

# STEREO STEREO

MAGAZINE FOR HIFI • HIGH END • MUSIC

## A Lesson in Physics



Audio Physic aims to go one better than its successful Virgo 25 model with the new Avantera. The drivers are practically the same, but the number of drivers and some clever solutions make the difference.

Special feature  
from STEREO 5/2011

When I was at school, physics was never one of my favourite subjects. This is still the case nowadays; I would much rather look at physics in relation to hi-fi systems than boring theory, particularly when it comes in a form that is as attractive and enthralling as Audio Physic's brand-new Avantera loudspeaker. The Avantera, which costs close to 13,000 Euros per pair, supersedes the old Avanti model and therefore takes its place between the Virgo 25 (costing about 7500 Euros per pair), which was successfully tested in STEREO 6/10, and the Cardeas, which costs around 19,000 Euros and is the flagship model produced by the company from the Sauerland region of Germany.

At first glance, it is immediately clear that the Avantera is a true member of the Audio Physic family. Like the other floor-standing loudspeakers made by the manufacturer from the German town of Brilon, the slim

cabinet, which becomes broader towards the rear and has boldly curved edges, tilts backwards at an angle of 7°. This helps to compensate for the time difference between the speedy tweeter and the other drivers because the sound produced by the tweeter must travel a bit further before it reaches the listener's ear. This also improves the activation of the upper acoustic range in the truest sense of the word.

**Two Midrange Drivers and Four Woofers**

The drivers of the Avantera are well-known in the world of Audio Physic loudspeakers and are of the finest quality. As we have already seen in the Virgo 25 model, the Avantera also uses the "Hyper Holographic Cone" drivers that are made exclusively for Audio Physic by the specialist manufacturer

Wavecor according to the specifications of chief designer Manfred Diestertich. These drivers stand out thanks to their low-resonance double basket construction, for example, in which metal and plastic complement each other.

**KEYWORD**

**"VCF" system:**  
The "Vibration Control Feet" use tautly stretched mesh netting that converts all movement into pull energy.

Indeed, listing all of the detailed solutions that can be found in the Avantera would stretch far beyond the limits of this test. Unlike the smaller model, the Avantera contains not one, but two "HHCM" midrange drivers, which are equipped with light voice coils with barely

any eddy currents and are located in the baffle, which in turn is stabilised by a thick aluminium sheet. Both of these drivers come into play at frequencies of 150 Hertz and more, but while the lower driver already rolls off at around 500 Hertz, the upper driver carries on until 2800 Hertz, when the tweeter then takes over. The

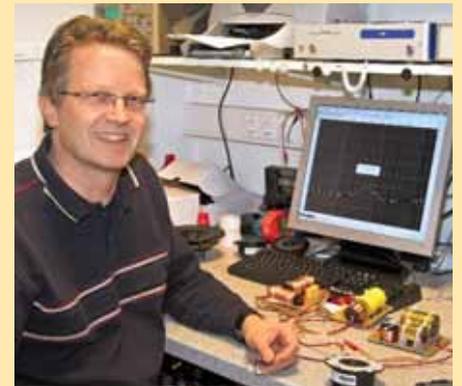
# The Largest Small Loudspeaker Expert

Being the largest and most prominent small loudspeaker provider is Audio Physic's number one objective in all aspects of its work.

The loudspeaker specialist, which has been based in Brilon, Germany, from the very start, occupies its position between the really huge loudspeaker producers and the tiny manufacturers with a high level of success. Audio Physic boasts professional production standards but does not have to constantly keep an eye on the figures and chase every trend, meaning that it can instead develop products that perfectly comply with its own sound expectations.

Over time, these products have acquired a top-class reputation, particularly on an inter-

national level. Almost 75 percent of the loudspeakers manufactured by Audio Physic are shipped abroad, with half of these remaining within Europe. The company currently has an export list containing over 40 different countries. The smooth supply of products is ensured by around 20 members of staff (see image below), who carry out their work in a nondescript functional building in the industrial area of the town of Brilon. Audio Physic would rather let others take centre stage, especially when its own loudspeakers steal the spotlight. The company headquarters are home



to an area covering around 1800 square metres for development, production and administration, which is complemented by an external storage area and off-premises warehouse offering another 400m2 of space. As is usual in this field, specialists supply the drivers and the cabinets. The final assembly, the precise inspection and the distribution of the loudspeakers are, however, always carried out in Brilon. In the image in the top right corner, the finishing touches are being added to the company's top model, the Cardeas. Audio Physic offers a total range of 20 different loudspeaker models, including centre speakers and subwoofers.

