

Our VH Series of lightweight aluminium honeycomb attenuating ventilation panels comprise of forms of conductive airflow media retained within aluminium extrusion. They are designed for use in racks and other forms of commercial enclosure.

Applications:

VH Series vents can be mounted onto most forms of shielded enclosure where airflow is needed, either over cooling fans or by convection. They can be mounted anywhere on the enclosure and can be fitted with protective 'kickplates' to protect the honeycomb material from accidental damage.

Where they may be exposed to the elements the vents can be fitted with 'slant' honeycomb which provides a downward facing aperture, preventing the ingress of rainwater. This has the added benefits of directional airflow and increased attenuation due to the higher aspect-ratio of the cell structure.

Honeycomb ventilation panels are usually supplied in a gasketed ready-to-mount form which either fits around the aperture in the equipment (non-flanged style) or is inset into the enclosure (flanged style). Depending on the performance requirements for the application, they can be mounted by bolting through clearance holes in the frame, or through the use of captive or threaded inserts.

Aluminium honeycomb material is formed by expanding a bonded aluminium foil into a honeycomb structure. This process, which is common to all honeycomb manufacturers, produces a material which is 'polarised' and is conductive either horizontally or vertically. To overcome polarisation problems two layers of honeycomb, mounted at 90 degrees to each other, are used.

Please contact us on 01376 550525 or email info@p-p-t.co.uk for further information about polarisation.

How to Order:

Specify: Series-Frame Style-Vent Media-Overall Size-Number Of Fixings-Fixing Type/Size
Where possible please provide a detailed drawing.

Series	Frame Style	Vent Media	Overall Size	Fixings (No.)	Fixing Type
VH-Vent Aluminium	AF1	01=Cross-pole	xxxx-xxxx	xx	C/T=Captive insert
	AF2	02=single layer			T/H=Through hole
	AF3	03=slant 45°			
	AF4	04=slant cross			
	AF5	pole			

Example:

VH-AF1-01-2260-4330-12-T/H (4.8) specifies an aluminium cross-polarised vent panel in AF1 frame style with 12 through holes of 4.8 mm diameter. Hole positions to be agreed with the customer prior to manufacture or as shown on the customer drawing.

Each cell in an attenuation vent acts as a waveguide and its performance is a function of its width/height and the ratio between the depth and width of the cell. Generally an aspect ratio of 4 or 5:1 is used.

VH vents are finished to suit specific applications and can be protected by Alocrom 1000, 1200 or electroplating. We can also offer a chromate conversion which is RoHS compliant.

Specifications:

For gasket material specifications please refer to the K Range, E Range and S Range pages.

Performance:

Frequency	Field	Type VH-01
10 KHz	H	45
100 KHz	H	49
1 MHz	H	51
1 MHz	E	>100
10 MHz	E	>100
100 MHz	E	>100
1 GHz	P	98
10 GHz	P	95

Tolerances:

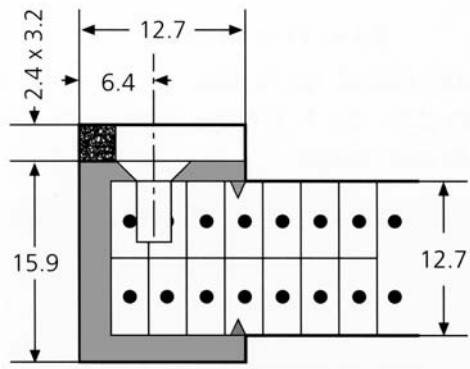
Overall dimensions	± 0.8mm
Fixing holes/fasteners	± 0.5mm with jigs ± 0.2mm

Dustfiltration

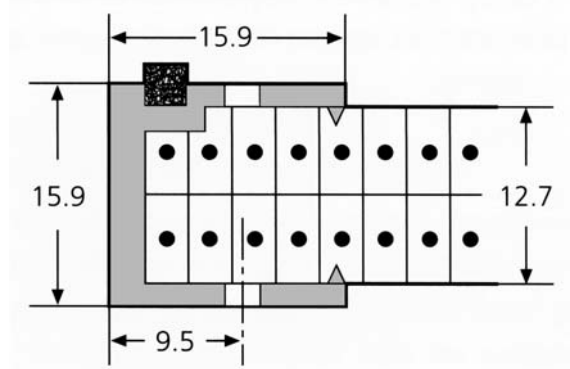
Demountable dustfilters are available for use with attenuation vents and are featured in the VB Series section. They are generally produced using the AF1 or AF5 frame styles and can be mounted with quick-release fasteners for ease of cleaning or replacement.

