## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoundScoop Ventilation</td>
<td>2, 3, 4 &amp; 5</td>
</tr>
<tr>
<td>SoundScoop iAT (intelligent Airflow Technology) Ventilation</td>
<td>6 &amp; 7</td>
</tr>
<tr>
<td>Further information</td>
<td>8</td>
</tr>
</tbody>
</table>

Passivent SoundScoop is a range of air ventilation units which combine exceptional acoustic attenuation with very low airflow resistance.

This combined performance is superior to any existing comparable unit on the market.

The range comprises of the SoundScoop and SoundScoop iAT (intelligent Airflow Technology).

The SoundScoop has been developed to attenuate the mid frequency band 500 - 2000Hz as speech and circulation noise constitute the main source in commercial and educational buildings.

The SoundScoop iAT incorporates a low power consumption 50W sweep fan which extends the range of the ventilation system during conditions when a design strategy may reach its limits of performance.
Acoustic design
SoundScoop uses a highly innovative approach to acoustic design which allows a large unobstructed ventilation area. The open design is based on selective sound absorption at key frequencies, and does not rely on baffles or diverters. SoundScoop has been designed in association with Arup in a collaborative approach to acoustic design, natural ventilation performance and product development.

The acoustic performance of the SoundScoop has been developed through an engineered approach where the exact nature of the source noise and receiver sensitivity has been considered. As such, each unit is targeted in terms of the sound it attenuates. This means it outperforms any other equivalent product on the market in terms of attenuation of speech and footfall.

Acoustic performance
Independently tested to BS EN 20140-10:1992 and ISO 140-10:1991, and can be shown to comply with Building Bulletin 93 and the Priority Schools Output Specification For Acoustic Design.

SoundScoop and natural ventilation
Natural ventilation is a key strategy in providing a healthy environment in buildings whilst avoiding excessive energy use. Cross-ventilation or free air transfer between internal spaces are important aspects of ventilating the whole building. At the same time most buildings require acoustic separation between noisy areas and noise-sensitive areas.

SoundScoop has been specifically designed to meet these conflicting requirements with a large free ventilation area, low airflow resistance and high levels of noise reduction.

Applications
SoundScoop provides:
- Air transfer (crossflow ventilation) between internal spaces of buildings as part of a natural ventilation system.
- Sound reduction between noisy areas and quiet areas, for example between circulation spaces and working, meeting or teaching spaces.
- Speech privacy, allowing normal undisturbed speech in adjacent areas.

Examples of use:
- Offices: between open plan offices and meeting rooms, or between two meeting rooms.
- Education buildings: between circulation spaces and classrooms.
- Hotels: between bedrooms and corridors.
- Health buildings: between patient areas and circulation areas.

SoundScoop can be used to meet the acoustic and ventilation requirements of:
- BB93 Acoustic design of schools - a design guide.
- BS 8233: 1999 Sound insulation and noise reduction for buildings - code of practice.
- Priority Schools Output Specification For Acoustic Design.

Typical application
SoundScoop used as a cross-ventilation path between two spaces

SoundScoop positioned outside plane of source and receiver

noisy corridor/circulation space

separating construction

receiver plane

quiet space

noise source plane
The SoundScoop has been developed to attenuate the mid frequency band 500 - 2000Hz as speech and circulation noise constitute the main source in commercial and educational buildings.

**Example applications**

<table>
<thead>
<tr>
<th>Noisy space</th>
<th>Noise-sensitive space</th>
<th>SoundScoop type</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open plan office</td>
<td>Meeting room</td>
<td>300mm long version with 320mm(W) x 320mm(H) body</td>
<td>Vent attenuation provides adequate privacy to the open plan space and appropriate control of noise ingress to the meeting room</td>
</tr>
<tr>
<td>Atrium/primary</td>
<td>Classroom</td>
<td>600mm long version of 620mm(W) x 320mm(H) body</td>
<td>Vent attenuation provides adequate control of noise circulation ingress to the classroom</td>
</tr>
<tr>
<td>Meeting room</td>
<td>Meeting room</td>
<td>900mm or 1200mm long version with 620mm(W) x 320mm(H) body</td>
<td>Vent attenuation provides good standards of privacy so that even raised voices are not intelligible</td>
</tr>
</tbody>
</table>
PERFORMANCE

The performance of the SoundScoop has been achieved through consideration of three design features, each of which are necessary for it to work most effectively. These are summarised below.

1. By positioning the unit out of the plane of source and receiver, sound is forced to take an oblique path through the vent thereby removing the need for bends or splitters. See illustration on page 3.

2. Optimised cross-sectional dimensions are used to target attenuation over the desired range of frequencies. The SoundScoop is sized so that the ‘cut-on’ frequencies, end reflection and amount of attenuation is optimised for the target 500 - 2000Hz speech range.