Despite the use of suppliers, there is no lack of individual solutions where this manufacturer is concerned. In fact, a search for run-of-the-mill hi-fi features in these loudspeakers would be in vain. Take the intricate drivers of the Avantera, for example. These drivers, which are also used in other models in an identical or extremely similar form, are produced exclusively for Audio Physic. When it comes to these supplied elements, chief designer Manfred Diestertich (see image above) lays down clear specifications and remains in close contact with his suppliers. In order to



use of two midrange drivers was necessary in order to ensure a seamless blend with the lower frequencies, where the Avantera uses four woofers to provide some serious punch.

The quartet of 5" woofers is divided into two pairs. These sit in the side walls of the loudspeaker, which are reinforced by rigid structures. A couple of reflex ports in the base of the loudspeaker provide the woofers with the required breathing space.

Diestertich chose this solution because four smaller drivers are quicker and therefore easier to control than two large woofers. The two separated groups of two woofers that Diestertich included in the Avantera, which operate in parallel but are spatially separated by a "mechanical flow resistance", are designed to have a positive influence on the bass reproduction in terms of its punch, richness and sophistication. The side-firing configuration of the woofers, which resonate in phase, additionally has the



The high-quality WBT jacks are mounted on special rubber "impact sound interrupters"

advantage that their vibrations cancel each other out, meaning that the cabinet stays still. The cabinet itself is mounted on two stable aluminium profiles that are damped with rubber caps and contain holders for the spikes that come with the loudspeaker or for the decoupling "VCF 2 Double" disks that are available at an extra cost (a set of eight for around 340 Euros), at each end. They can be adjusted from above and are fastened with retainer rings and then concealed by caps.

### Damped WBT Jacks

The drivers, which are accurately designed to minimise mechanical losses to the highest possible extent, are activated by a signal produced by the crossover, which is equipped with high-quality components. Some of the capacitors, for example, are, like the drivers, special editions made exclusively for Audio Physic by the British manufacturer ClarityCap. These are joined by other impressive efforts from the loudspeaker expert, namely the clever foot system, which is fixed with neoprene plugs like the drivers, right through to the inner walls of the chamber for the midrange drivers, which are, so to speak, designed to serve as diffusers. With this mode, the company from the Sauerland region gives us an informative lesson in the physics of loudspeaker construction.

Oops! We nearly overlooked an extremely important detail in our list of Avantera features, which is by no means complete. The powerful "next-gen" jacks on the connecting terminal, which were produced by the specialist manufacturer WBT from Essen, Germany, have also been fitted with WBT's new "impact sound interrupters". Is this really such a big deal? It certainly is, as STEREO was able to prove at workshops with a specially prepared Virgo model. The specially adjusted rubber components effectively support



the inner arrangement, spatial image and attention to detail of the sound reproduction. In the test, we initially compared the Avantera to the Virgo 25, which ultimately has similar characteristics to the Avantera and is also a top highlight in the class of audiophile loudspeakers.

#### KEYWORD

**Diffusers:** Diffusers disperse the sound in virtually all directions in order to eliminate the risk of constant and therefore interfering reflection lobes.

Nevertheless, this comparison was practically over as soon as it started. The Virgo's big sister, the Avantera, not only costs around 5500 Euros more but also gives a sound reproduction that promotes it at least to the next league. On top of this, it has noticeably more power and is able to quickly and easily tap into this

power. Although its drivers are practically identical to those in the Virgo, the Avantera also seems to produce a midrange that is more balanced and authentic as well as high frequencies that are more mellow and smoother. By doing so, it develops even more musical fervour and the exact amount of relaxed implicitness and effortless accuracy that is expected of loudspeakers in this (price) class, but that so many fail to deliver.

### Bass Power with no Added Fat

Just like the Virgo 25, the Avantera also reaches extremely deep into the bass frequencies, but thanks to the higher radiant energy of its four woofers, it offers a slightly reduced output at frequencies below 50 Hertz (see frequency response) and therefore produces a substantial and also



The drivers and some of the technical highlights of the Avantera can also be found in the lower-priced Virgo 25 model.



preserve its originality and guarantee a maximum amount of flexibility Audio Physic even pays for many of the tools that are used to produce its made-to-measure drivers.

Dieter Kratochwil (see image below), has been part of the company, which was established in 1985, for nine years and plays a key role in its development. He believes that Audio Physic's success is not only based on the quality of its loudspeakers but also its consistent cooperation with specialist dealers and retailers. As he explains: "Emotional products do not belong on the Internet or in electronics stores. They need to be somewhere where you can really experience them!"