For aluminium vent panel types and styles not shown please contact us or forward a detailed drawing for quotation.

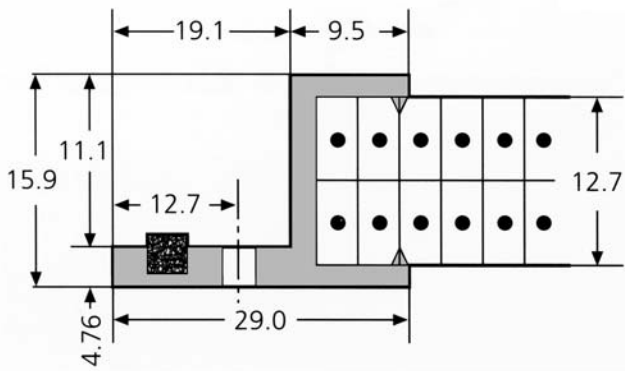
VH AF1



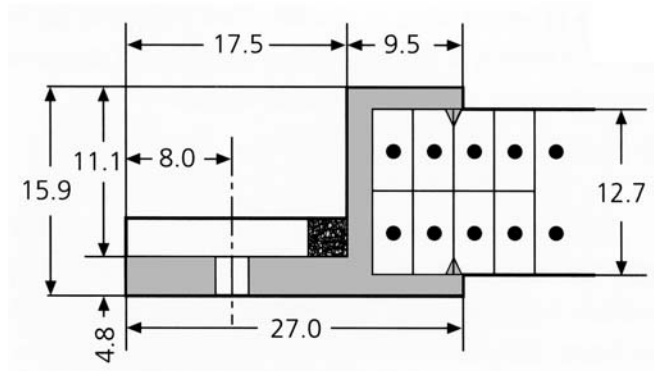
VH AF2



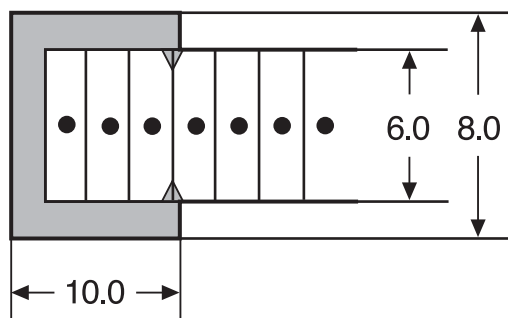
VH AF3



VH AF4



VH AF5



Our VF Series combines the benefits of an attenuation vent panel with the properties of a dustfilter in a single frame, unlike the VB Series which utilises separate units fixed together in-situ.

Standard frame styles are AF1 to AF4 and they incorporate a triple layer of woven and corrugated aluminium mesh. Each layer has a slightly different degree of corrugation and so provides separation and increased airflow potential. To enable it to perform its dual function the VF filter material is relatively dense and so requires an assisted airflow to operate correctly. A 'kickplate' is built into the unit to protect the filter from damage.

Applications:

VF dustfilters are mounted in the same manner as the VH series and are used in industrial or military environments where a 'heavy duty' attenuating dustfilter is required and the lighter weight de-membrated polyurethane VB Series is not suitable. They are not designed for pure convection and need a driven airflow. They may be solvent cleaned after removal but particular attention should be paid to the replacement of gaskets which could be affected by compression-set or hydrocarbon/solvent contamination.

How to Order:

Specify: Series-Frame Style-Vent Media-Overall Size-Number of fixings-Fixing Type/Size
Where possible please provide a detailed drawing.

Series	Frame Style	Vent Media	Overall Size	Fixings (No.)	Fixing Type
VF=Dust Filter	AF1	08=Triple mesh	xxxx-xxxx	xx	C/T=Captive insert
Aluminium	AF2				T/H=Through hole
	AF3				
	AF4				

Example:

VF-AF1-08-2260-4330-12-T/H (4.8) specifies a corrugated three layer aluminium woven mesh dust-filter in an AF1 style frame with 12 through holes of 4.8 mm diameter. The hole positions would be agreed with the customer prior to manufacture or as shown on the customer drawing.

