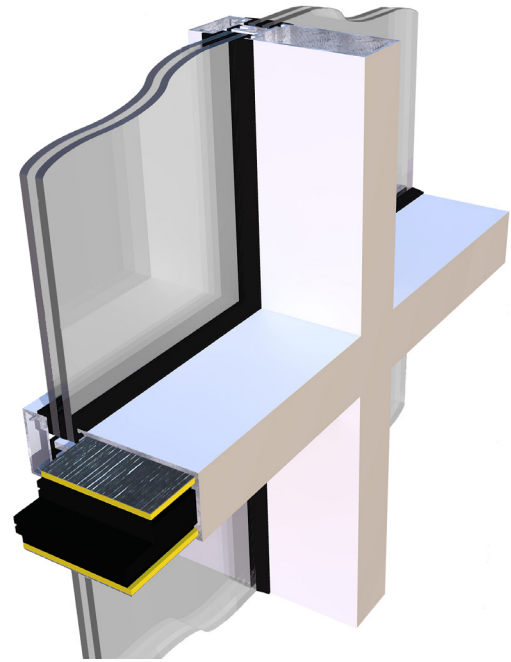


Siderise MI mullion/transom inserts

Specialist acoustic insulation designed to reduce vertical and horizontal sound transmission in curtain wall buildings, improving the performance of curtain wall framing elements.



Application

Siderise MI mullion/transom inserts are specifically developed to reduce flanking noise transfer via the framing elements of curtain walled facades. Our MI inserts are manufactured to suit your project's specific mullion or transom profiles, and are easy to install. Combustible and non-combustible options are available, and we have developed inserts to assist with various problems related to noise transfer in curtain walls.

Benefits

- Ease of installation.
- Wide range of base materials.
- Custom dimensions and shapes.
- Excellent acoustic performance.

Product description

The following products form part of the Siderise MI mullion/transom inserts range for sound transmission treatment:

Siderise AVC closure - MI1: die-cut parts in dense resilient foam with central heavy membrane.

Siderise MF insert - MI2: shaped resin bonded stonewool inserts (nominal 1200mm).

Siderise V insert - MI3: shaped impregnated acoustic foam inserts (nominal 1200mm).

Siderise MF baffle - MI4: shaped resin bonded stonewool baffles (nominal 300 and 600mm).

Siderise V baffle - MI5: shaped impregnated acoustic foam baffles (nominal 300 and 600mm).

Siderise HB insert - MI6: shaped composite high mass layer and acoustic foam inserts (nominal 1200mm).



Figure 1. Siderise MI mullion/transom inserts range

Fire performance

Table 1: Reaction to fire performance to EN 13501-1

Product Reference	Material Type	Classification
Siderise MI1 Closures	VE Series & BM/P	B-s2, d0*
Siderise MI2 Inserts	Stonewool	A1
Siderise MI3 Inserts	VE Series	B-s2, d0
Siderise MI4 Baffles	Stonewool	A1
Siderise MI5 Baffles	VE Series	B-s2, d0
Siderise MI6 Inserts	VE Series & BM/P	B-s2, d0*

*Tested independently as component materials.

Acoustic considerations

The acoustic performance requirements for curtain wall flanking noise transfer are typically given as a value in terms of dB $D_{n,f,w}$. The $D_{n,f,w}$ metric represents the composite acoustic performance of all façade elements acting together as a system. It is only possible to measure in laboratory tests in accordance with BS EN ISO 10848-2. Because of this, the $D_{n,f,w}$ performance of a given façade is unique to that system and will vary depending on aspects of the design other than just mullion inserts. It is not possible to list a particular $D_{n,f,w}$ value that each of our inserts can provide. However, if you are considering Siderise mullion inserts for your project, our in-house acoustic engineers will be able to recommend the right inserts to help achieve your performance requirement on a project by project basis.

Please email technical.services@siderise.com if you would like to discuss which inserts would be suitable.

Acoustic performance

The following provides a performance guide for each insert. Please contact Siderise for further guidance if needed.

Vertical flanking treatments

Siderise AVC closures - MI1

Depending on the sound insulation performance required Siderise AVC closures may be deployed singly or in pairs. In the case of the latter, the SRI is significantly improved by spacing the closures apart. Two Siderise AVC closures with a 75mm separating gap achieved a 44dB R_w sound reduction index.

Siderise V baffle - MI4 and MI5

Siderise V baffles, can depending on length, achieve similar performances to the Siderise AVC closures.

The overall improvement in final room to room performance can vary significantly depending on type of system and construction, but typically performance improvements in the region of 3-5dB can be expected.