3. The patented internal lining which features ribs at regular centres has been shown to provide more than 10dB of sound attenuation in a given octave band. This is achieved by:

   - Firstly, there is resistive interference where sound is reflected and partly absorbed at frequencies whose wavelengths relate to the period of the ribs.

   - Secondly, the discontinuities result in non-plane wave motion below the cut-on frequency. In other words, low frequency sound that would travel unhindered in a uniformly lined duct is disturbed by the ribs and more readily attenuated.

   - Thirdly, the ribs and strips of sound absorbing material prevent wave motion along the length of the unit, forcing local reaction between the sound and foam lining. This is known to maximise the attenuation in lined ducts.
FEATURES & BENEFITS

- **Low energy consumption 50W fan** uses minimum energy when compared to full mechanical systems.
- **SoundScoop targets speech and footfall frequencies**, the main cause of disturbance via air transfer devices.
- Extends the performance envelope of a ventilation strategy by creating positive pressure during peak summer temperatures/conditions.

The SoundScoop iAT (intelligent Airflow Technology) has been designed to specifically extend the performance envelope of a natural ventilation system.

Utilising the proven SoundScoop to attenuate speech and footfall background noise, the SoundScoop iAT incorporates a low power consumption 50W sweep fan which extends the range of the ventilation system during conditions when a design strategy may reach its limits of performance.

**Case construction**
Marine grade structural timber.

**Acoustic performance**
See table below.

**Installation**
Positioned between the atrium and adjoining rooms. Can be installed through a bulkhead or plasterboard ceiling, or where there is a suspended ceiling using the adjustable ceiling adaptor.

Recommended fixing: to soffit with brackets supplied.

### Dimensions

<table>
<thead>
<tr>
<th>Wall opening width x height (mm)</th>
<th>SoundScoop iAT length (mm)</th>
<th>free area (m²)</th>
<th>weight (kg)</th>
<th>Coefficient of discharge, Cd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1248 x 344</td>
<td>1589</td>
<td>0.20</td>
<td>74</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>1889</td>
<td>0.20</td>
<td>88</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>2189</td>
<td>0.20</td>
<td>102</td>
<td>0.49</td>
</tr>
</tbody>
</table>

**Acoustic performance**

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Average mid-frequency Dn,e (dB) 500 - 2000Hz</th>
<th>Acoustic performance Dn,e,w (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1589</td>
<td>&gt;36</td>
<td>&gt;33</td>
</tr>
<tr>
<td>1889</td>
<td>&gt;43</td>
<td>&gt;37</td>
</tr>
<tr>
<td>2189</td>
<td>&gt;49</td>
<td>&gt;39</td>
</tr>
</tbody>
</table>

Sound pressure level for fan measured at 3.0m without enclosure 32dB(A)
**Two operating modes**

The SoundScoop iAT uses one of two operating modes depending on the needs of the building.

**Mode 1 Natural**

*Most of the year*

In mid-season temperatures, external fresh air enters the room through façade inlets such as Passivent Aircool Ventilators. The air is mixed at high level and is drawn naturally out through the SoundScoop iAT exhausting through high level passive stack outlets such as Passivent Airstract Terminals or atria designed into the building.

**Mode 2 iAT (intelligent Airflow Technology)**

*Peak summer temperatures or extreme events*

During peak summer temperatures, the minimal temperature difference between indoors and outside can result in low flow rates for passive stack ventilation, especially on still windless days. During these periods or at other times of unusual events, such as high occupancy or unusual heat gain, the building will suffer from raised temperatures or higher than normal CO₂ levels leading to reduced air quality and lethargy for the room occupants. These changes in internal conditions are identified by the Passivent Intelligent Controller which activates the low energy fan. The fan generates a change in internal pressure which maintains the ventilation system performance until either the temperature or CO₂ levels have achieved the targeted set point.
Other products
Passivent market a range of other natural ventilation and daylighting products including:

- Aircool façade ventilators - systems for windows, curtain walling and walls
- Airstract and Airscoop roof ventilation terminals
- Acoustic passive ventilation
- iPSV and iMEV systems
- Ventilation control systems
- Combined rooflights/ventilators
- Natural and assisted domestic ventilation systems
- Fresh wall ventilators
- Tricklevent window ventilators
- Solar shading

Services
Passivent has its own in-house research team dedicated to developing techniques and products for natural ventilation, and is a leading partner in some of the most important research projects in this field including NatVent™, a consortium of European organisations headed by BRE.

We offer a comprehensive design and advisory service tailored to your specific project, covering both natural ventilation design and product selection. Advanced software based on CIBSE AM10 is used to calculate sizes of air inlets and outlets to achieve optimum performance.

Names of approved installers can be provided on request.