Specifications:

Woven Aluminium Screen

AMS-4182

Performance:

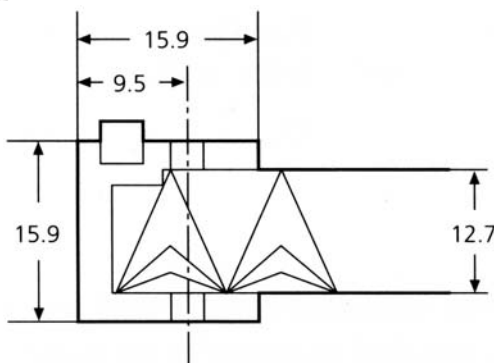
Shielding effectiveness in Magnetic (H) field between 10KHz and 1 MHz is comparable to aluminium honeycomb whereas Electric (E) field between 1 MHz and 100 MHz is typically 10 to 20 dB less. Attenuation in Plane wave typically 40-50 dB between 1 and 10 G Hz.

Tolerances:

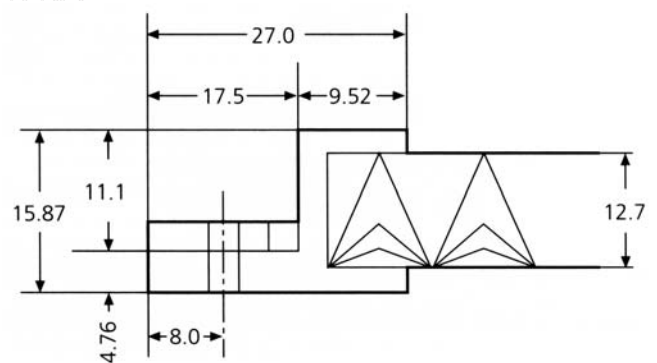
Overall dimensions ± 0.8mm
Fixing holes/fasteners ± 0.5mm
with jigs ± 0.2mm



VF AF2



VF AF4



Our VB Series vent/filter assemblies are composites of the VH Series honeycomb attenuation vents and demountable dustfilter panels containing a demembrated polyurethane filter media. The vent is specified in the normal way and contains, within its mounting frame, additional fixings (usually captive threaded inserts) which are used to retain the framed dustfilter element.

The dustfilter can be mounted either side of the vent panel and attention should be paid when specifying the type of interface gasket to ensure that, where necessary, it is conductive. The filter material is available with openings of 30 to 60 pores per inch as standard, but others can be specified, and is secured by a woven mesh kickplate.

Applications:

VB Series vents are usually used inside racks and electronic equipment enclosures, in particular where the ingress of dust or foreign matter is likely but the heavier duty VF Series is not needed. Filters fitted inside the equipment can have quick-release fastenings and do

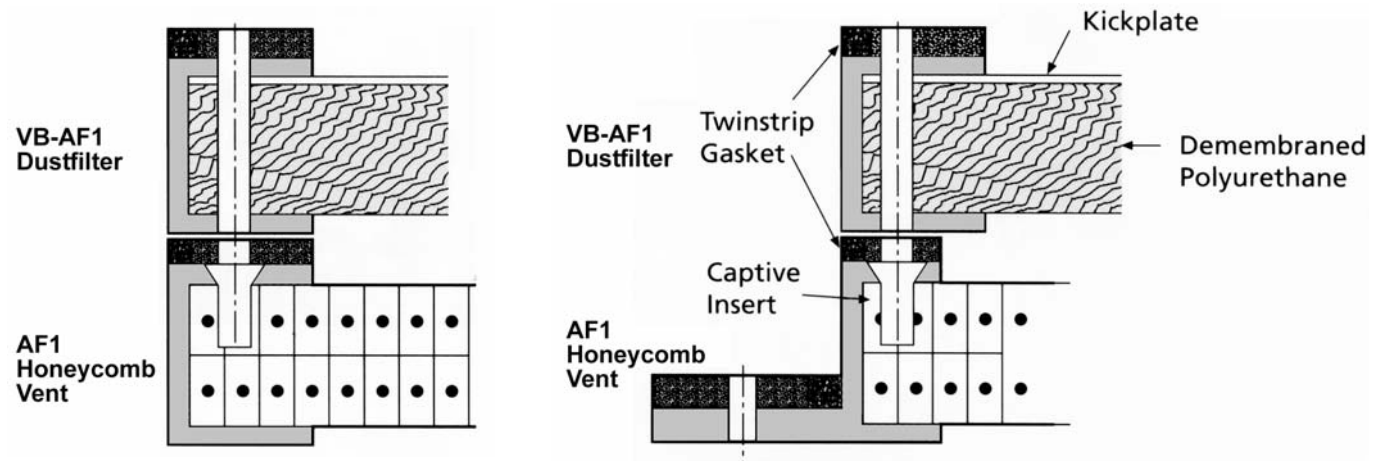
How to Order:

Specify: Series-Frame Style- Vent Media-Overall Size-Number of fixings-Fixing Type/Size
Where possible please provide a detailed drawing.