Horizontal flanking treatments

Siderise HB insert - MI6

An empty aluminium frame section has an SRI of circa 29-31dB R_w . With the added inclusion of Siderise HB inserts, this would be expected to approximately increase to 40-42dB R_w . (200mm x 50mm mullion tested performance of 41dB R_w , 1/3 octave data available on request).

Siderise MF insert - MI2 and V insert - MI3

An empty aluminium frame section has an SRI of circa 29-31dB R_w . With the added inclusion of the Siderise MI2 or MI3 inserts, this would be expected to approximately increase to 34-36 dB R_w . (200mm x 50mm mullion tested performance of 35dB R_w , 1/3rd octave data available on request).

Sound transmission treatments

Horizontal flanking

The horizontal flanking treatments involve the introduction of a continuous insert that fully fills the section's internal void. The inserts can be purely absorptive or a high mass/absorptive core composite combination.

Absorptive inserts offer modest but useful improvement levels mainly by reducing reverberation within the internal void. Mass composite versions directly improve the sound reduction index (SRI) of the frame by effectively increasing the section's wall weight. The elastomeric nature of the high mass outer membrane offers additional beneficial dampening characteristics.

Absorptive inserts are available in two main material types: resin bonded stonewool (Siderise MF insert) and impregnated acoustic foam (Siderise V insert).

The most commonly employed mass composite product is the Siderise HB insert - MI6. This comprises a layer of foam with a 10kg/m² limp elastomeric barrier membrane to one side. The product is fitted in pairs in a back-to-back arrangement with the barrier layers to the outside. The thickness of the foam component is selected to suit the section's internal width.

One of the advantages offered by this mass/absorber composite solution is the product's flexibility and its ease of fitting. Traditional solutions such as filling with dried silica sand or inserting cut strips of rigid heavy board have significant associated drawbacks. In the case of the former, this has the potential for subsequent sand leakage or settlement. For cut boards it is the multi-layering and extreme accuracy requirement for effective friction fitting.

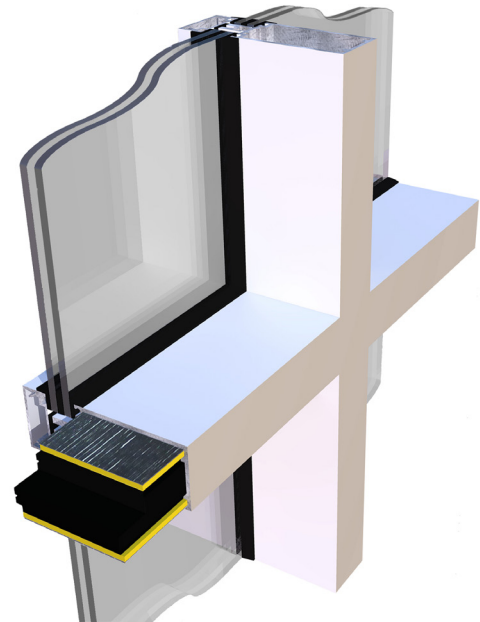


Figure 2. Siderise HB inserts - MI6

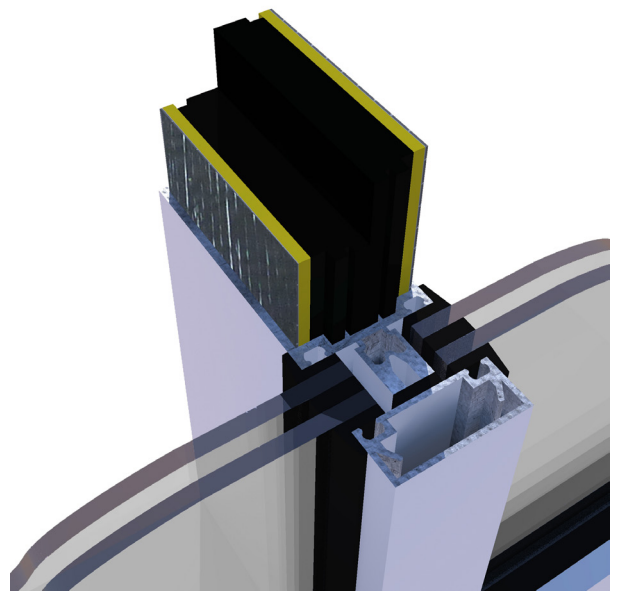


Figure 3. Siderise HB inserts - MI6

Siderise HB insert - MI6

These combined high mass / sound absorbing inserts comprise a base layer of V foam with a heavy limp membrane attached to one face. They are fitted in pairs in a back-to-back arrangement. The membrane has an outer facing of aluminum foil to reduce friction when the product is being introduced into the section.

