

# Siderise AVC acoustic void closures for tops of walls

Semi-rigid composite sheets designed for use in small and/or irregular shaped cavities in ceiling voids to help reduce sound transmission between rooms, suitable in both new build and refurbishment projects.

**Siderise AVC acoustic void closures for tops of walls** are a range of bespoke products designed to effectively close small apertures and voids encountered in a wide range of building conditions. They are produced from a range of resilient materials or laminated composites and are intended to be compression fitted into an aperture to form an efficient acoustic seal.

Depending on the sound insulation performance required they may be employed singularly or in pairs (fitted either 'back to back' or commonly to each side of a central mineral fibre resilient infill). Three types of closure are available, designated Type 1, Type 2 and Type 3. The type number indicates how many material layers constitute the product.

The closures are normally supplied cut to the final aperture shape but are also available in strip form (for linear gaps) or in sheet form for site cutting. The advanced cutting techniques employed by SIDERISE to produce the acoustic void closures permit the supply of extremely complex shapes, which can include any required internal shape pieces to be cut-out. In consequence it is normally possible to create a closure to accurately match the cross-section of any aperture.

For product advice please contact our SSPL Technical Team

## Description / Grades

**SIDERISE AVC acoustic void closures for tops of walls** are available in the following three types:

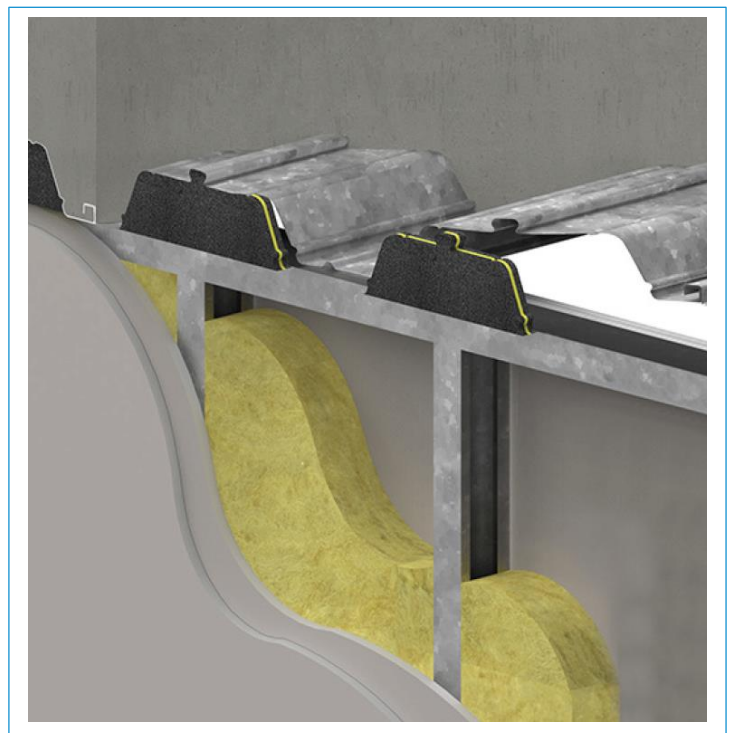
**Type 1** closures are produced from a resilient foam material only. Commonly made from **SIDERISE Lamacell closed cell foam**. These closures are ideal for very small apertures or situations requiring a less demanding sound insulation performance. Type 1 may also be produced from **SIDERISE 'V' series acoustic foam** as a supporting backing infill for subsequent site application of an acoustic sealant/mastic to the surface.

**Type 2 and 3** closures are produced from a laminated composite combining resilient foam/s with a flexible sound barrier membrane. Type 2 closures have resilient foam to one side of the membrane only. Type 3 closures (the most common type) comprise a resilient foam layer to both sides of the barrier membrane. Type 3 closures may employ different foams to each side.

For conditions where the closures may be partially visible, a variety of pre-applied surface finishes are available offering a range of colour options.

The type and thickness of the closure is normally selected in conjunction with our technical department. Influencing factors include:

- acoustic performance
- deformation required for fitting
- size & depth of the aperture
- dimensional variability
- shape complexity
- degree of resilience/recovery required.



## Benefits

- Acoustic performance ( $R_w$ ) 27-44dB
- $D_{nf,w}$  up to 55dB
- Improves 'room to room' sound separation
- Flexible allowing for ease of installation
- Suitable for new build and refurbishment projects

## Acoustic performance

The practical sound separation achieved between adjoining areas is often severely limited by 'sound leakage'. This is a condition where a sound path is created via a single or series of small apertures or gaps occurring within the separating structure.

It should be remembered that a gap as small as 1mm is considered to be very significant from an acoustic standpoint.