**ASSOCIATED EQUIPMENT**

- CD PLAYER: Einstein The Source, Trigon Recall II
- PRE-/AMP.: MBL 5011/Acc. Arts AMP II-MK2
- INTEG. AMPLIFIER: Audionet SAM G2, Symphonic Line RG9 MKIV Ref., Trigon Energy
- LOUDSPEAKER: Audio Physic Virgo 25, B&W 802 Diamond, Wilson Audio Sasha
- POWER BAR: Vibex Reference Power Block
- LS cable: Furutech Speakerflux, Silent Wire LS7

contoured sound without excessively stimulating the spatial frequencies. The precise timing (see step response), in which the lower frequencies are not delayed, also plays a significant role in the production of a full-bodied but also precise bass performance. The Audio Physic loudspeaker accurately, emphatically and clearly presents the crisp and deep pulses of He Xun-Tian's excellent sounding "Para Mita" with the right amount of oomph but no added fat. Thanks to the Avantera's high sensitivity of close to 90 decibels and its good-natured impedance curve, even smaller amplifiers don't have to struggle. Amplifiers had, however, better not dare to fail to meet the high sound standards set by the company from

the Sauerland region. We achieved a particularly good combination with the RG9 MK IV Reference integrated amplifier from the company Symphonic Line, which has a distinctive inner rigidity and a radiant and delicately powdery overtone range that perfectly suits that of the Avantera, which is subtly shaded yet delivers sound with an exemplary resolution. When played with this combination, guitar music sounded so lively yet at the same time so colourful, making the instrument sound so real that we could just reach out and touch it.

In accordance with the company's audiophile tradition, this new Audio Physic loudspeaker scrupulously and steadily reproduces spatial relationships, for example those in "Saturday Night" by the Red Norvo Quintet, in which it positions the audience the right distance from the band and lets the dynamic beats of the marimba explode quickly and dryly in the forefront.

The Avantera also succeeded in producing a true masterpiece in the form of Christy Baron's tremendously complex song "Overjoyed" - a delicate yet profound web of sound that the Avantera was able to balance with truly artistic sophistication. It really is astonishing what applied Audio Physics is able to achieve!

*Matthias Böde*



The cutaway model shows the complex and extremely well-reinforced interior structure of the Avantera. The midrange drivers and tweeters operate in separate chambers.

The aluminium bars can be used with the spikes that are delivered with the loudspeaker or with the special "VCF" disks, which are superior in terms of sound.

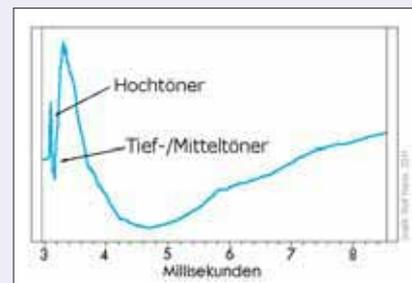
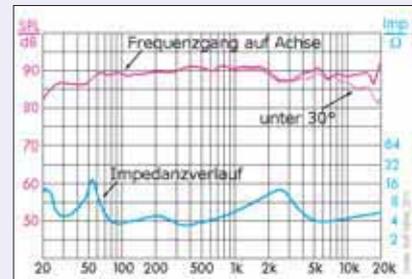
**AUDIO PHYSIC AVANTERA**



from 13000 per pair (7 veneers)  
 Dim.: 24x116x53cm (WxHxD)  
 Warranty: 10 years  
 Distribution: Audio Physic  
 Tel.: +49(0)2961 - 96170  
[www.audiophysic.de](http://www.audiophysic.de)

The Avantera gives a completely convincing performance with which it secures its place among the best loudspeakers in its class. Typical Audio Physic virtues like drivers that have been taken to the limits and precise timing also ensure that the Avantera is a complete success.

**MEASUREMENT RESULTS\***



Nominal Impedance	4Ω
Minimum Impedance	3.4Ω at 373 Hertz
Maximum Impedance	18.1Ω at 54 Hertz
Average Sensitivity (2.83 V/m)	89.2 dB SPL
Efficiency at 94 dB (1m)	4.7 W
Lower Crossover Frequency (-3 dB)	28 Hertz

**LABORATORY**

The Avantera's frequency response is very linear. It is at the most worth mentioning that there is a small dip at three kilohertz, but it only amounts to 2.5 decibels. For a full dose of high frequencies, the loudspeaker needs to be relatively strongly angled towards the listening position. As we have already experienced with the Virgo 25, the bass delivered by Audio Physic is astonishing. It is even more amazing given that the sensitivity reaches a proud level of almost 90dB. As a result, even smaller amplifiers get their turn, especially because the impedance curve is uncritical over the entire frequency range. The Avantera also produces an outstandingly precise step response.

**STEREO-TEST**

Sound Performance 93%

PRICE / PERFORMANCE

★★★★☆

EXCELLENT

\* STEREO Club subscribers can access additional data and diagrams at [www.stereo.de](http://www.stereo.de)