Series	Frame Style	Vent Media	Overall Size	Fixings (No.)	Fixing Type
VB=Composite	AF1	09=	xxxx-xxxx	xx	As Specified
	AF2	Demembrated			
	AF5	Polyurethane			

Example:

VH-AF1-01-2260-4330-12-T/H (4.8) plus VB-AF1-09-6 specifies an AF1 style honeycomb vent fitted with an AF1 dust-filter using 6 fasteners. It would be normal in such instances for the assembly to be detailed in drawing form indicating the precise mounting method and sequence in relation to the enclosure.



not require a shielded gasket. In applications where the attenuation vent is fixed directly to the enclosure, dustfilters mounted outside the equipment do not need a shielded gasket.

Specifications:

For gasket material specifications please refer to the K Range, E Range and S Range pages.

Performance:

Frequency	Field	Type VH-01
10 KHz	H	45
100 KHz	H	49
1 MHz	H	51
1 MHz	E	>100
10 MHz	E	>100
100 MHz	E	>100
1 GHz	P	98
10 GHz	P	95

Tolerances:

Overall dimensions	± 0.8mm
Fixing holes/fasteners	± 0.5mm with jigs ± 0.2mm

Our VP Series of honeycomb ventilation panels can be custom manufactured from steel, brass or stainless steel. When selecting the material, corrosion resistance relevant to the application environment should be considered along with the attenuation requirements.

Typical construction styles are shown in figures a & b (other styles are available). Typical attenuation figures for the material types and thickness options are shown below. Both rectangular and circular styles are available. Various plating and gasket options are available and should be discussed at the time of ordering. The VP Series of ventilation panels are manufactured to customer specification and a detailed drawing should be supplied.

Performance:

Frequency	Field	Brass	Brass	Brass	Steel	Steel	Steel	S/Steel	S/Steel	S/Steel
		3.2mm Cell 12.7mm Thick	3.2mm Cell 25.4mm Thick	4.8mm Cell 25.4mm Thick	3.2mm Cell 12.7mm Thick	3.2mm Cell 25.4mm Thick	4.8mm Cell 25.4mm Thick	3.2mm Cell 12.7mm Thick	3.2mm Cell 25.4mm Thick	4.8mm Cell 12.7mm Thick
1 KHz	H	13	25	20	16	30	29	16	30	29
10 KHz	H	38	80	70	50	85	72	50	85	72
100 KHz	H	80	100	95	90	118	108	90	118	108
1 MHz	H	105	110	110	110	118	115	110	118	115
10 MHz	H	105	110	110	110	118	115	110	118	115
1 KHz	E	110	110	110	110	111	111	110	111	111
10 KHz	E	115	115	115	115	115	115	115	115	115
100 KHz	E	115	120	120	115	120	120	115	115	120
1 MHz	E	115	120	120	115	120	120	115	115	120
10 MHz	E	115	120	120	115	120	120	115	115	120
100 MHz	P	115	130	130	115	130	130	115	115	130
400 MHz	P	115	130	130	115	130	130	115	115	130
1 GHz	P	105	120	120	105	120	120	105	105	120
10 GHz	P	105	120	120	105	120	120	105	105	120

Note: Performance will be affected by the type of mounting used. Figures based on 300mm x 300mm test pieces.

How to Order:

Produced to customer drawings.

Applications:

The VP Series is designed for high performance applications such as screened rooms, military applications and shelters where high attenuation is required across the frequency range and particularly in the H-field. This range of ventilation panels is especially suitable for EMP and TEMPEST applications.

Specifications:

Standard Cell Sizes (Opening x Depth)

3.2 x 6.4mm	3.2 x 25.4mm	4.8 x 19.2mm
3.2 x 12.7mm	4.8 x 6.4mm	4.8 x 25.4mm
3.2 x 16mm	4.8 x 12.7mm	6.4 x 12.7mm
3.2 x 19.2mm	4.8 x 16mm	6.4 x 25.4mm

Tolerances:

Overall dimensions	± 0.8mm
Fixing holes/fasteners	± 0.5mm with jigs ± 0.2mm

