

## in-akustik Reference Hightech Gel Absorber The optimum decoupling of hi-fi equipment and loudspeakers



### UNSHAKEABLY CLEAN SOUND

PRESS RELEASE (1048 characters (with spaces) / 134 words)

High-end and hi-fi systems are a combination of highly precise and delicate devices. Perfectly attuned to each other, they allow music to be played back in outstanding quality. So that all components can work without interference, just like sensitive measuring equipment they need to be kept free of vibrations and shocks as far as possible. Vibrations are caused in different ways and they can be transmitted by structure-borne and air-borne noise. The combination of air-borne and structure-borne noise causes all of the components of the hi-fi system to vibrate mechanically. Experiments have shown that this is a considerable impact on the sound. The Reference Hightech Gel Absorbers from in-akustik form a solid sound basis that is available as a combination set for all weight classes. They have a special gel at their core that absorbs vibrations. This set contains 12 gel pads for various weight classes for the optimum tuning and decoupling of the devices and loudspeakers.

BACKGROUND (5814 characters (with spaces) / 804 words)

#### General information:

High-end and hi-fi systems are a combination of highly precise and delicate devices. Perfectly attuned to each other, they allow music to be played back in outstanding quality. So that all components can work without interference, just like sensitive measuring equipment they need to be kept free of vibrations and shocks as far as possible. Vibrations are caused in different ways and they can be transmitted by structure-borne and airborne noise.

#### Structure-borne sound:

This means vibrations that are present on a structure, e.g. the housing of a device. A good example of this is the loudspeaker box. The membranes of the speakers are set vibrating in a certain manner. As they are mechanically connected to the housing of the loudspeaker, they transfer vibrations to the housing. The scale of these vibrations depends on the weight and the insulation of the housing. They are transferred to the area on which they are standing, i.e. the floor. Two things now occur: On the one hand the floor gives off a part of the structure-borne energy as airborne sound and this results in the typical droning noise; on the other hand the structure-borne noise is often transferred to the hi-fi rack and therefore to the hi-fi devices. We will find out more on the effects on the devices later.

#### Airborne noise:

This means vibrations that are transferred through the air and that usually can be heard by humans (with the exceptions of infrasound and ultrasound). Airborne noise not only excites the eardrum but also acts on all other surfaces it reaches. This also affects the hi-fi components and the surfaces on which they are standing, particularly if they are not very solid. As the primary purpose of a hi-fi system is to create sound, shaking of the devices due to the sound they are producing is a natural by-product.

### Summary:

The combination of airborne and structure-borne noise not only causes the glasses in the cupboard and exhibits in display cases to vibrate mechanically but also the components of the hi-fi system itself. Experiments have shown that the sound of the components is affected by the effects of vibrations. One reason for this is the capacity values of components in relation to each other that change continuously due to the vibrations.

### Help!

The Reference Hightech Gel Absorbers from in-akustik form a solid sound basis that is available as a combination set for all weight classes. The Reference Hightech Gel Absorbers from in-akustik have a special gel at their core that can take up or absorb vibration energy. They decouple loudspeakers and devices from the surface on which they are standing. You could say that it is sufficient to decouple the loudspeakers. But, as described above, there is still airborne noise that also acts on the surface on which the devices are standing. So it therefore makes sense to decouple all of the devices from the surfaces on which they are standing. The same applies to devices such as CD players or hard drives that produce mechanical vibrations themselves that need to be kept away from other components as far as this is possible.

### Quality not quantity:

While we are on the subject: The weight of the devices influences the effectiveness of the absorbers or the absorbent material. In particular the damping ratio alters depending on the frequency and the self-resonance. Therefore it makes sense to adjust the absorber to the weight of the respective component. in-akustik performed various measurements in order to find the perfect mix for the absorber gels for the different weight classes. This involved placing gel mixtures on an agitation plate and then different masses (weights) were placed onto it. The agitation plate was caused to vibrate with a noise signal (pink noise). An acceleration sensor measured the vibrations of the agitation plate and the vibrations in comparison with the vibrations present at the mass. The suspicion was that softer gel mixtures should be used for lighter devices and harder ones for heavy devices. The result was as astounding as it was (in retrospect) logical. Due to the differently damped spring-mass principles that result from the combination of gel mixtures and weights, overlaps and shifts occur as can be seen in the table with the recommended pad types and weight classes, as well as also in the graph.

Gel pad / device weight (per set of 4)

Green: up to 5 kg (up to 1.25 kg / absorber)

Blue: 5 – 10 kg (1.25 to 2.5 kg / absorber)

Green: 10 – 20 kg (2.5 to 5.0 kg / absorber)

Black: 20 – 40 kg (5.0 to 10.0 kg / absorber)

\* Due to the resonance response, we recommend this gel pad for use in two weight classes.

### Note:

The measurements were made in simulated conditions and the results could differ from real conditions. The weight classes given in the table are recommendations. The suitability of the absorbers must be checked in relation of the stability of the components in order to e.g. avoid loudspeakers from toppling over.

### Fine tuning:

In order to set up components optimally and decouple them, different gel pads are included in this set. In the table you can find the assignment to the respective weight classes. The values are recommendations based on measurements made by in-akustik. The graph shows the homogeneous attenuation curve of the different gel pads and the corresponding weight classes. Of course, other combinations can be tested in order to find the best solution for the user or the best solution for the individual hi-fi system.

### Facts

- Hightech Absorber Gel
- Top and bottom part made from stainless steel
- 12 (3 x 4) Hightech Gel pads in the set
- Covers four weight classes from 5 to 40 kg
- Felt pads and adhesive pads included
- Dimensions approx. 45 x 11.5 mm (D x H)

### Contact

Felicitas Siegel

Telefon: +49 (0) 76 34 / 56 10-40

eMail: felicitas@in-akustik.de

### Company Profile

“No compromise in sound”—in short, this principle has been our driving force since the establishment of in-akustik in 1977. We are part of the Braun group, a strong corporate network. All members of the group are dedicated to the same goals: doing what we do with love and passion, offering products of outstanding quality, and being always one step ahead of the competition. Headquartered in Ballrechten-Dottingen (southwest Germany), in-akustik GmbH & Co. KG is a leading company in the hi-fi and music industry today. We are not only among the top vendors of hi-fi and video cables but also run our own independent record label. In July 2014, we became the German distributor of Piega, a high-end loudspeaker manufacturer from Switzerland. In addition, in-akustik offers smart-home equipment for use in private as well as public spaces. We will never stop trying to improve even the best cables, the finest loudspeakers, and the most beautiful media. A key factor of our success is that our headquarters are located near Freiburg—a region often referred to as the “German Tuscany”. Our ambitions as a constantly growing business in an international market manifests itself in the numerous urban centers nearby—whether Strasbourg, Zurich, Milan, or Basel. At the same time, our immediate surroundings—the Rhine valley, the Kaiserstuhl, the Black Forest, and the university city of Freiburg—give us the peace and calm required for meticulous work.