

The Goddess

The new Audio Physic Cardeas was named after a Roman goddess and does indeed deliver an unusual, yet heavenly, sound.

Test: Holger Biermann Fotos by: Julian Bauer



Two woofers are built into the sides of this elegant cabinet, although only one of them is active, while the second acts as a passive radiator, tuned to 20 Hertz. Our setup tip: Position the Cardeas so that the active woofers are facing inward.



So where does the new Cardeas fit into the Audio Physic hierarchy? Managing director Dieter Kratochwil and chief designer Manfred Diestertich were both present at the presentation of the new speaker and struggled with the question, hesitating before answering: "Well, in principle it belongs right at the top, certainly with regard to its technology."

And how right they are. The half active Kronos (3/04) has come to the end of its time, while 100,000 Euro giant models like the Cherubin from the 1990s are dead and buried. Leaving these behind, Audio Physic is now pioneering a new method, one that has brought huge success to leading industry figures such as B&W and Canton, namely offering leading-edge technology at prices that somehow remain within reach.

Correspondingly, this new technology flagship almost comes across as modest, costing 18,000 Euro, measuring 30 x 120 x 60 centimetres and weighing 55 kilograms. Nevertheless, everywhere you look in this elegant four-way design it is clear that Audio Physic have put an extreme amount of effort into this loudspeaker, right down to the finest details.

Take the cabinet, for example. The core unit is already extremely solid due to its multifaceted nested structure (see diagram on page 32). Diestertich has then surrounded this construction with a second wall. Both walls are made of MDF boards, which have been slit lengthways on the interior side,

allowing them to be bent and giving the cabinet its curves. These boards are, however, not fully glued together. Adhesive has only been used in areas where the inner cabinet resonates slightly. All other areas contain a gap that is about 1.5 to 2 millimetres wide, making the structure less mechanically stiff than it would be if the two surfaces were fully glued together. Nevertheless, this wooden sandwich with an air filling (similar to double-glazing) has more efficient acoustics because less sound is released through the cabinet walls.

Major effort has also been put into the drivers, which, as required by Diestertich's design,



No additional cable: the capacitor contacts are long enough to reach the tweeter.

involved many hours of nerve-racking work. The 10" woofer with an aluminium cone and the passive woofer of the same size, the aluminium cone tweeter with a 1.6" diameter and very broad spectrum and the 6" midrange drivers (which, as can be expected, also have aluminium cones) all have decoupled baskets and are extremely intricately designed.

All Cardeas drivers have aluminium cones

And this is where we come across an essential keyword: The "decoupling" is literally a central thread running through the entire Cardeas concept. It refers to the fact that all components that affect the sound delivered by the speaker are decoupled from vibrating mounting surfaces. 15 years ago, Diestertich discovered an effective decoupling method using thin rope: the String Suspension Concept (SSC). These nylon threads have long since been replaced by tightly stretched nylon nets, which are designed to trap interfering vibrations.

And this brings us back to the midrange drivers. The Cardeas models have two baskets: one external basket, which is fixed into the baffle, and one internal basket, which is firmly connected to its external counterpart by an SSC net. The tweeter is also attached in the baffle by an SSC net; in fact, even the jacks are decoupled in this manner. Of course, this kind of decoupling is known to be used in drivers, but now it's used on the terminal too?

“Just have a listen”, is Diestertich’s response, “the sound is much clearer with SSC.” And this man certainly knows what he’s talking about, as was proven by the small dampers in many *stereoplay* tests, resulting in astonishingly large improvements in sound clarity.

Indeed, the consistent approach doesn’t stop here: even the crossover network has undergone the decoupling treatment. Furthermore, Diestertich has produced an unusual circuit for the crossover network (as shown in the box underneath) and has even integrated a somewhat esoteric feature: The clever Gabriel chips are attached to the capacitors in order to reduce electromagnetic radiation and are currently a hotly debated topic in several forums. The Audio Physic camp remains unperturbed by these debates: “If you can’t hear the difference, you don’t have to buy it. We, however, consider it to be a significant improvement.”

Let’s take yet another look at the 6" midrange drivers, three of which can be found in the Cardeas. The middle driver processes from 350 to 2700 Hertz, while the external drivers are left to cover the bass range of 100 to 350 Hertz. Achieving such performance doesn’t come easy. The distortion levels of the Cardeas are indeed very low over the entire frequency range, but both of the woofer/midrange drivers display peaks at 80 and 250 Hertz. The tight bass response is also quite noticeable. “Of course we could add more bass,” assures Diestertich, “but most music fans have small rooms, in which 90 percent of conventional speakers fail where bass is concerned, even ours.”

The Cardeas, designed to produce a decidedly lean bass, did indeed deliver an unfamiliar tight sound at first in our heavily damped *stereoplay* listening room. Nevertheless when the first

The Cardeas is meant to deliver a tight sound

bars of music came through, it became clear that we were dealing with a loudspeaker with an airy level of detail and incredible spatial reproduction



Even the connecting terminals emphasise that this is a high-end product. The top quality WBT terminals are intricately decoupled. This SSC decoupling ensures that mechanical resonances carried in the loudspeaker cable are kept out of the speaker itself.

that may really be able to establish new benchmarks. If only that rather lean bass didn’t exist... Things did, however, constantly improve as we gradually moved the speaker closer to the back wall, with the low frequency sound developing into deep and full bass. We stopped moving the loudspeaker once it had reached a distance of 40 centimetres from the wall. Then suddenly, the right amount of every sound aspect was present: be it the sonorous chest tone produced by Livingston Taylor in his song “Isn’t She Lovely”, the rock-hard pulsing of Marcus Miller’s bass guitar (“Panther”) or the powerful drumbeats in Erich Kunzel’s version of

Tchaikovsky’s “1812”. When set up correctly, the Cardeas is perfectly able to deliver deep punchy bass, whilst also constantly remaining precise. This precise sound reproduction remains impressive right through to the higher frequencies. With this, we don’t mean the ostensible Prussian types of sound that are so commonly delivered, but a rarer, more mellow reproduction. Thanks to its tremendous dynamic attack, the Cardeas was able to confidently cope with the harp in Friedemann’s “Kleiner Zupfmusik”, which is normally a hard nut to crack, without causing it to deteriorate into a rough sound, as is the case with many other ‘quick’ sounding loudspeakers.