In practice, the sealing of such very small openings would normally be resolved by caulking with an acoustic sealant. However, when the dimension of the aperture falls outside of the working range of sealants, optimal solutions are often unclear. Frequently ad-hoc remedies are employed without an understanding as to their potential to degrade sound insulation.

The importance of gaps can be illustrated by this example: A 2.5m high wall with a SRI of 50dB has a continuous 2mm gap at the head. The effect of this gap is to reduce the SRI to 31dB (a 19dB change).

Sound leakage is not limited to unsealed gaps. Small areas within the separating structure, filled with a construction offering a substantially lower SRI value, can equally be a contributory factor to poor acoustic performance.

In relation to the previous example, if the 2mm gap is replaced with a 25mm deep mineral fibre expansion/fire stop joint with an SRI of 15dB, the effect is still to reduce the SRI to 35dB (a 15dB change).

However, if **SIDERISE AVC strips** were inserted each side of fire stop, the SRI for the joint could be raised to 40dB (as an example value), which results in only a 0.4dB reduction in the wall acoustic performance.

The final condition associated with sound leakage relates to common voids. Obvious examples such as ceiling and access floor voids are widely understood and SIDERISE provides dedicated products for these applications. However, other examples include: service ducts, perimeter heater cases, continuous lighting trays and air diffusers. Whilst often small in area they have the potential to substantially reduce sound separation. They also frequently have complex internal cross-sections making effective closure very difficult. The use of **SIDERISE AVC** represents a simple and reliable solution to resolving these problem areas.

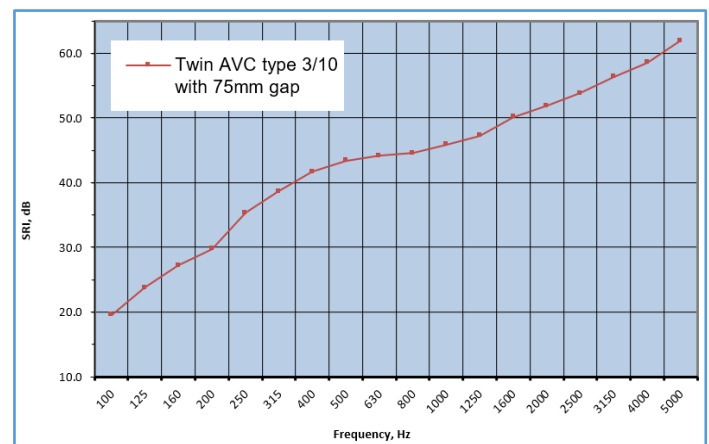
A wide range of SRI values are achievable using **SIDERISE AVC**. The graph below indicates performance for a pair of Type 3 closures with a gap of 75mm and provides an SRI of 44dB (R<sub>w</sub>).

Table 1 – Acoustic performance

Weighted Sound Reduction Index			
Product Code	Core weight / type	Weight (Kg/m <sup>2</sup> )	R <sub>w</sub> (dB)
Single AVC type 3	10kg/m <sup>2</sup> Polymeric	11	27dB (R <sub>w</sub> )
Twin AVC type 3*	10kg/m <sup>2</sup> Polymeric	22	44dB (R <sub>w</sub> )

\* With 75mm gap  
 [Mean Sound Reduction Index. 100-3150Hz]  
 To BS EN ISO 140-3:1995, BS 2750: Part 3;1995

Graph 1 - 1/3<sup>rd</sup> Octave Data for Twin AVC type 3/10 with a 75mm gap



**Table 2 – Common component materials**

Component	Type 1 Closure	Type 2 & 3 Closure
Resilient foams	Siderise Lamacell Siderise 'V' series acoustic foam	Siderise Lamacell Siderise 'V' series acoustic foam Siderise 'M' series acoustic foam
Barrier membranes	n/a	Siderise BM series barrier mat: BM0050 Siderise BM/P series barrier mat: BM/P10

**Table 3 – Material characteristics (Foams)**

Product	Colour	Structure	Deformation rating	Robustness rating	Reaction to Fire performance
Siderise Lamacell	Black	Closed cell	Good	Excellent	BS476 Part6 & 7 Class '0'
Siderise 'V' series acoustic foam	Black	Open cell	Excellent	Good	B-s2, d0
Siderise 'M' series acoustic foam	Light grey	Open cell	Fair	Fair	B-s2, d0

**Table 4 – Material characteristics (Heavy membranes)**

Product	Deformation rating	Recovery rating	Surface weight	Reaction to Fire performance
Siderise BM series barrier mat: BM0050	Fair	Excellent	5kg/m2	FMVSS 302: Self-extinguishing
Siderise BM/P series barrier mat: BM/P10	Good	Fair	10kg/m2	B-s2, d0

**Options**

**SIDERISE AVC acoustic void closures** can be employed in a wide range of applications within the construction industry. They are suitable for both refurbishment and new build projects

The following key features give rise to the product's diversity of use:

- Wide range of product make-ups.
- Can be used singular or in multiples.
- Can be combined with other materials, e.g. mineral fibre or mastic coatings.
- Suitable for a wide range of aperture sizes.