The product can be used in both mullions and transoms and should tightly fit the full depth of the frame section.

Vertical flanking

The vertical flanking treatments generally consist of the introduction of a localised closure / baffle at the crossing point of adjacent internal areas within the building.

Similarly to treatments for horizontal flanking transmission, both absorptive and mass barrier solutions are available. Please note that in the case of the absorptive version the acoustic principles employed are significantly different.

Due to their open cell internal structure, sound absorptive materials generally have poor sound insulation properties. Consequently, they are not commonly employed for this purpose. However, provided a higher density base material is used together with a substantial material depth in the sound path direction, then high SRI values can be achieved.

The advantage of incorporating a deep absorptive baffle at the crossing point is that it is less prone to performance degradation arising from a poor fit. The effects of any small gaps at the perimeter are dramatically reduced due to the long sound attenuating bypass paths created.

Mass barrier treatments in contrast are required to form a tight closure. Due to the importance of creating a perfect fit they are normally die-cut to the exact internal shape. Siderise AVC closures - MI1 represent a suitable solution and can be employed for this use.

Where a very high performance is sought it is possible to combine Siderise V baffles - MI5 and Siderise AVC closures - MI1. Typically two MI1 closures would be used with one MI5 V baffle centrally positioned between them.

The use of baffles and closures would be limited to inclusion in mullion sections as most transoms are broken at mullion lines.

Additional treatment for this type of transmission is not usually required where mullions or transoms have been continuously full filled (for the treatment of horizontal flanking section transmission).

Siderise V baffle - MI5

The most commonly employed vertical flanking insert is the Siderise V baffle - MI5. These absorptive inserts are typically supplied in 300mm to 600mm lengths and are installed centred on the midpoint of the compartment line.

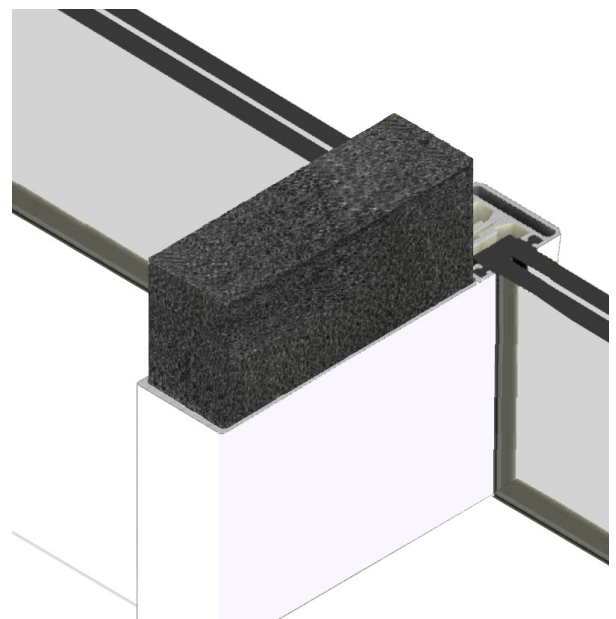


Figure 4. Siderise V baffle - MI5

Other treatments available

Horizontal flanking

Siderise MF insert - MI2 and V insert - MI3

These absorptive inserts continuously fill the entire length of the mullion/transom. As their effect is based mainly on sound absorption properties, the inserts do not need to perfectly follow the section's internal profile. Commonly, they are supplied cut to suit the main rectangular free internal area. Both types of insert are optionally available in a profiled cut form to exactly fill the internal void..

Siderise MF insert - MI2 and Siderise V insert - MI3 absorptive inserts are manufactured from substantially different generic base materials. As a consequence, both types may offer certain marginal advantages in some specific conditions. Generally MI3 inserts are particularly popular due to their robustness, flexibility and dust free characteristics.