It is for this reason that the loudspeaker achieves such an authentic sound reproduction. You certainly don’t need to be an audiophile specialist to hear that Livingston Taylor’s whistling sounds completely natural when played through the Cardeas, or to realise that its three-dimensional sound image is simply breathtaking. After completing their tests, our reviewers awarded the Cardeas 65 sound points. For a loudspeaker costing less than 20,000 Euro, this result is something of a sensation. If you then add in the speaker’s harmonious proportions and coherent positioning concept, you can only come to one conclusion: The Cardeas is a real *highlight*!

The Cardeas baffle is covered by an aluminium sheet, which strengthens the front of the loudspeaker and just happens to look amazing too.

stereoplay Highlight

Audio Physic Cardeas

Distribution: Audio Physic, Brilon
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www.audiophysic.com

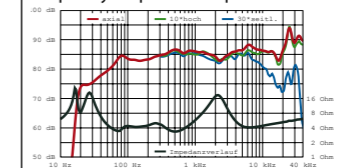
See website for distributors abroad

Dimensions: W:30,5 x H:119 x D:59,5 cm
Weight: 55kg

Positioning: Due to the slim woofer design the Cardeas can be placed near the back wall. For rooms of up to 50 m²

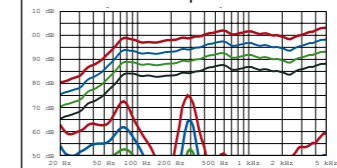
Measurements

Frequency Response & Impedance

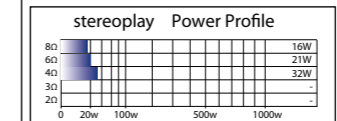


Very tight adjustment in the woofer and bass note area. The high frequency increase from 20 kHz ensures transparency.

Level & Distortion Response 85-100dB SPL



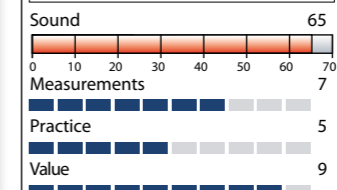
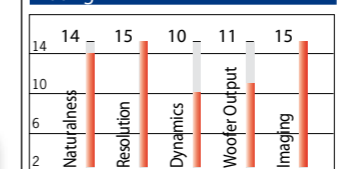
The peak at approximately 300 Hertz also limits the maximum level.



Requires amplifiers supplying 32 W into 4 Ohm for HiFi performance levels.

Lower Crossover Freq. -3/-6dB 64/46Hz
Maximum Level 97 dB

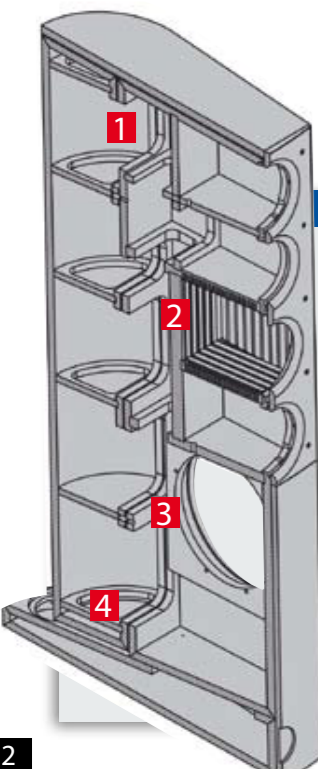
Rating



The Cardeas with its perfectly matched proportions delivers transparency and airy lightness to a degree seldomly heard. Well-suited for smaller rooms and near-wall positioning.

stereoplay Test Result

Sound	65 Punkte
Absolute Top Class	65 Punkte
Overall Result	86 Punkte
Excellent	86 Punkte
Price/Performance	outstanding



The entire rear section (1) is dedicated to the woofers. The midrange driver chamber is specially damped (2), the bass port is doubly reinforced (3), and the crossover sits in a solid bottom plate. (4)

stereoplay Measuring Technology

The Rather Different Crossover Construction

Engineers may not notice the difference, but high-end listeners certainly will: Diestertich has designed a symmetrical crossover network. This means that no driver is directly attached to the ground of the amplifier. There is usually a coil placed in front of the driver in order to protect the woofer from high signals (see diagram) but in the new Audio Physic models, Diestertich splits the coil inductance, for example from one coil of 2 millihenry into two coils, each with a value of 1 millihenry, one in front and one behind

the woofer. In a purely mathematic sense this makes no difference and the *TESTfactory* was also unable to measure any changes. But when it came to the delivery of sound, the difference was there for all to hear. In order to verify his theory, Diestertich set up two Yara compact speakers for *stereoplay*, one with a conventional crossover and the other with a ‘symmetrical’ crossover. The improvement was striking, especially with regard to the stability of the sound image.