Common application include:

- Infills to profiled decks
- Deflection joints & fire stops
- Metal grid & frame section infills
- Closures for service ducts, perimeter heater cases, continuous lighting trays, blind boxes & air diffusers.

**Examples**

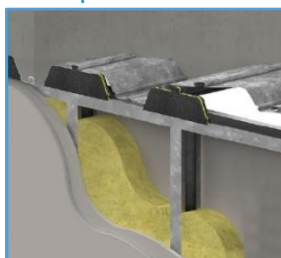


Fig 1. Profiled deck junction



Fig 2. Continuous lighting trays

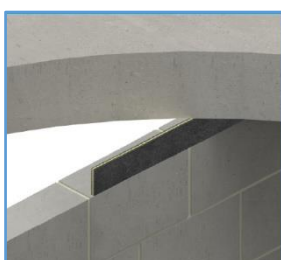


Fig 3. Deflection head junction

**PROFILED DECK/TOP OF WALL JUNCTION**

A common condition where a partition or wall meets the underside of a profiled metal deck resulting in the need to fill a series of trapezoidal apertures. Frequently there is an additional requirement to fire stop these voids.

The normal solution is to fit **SIDERISE AVC Type 3** each side of a central profiled mineral fibre insert (**SIDERISE TW inserts** are used when fire resistance performance is also required.)

The pre-cut closures exactly match the section of the deck including ribs and small radius bends. The grade of closure is selected with reference to the sound insulation requirement.

**CONTINUOUS LIGHTING TRAYS**

Continuous lighting trays passing directly over partition lines have traditionally been extremely difficult to treat. Limited access combined with a complex internal shape often result in a failure to achieve an effective acoustic seal above the partition.

As **SIDERISE AVC** is flexible the closures may be severely distorted during the fitting process, but once in their final position can be straightened easily with finger pressure to close the aperture. Fig 2. illustrates a typical complex closure for a lighting tray.

**DEFLECTION/FIRE SEAL AT TOP OF WALL**

A linear seal condition where a resilient mineral fibre fire stop material is inserted between the top of the wall and the soffit. Such infills have relatively low SRI values (15-25dB).

Compression fitting **SIDERISE AVC Type 3** in strip form to both sides of the fire stop material greatly enhances the SRI (values in the range 35 - 45dB are achievable). For large deflections the closures can be securely retained top and bottom by metal angle sections.

## Technical specification

Form Supplied	Die-cut to suit profile or cut strips (full sheets available for strip use)
Colour	Black (other colour options available subject to minimum quantities)
Finish	Matt black open cell foam both sides (or optional Foil Face to one side)
Thickness	Type 1 – 12-50mm, Type 2 – 18mm, Type 3 – 30mm
Surface weight	Type 1 – 1-4 kg/m <sup>2</sup> , Type 2 – 6-12kg/m <sup>2</sup> , Type 3 – 6-12kg/m <sup>2</sup>
Central mass membrane	5kg/m <sup>2</sup> or 10kg/m <sup>2</sup> Polymeric barrier membrane
Fire resistance performance	None – Acoustic only barrier (see Siderise TW fire stop range for use with the Siderise AVC)
Reaction to Fire	Refer to tables 3 & 4

## Products available

The following SIDERISE products for use in suspended ceiling voids are available and can also be specified using NBS Plus:

- Siderise MC Mullion over clad system
- Siderise FLX flexible acoustic barriers
- Siderise CBX flexible acoustic barriers
- Siderise CVB (CVB/LAM, CVB/P) acoustic void barriers
- Siderise RF cavity barriers / fire stops for raised access floors
- Siderise fire stops for profiled decks
- Siderise foil tape: FT 120/45

Contact us for a copy of our Siderise ceiling void barrier range brochure.

# Further information

## Technical support

For further information please contact our technical team at the address below.

## Available CPD's

Contact Siderise for further information on our CPDs:

- Siderise Acoustic Products for Commercial Interiors - Architect Edition
- Siderise Acoustic Products and Performance with 1/3<sup>rd</sup> Octave Data – Acoustic Consultants Edition

## Sales & Technical

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