutions stand up to the closest scrutiny and exceed the toughest of acoustic specifications, enabling Sonobex to predict, with confidence, the acoustic performance of each design.

NoiseTrap® Airflow Panels

No Acoustic Infill

Conventional solutions typically contain absorptive materials to achieve adequate levels of noise reduction, but have limited low frequency performance. Infill materials typically degrade due to contamination and ingress of water, reducing acoustic performance over their lifetime.

A NoiseTrap® panel is a completely galvanized steel construction that consists of coupled resonator elements that attenuate airborne noise; as such a NoiseTrap® panel has no acoustic infill to provide acoustic performance.

An infill free panel therefore maintains consistent through-life performance compared to traditional solutions with no degradation of acoustic performance over time.

NoioteTrap® panels can be used where there is to be no risk of fibre migration or contamination such as food production plants and hospital environments. The complete absence of infill also facilitates ease of cleaning and drainage, making NoiseTrap® panels well-suited for chemical plants, refineries, and facilities handling hazardous materials.

Passive Ventilation

Due to the uniqueness of the technology, panels can be designed with passive ventilation in mind in order to dissipate heat, renew ambient air and to evacuate gas leaks.

Sonobex has engineered a range of attenuating NoiseTrap® panels that allow air to pass through the apertures whilst reducing the noise transmission to the environment.

NoiseTrap® panels can be incorporated into a fully ventilated acoustic enclosure, in some cases removing the need for forced ventilation.

Freestanding barriers can benefit from reduced wind loads, lowering foundation and installation costs.
NoiseTrap® LF Series
Acoustic Panel Data Sheet

Modular System

NoiseTrap® panels can be used to construct simple acoustic barriers through to large acoustically isolated industrial enclosures that are structurally designed for internal and external loading; the integrated steel frame systems carries the static and dynamic loads.

The integrated structural steel framing system enables a modular panel-to-panel construction to be utilised for smaller enclosure systems.

Larger enclosures can be as easily realised by incorporating NoiseTrap® panels into a steel framework offering increased rigidity for specific applications.

Acoustic door panels can be incorporated using a series of joiners and support sections, as well as access and penetration panels. The modular design means the system is suited to complete enclosures or acoustic barriers.

Acoustic Performance

NoiseTrap® panels have been tested in accordance with BS EN ISO 10140-2:2010 and BS EN ISO 354:2003. Individual test reports available upon request.

<table>
<thead>
<tr>
<th>NoiseTrap® Panel, R, dB</th>
<th>63</th>
<th>125</th>
<th>250</th>
<th>500</th>
<th>1000</th>
<th>2000</th>
<th>4000</th>
<th>Rw (C;Ctr)</th>
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<tbody>
<tr>
<td>NoiseTrap® LF150</td>
<td>10.9</td>
<td>27.6</td>
<td>34.6</td>
<td>36.6</td>
<td>38.5</td>
<td>42.8</td>
<td>43.7</td>
<td>40 (-1;-3)</td>
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<tr>
<td>NoiseTrap® LF250</td>
<td>14.2</td>
<td>33.7</td>
<td>38.4</td>
<td>42.7</td>
<td>43.3</td>
<td>44.6</td>
<td>49.0</td>
<td>44 (-1;-2)</td>
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<tr>
<td>NoiseTrap® LF350</td>
<td>18.5</td>
<td>35.7</td>
<td>39.0</td>
<td>37.4</td>
<td>36.6</td>
<td>33.3</td>
<td>39.8</td>
<td>37 (-2;-1)</td>
</tr>
<tr>
<td>NoiseTrap® LF250(A)</td>
<td>9.2</td>
<td>22.7</td>
<td>28.9</td>
<td>30.3</td>
<td>20.0</td>
<td>19.8</td>
<td>21.4</td>
<td>21 (0;0)</td>
</tr>
<tr>
<td>NoiseTrap® LF450(A)</td>
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<td>33.1</td>
<td>33.6</td>
<td>31.0</td>
<td>24.7</td>
<td>25.7</td>
<td>27.7</td>
<td>27 (-1;-1)</td>
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</table>

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