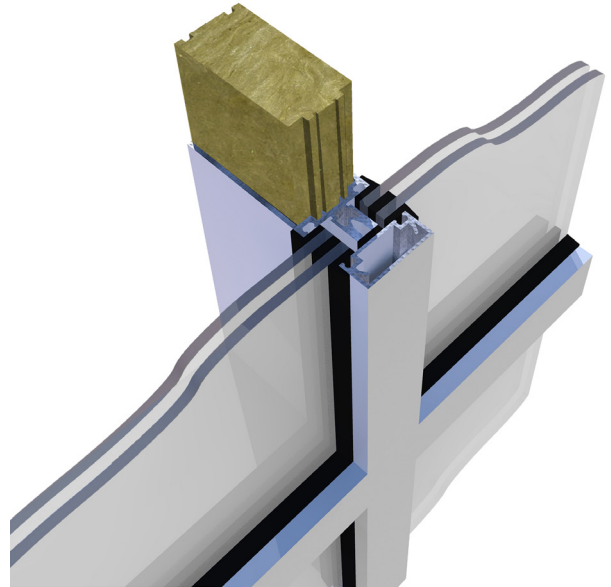


Figure 5. Siderise MF Inserts - MI2

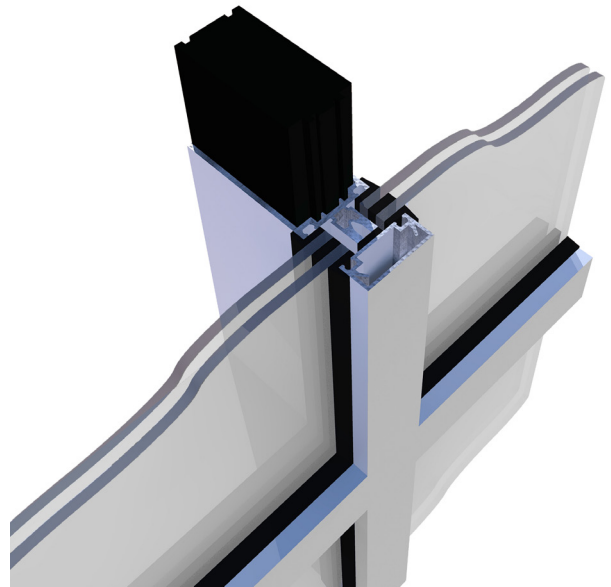


Figure 6. Siderise V Inserts - MI3

Other treatments available

Vertical flanking

Siderise AVC closures - MI1

These closures comprise a dense resilient foam material with a central flexible heavy membrane. They are die-cut to the exact internal profile of the hollow frame section.

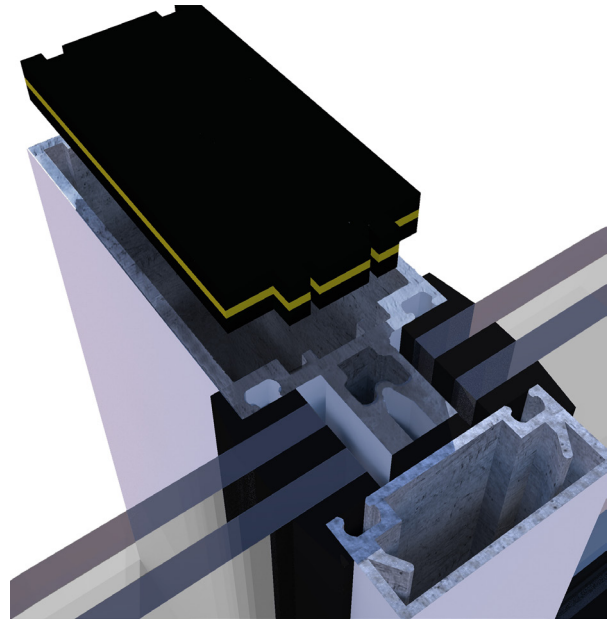


Figure 7. Siderise AVC Closures - MI1

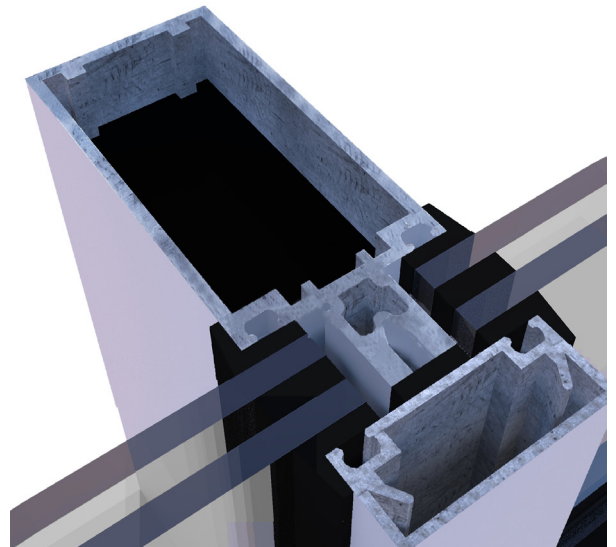


Figure 8 Siderise AVC Closures - MI1

Further information

Technical support

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

Sales & Technical

Sales support

Internal Sales Team
+44 (0) 1656 730833
sales@siderise.com

Technical support

Technical Team
+44 (0) 1656 730833
technical.services@siderise.com

Siderise Insulation Ltd

Forge Industrial Estate, Maesteg, Bridgend CF34 0AH
United Kingdom

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