



category	<b>sound diffuser</b>
description	<b>BAD panel</b>
part code	<b>GRG360 – GRG410</b>



(Binary Amplitude Diffuser/Absorber)

### BAD PANEL ACOUSTIC DIFFUSER

has been developed to aid well balanced acoustic design. It provides simultaneous, uniform sound diffusion at high and mid-band frequencies, which crosses over to pure absorption below the diffusive cut-off. The energy that is not diffused is absorbed.

The BAD panel is a planar 2-dimensional binary reflection amplitude grating consisting of a 31 x 33 element array of absorptive and reflective areas.

### Advantages

- Easy installation
- Various mounting/fixing options
- Standard and custom sizes
- Class 0 fire rated core
- Wide colour range
- 25mm–100mm thick
- Simultaneous diffusive and absorptive sound control in a thin, decorative, cost-effective panel

### Applications

- Recording studios
- Post-production studios
- Practice rooms
- Home theatres
- Mastering studios

The BAD panel is ideal for any facility that needs reflection control from a decorative, upholstered, thin and cost-effective wall or ceiling panel.

### Why BAD Panel?

Traditional fabric-wrapped panels offer a cost-effective, low profile aesthetic approach to providing reflection and reverberation control. However, such panels offer little sound diffusion and large area application may lead to an acoustically 'dead' space. Variable impedance arrays offer some help, but cannot provide high and mid-frequency diffusion.

The **BAD panel** is an innovative, variable impedance fabric-wrapped acoustic panel with a binary template consisting of reflective areas and holes over a semi-rigid fibreglass panel; this provides high and mid-frequency diffusion and low-frequency absorption.

### Installation

See our website for information relating to installation:

<http://www.customaudiodesigns.co.uk/diffusers/baddiff.htm>

The panel consists of a binary mask attached to the face of a semi-rigid fibreglass panel which is upholstered in a decorative architectural fabric.

**NOW ALSO AVAILABLE ►**  
BAD ARC with curved form panel for extra diffusion



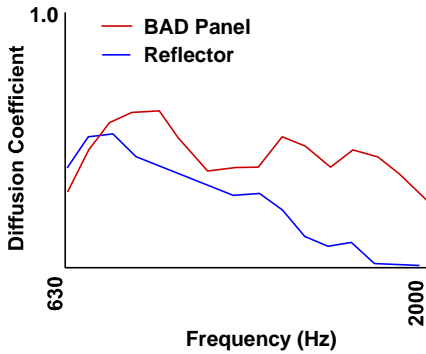
**The BAD Panel extends the acoustic performance of traditional absorptive fabric-wrapped panels and allows wide area coverage without excessive deadening.**

Part Code	Size	Coverage
GRG360	1200mm x 600mm x 25mm	0.72m <sup>2</sup>
GRG390	1200mm x 600mm x 50mm	0.72m <sup>2</sup>
GRG370	1200mm x 1200mm x 25mm	1.44m <sup>2</sup>
GRG400	1200mm x 1200mm x 50mm	1.44m <sup>2</sup>
GRG380	1200mm x 2400mm x 25mm	2.88m <sup>2</sup>
GRG410	1200mm x 2400mm x 50mm	2.88m <sup>2</sup>

- Wide range of fabric colours
  - Split batten for wall mount secret fixing
  - Custom sizes available to special order
  - 'z' bars for ceiling mount
  - Spike 'impaling' clips for wall mount
- All available – please discuss when ordering. Additional cost may be involved.

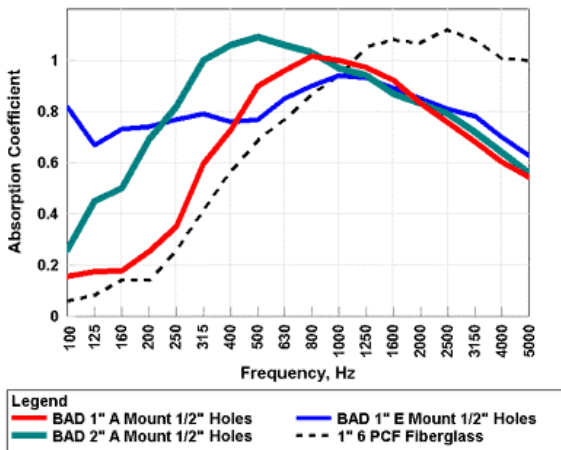


## Acoustic Performance



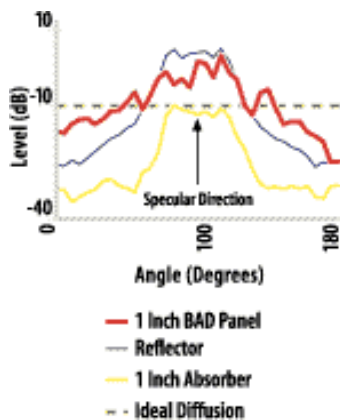
## Diffusion

The performance of a scattering surface is characterised by the diffusion coefficient, which is the standard deviation of the 1/3 octave angular response, shown to in the graph left at 12.5 kHz. The graph illustrates how uniformly the BAD Panel scatters sound across the frequency spectrum, compared to a reflective panel, for normal incidence.



## Absorption

The graph to the right illustrates how the BAD Panels can offer an increase in bass absorption over a standard upholstered 1" panel below 1000 Hz, and a decreased absorption above this frequency. The binary template allows the sound above 1000 Hz to be uniformly diffused providing reflection control without destroying the room's ambiance.



## Angular scattering response

For normally incident sound, the graph illustrates the angular response at 12.5 kHz. The flat reflector scatters sound primarily into the 90° specular direction. The wall mounted absorptive panel has similar response, only attenuated. The BAD Panel decreases specular scattering and more closely approaches the uniform ideal diffusion line.



**Guidance  
for BAD Panel  
from Custom Audio Designs Ltd**

More about BAD Panel:

**Performance:**

A variable impedance panel, produced by fabric wrapping a resorptive binary template consisting of reflective areas and holes over a semi rigid fibreglass panel. The resulting Binary Amplitude Diffisorbor™ Panel provides mid and high frequency diffusion and low frequency absorption.

**Features:**

Simultaneous diffusive and absorptive sound control in a thin, decorative, cost effective panel.  
Optimal binary reflection amplitude grating containing resorptive elements.  
Acoustical functionality concealed with decorative upholstered fabrics or commercial stretch fabric.

**Edge detail:**

Flat.  
Bevelled.  
Radius.

**Installation:**

Construction adhesive.  
Hook and loop fasteners.  
Impaling clips.  
T-bar grid system.  
Z-clips for wall mounting.  
Rotafast fixing system  
low profile aluminium battens.  
Timber split battens  
Magnetic.

**NBS**

- Manufacturer: Custom Audio Designs Ltd
- Web: [www.customaudiodesigns.co.uk](http://www.customaudiodesigns.co.uk)
- Tel: +44 (0) 1730 269572
- Product reference: B.A.D. panel acoustic diff/sorba.
- Size: [??? x ??? mm]. Any size up to 3000 x 1200mm
- Thickness: [25, 50, 75 or 100 mm].
- Fabric/colour: [Cara EJ\_\_].
- Mounting: [Surface mount using a wooden frame].  
[Surface mount using spikes].  
[Surface mount using adhesive].  
[Z bar ceiling fixings].  
[Ceiling cloud rings].  
[Magnetic].  
[Timber split battens].  
[Metal AliBatts].  
[Ceiling wires].
- Edge detail: [Square].  
[Bevelled].

