



**FLOORSTANDING SPEAKER REVIEW
AVANTGARDE ACOUSTIC
UNO XD**

POWER & ELEGANCE

The top-end manufacturer Avantgarde Acoustic, under Holger Fromme, has completely reworked its Uno XD horn loudspeaker, leaving no stone unturned. But first things first ...

Avantgarde Acoustic is completely dedicated to horn technology: thanks to in-house research and the resulting insights, its designs deliver top quality without losing the most important virtue associated with horns: sound pressure! As Professor Anselm Görtz of the University Aachen confirmed not so long ago a number of measurements, with the same incoming power a horn produces 20% more sound pressure than a dynamic speaker. By inverse reasoning, at the same volume horns deliver less distortion.

KEYWORD
Sound pressure:
 Sound pressure is the volume in decibel. STEREO measures this at 1 Watt and 1m distance.

Based on this knowledge, a completely new chassis was developed for the new Uno XD, the housing redesigned, and the "XD Processing" technology for bass adjustment (to suit the room) added to the partially active concept of the previous Uno series. The speaker is available in black or white and the horns in ten RAL colors. Other colors, color combinations, and real wood veneer are possible

upon request, and the many small details of this design reflect the philosophy of a company which boss Holger Fromme has developed meticulously and sensitively into a brand of world renown over a number of years.

Customer service specialist Armin Krauss dropped off the Uno XD personally in order to set it up in our listening room and, despite being a hefty 80 kg each, the speakers were installed quickly, looking like fascinating sculptures. Krauss put in his sound test CD and performed a few set-up adjustments directly on the back of the speakers, where three logically connected operating elements provide a number of possibilities to roughly adjust the bass range for the respective space.

The Avantgarde software makes this even more comfortable: with it installed on a computer, these adjustments can be made from the listening position or, as an optional service, customers can also submit their room dimensions and furniture

on a provided PDF or even have a trained Avantgarde dealer measure the room for them. From this information, the adjustment parameters for the bass module are calculated and loaded onto the speakers.

You should take your time with the setup, as the Uno XD needs to be positioned carefully. We pointed the speakers directly to the listener in the classic stereo triangle, so that the inner surfaces were just still visible, but noticed that even small differences in the orientation had clearly perceptible effects on the sound. The manual provides help in this process, explaining installation and setup to the owner in great detail, while extensive accessories are included, like the shims for the spikes in order to simplify the positioning – something far from standard with other brands, but indicative of the user-friendliness of the Avantgarde.

After the completed set-up, we measured the room. Using a microphone recorder, Krauss recorded different 20 Hz to 20 kHz test sweeps from various listening positions in a semicircular radius



▲ As the price suggests, an Avantgarde is made by hand in the manufacturing plant in the Odenwald.



▲ "Handcrafted in Germany" is not just a phrase; it is an ideology which anyone can confirm by visiting the factory.

of about 2 m around the ideal listening position, allowing him to detect problematic modes in this area to consider for correction. The goal of all this effort is a homogeneous sound over the entire frequency range.

Software solves space problems

A few days after the set-up we received the correction files and installed them on the speakers, and though our listening room has very well-optimized acoustics and can't be compared with a normal living room, the measurements still uncovered a few foibles. After the correction, the bass integrated clearly better with the rest of the music, although depending on artist and genre the difference was more or less striking, ranging from "a little" to "dramatic".

Overall, however, there were improvements in the focus and solidity of instruments and voices, and the sound was clearly more open and "together" than before the bass range had been calibrated. Initially, the intense bass frequencies had felt a bit syrupy and spongy in the lowest registers, but this effect was completely eliminated after the correction, the adjustment filtering out sound problems in the room and being not only well done but also easy to use.

Direct switching back and forth between the preset settings during music playback lets you directly compare the original with the corrected sound and, if you like, you can play with the equalizer without risk, save further presets, and check them against each other in a direct listening test.

The speaker's Class D power amp feeds



▲ The passive horn system is connected with the giant active subwoofer via a cable bridge.

THE MOBILE CONCERT HALL

Research has shown that for many people the car is the only place in which they can be by themselves and can do things like listening to music they like and at a volume that perhaps is not possible at home. High earners especially make intensive use of their time in the car. Drivers of a Porsche Cayenne or Panamera, or of a Mercedes E- or S-class have the option of a special hi-fi system adapted to their vehicle.

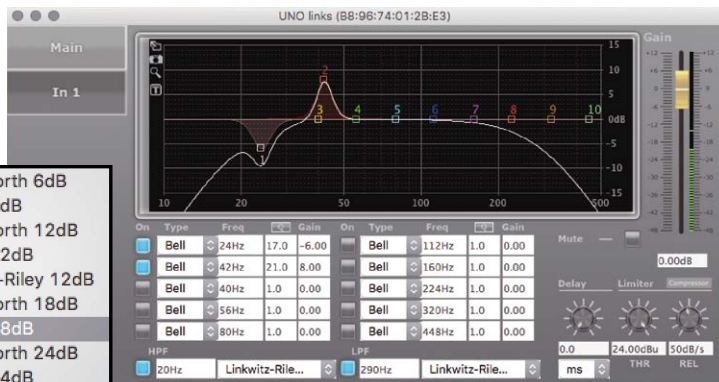
Having gained some experience with the Bugatti Veyron, Dieter Burmester (middle) competed for a tender by Porsche – and won the contract. Matthias Renz, Head of Audio-Acoustics at the sports car manufacturer from Zuffenhausen, remembers with delight the development phase whwch, again, was inspired by Burmester's per-

sonal commitment. When he recounted a story about his "Reference" system he also told us that he "was really keen on music and any challenge associated with it". Well – here it was. In mid-2010, we tested the Burmester system in the new Porsche Cayenne. No less than 16 loudspeakers are fitted inside the cabin (above); an extensively adjustable controller that controls the 16-channel power amplifier (left) and the 300-watt active subwoofer beneath the trunk ensures excellent sound on all seats and a surprising spatiality for the driver. Just like Burmester's domestic sound equipment, his high-end car audio system follows audiophile principles – even in extreme situations. You can hear it: like the others, this audio system was built with passion.



◀ Armin Krauss of Avantgarde Acoustic calibrating our Uno XD test speakers

- Butterworth 6dB
- Bessel 6dB
- Butterworth 12dB
- Bessel 12dB
- Linkwitz-Riley 12dB
- Butterworth 18dB
- Bessel 18dB
- Butterworth 24dB
- Bessel 24dB
- ✓ Linkwitz-Riley 24dB



▲ Only two of the ten freely programmable EQ bands were needed to correct the bass for our listening room. The pull-down shows the high- and low-pass filters available.

two 25 cm bass drivers with a maximum of 500 Watts each: many may consider this overkill but depending on EQ adjustment, this power may become necessary in a room with more damping in order to keep up with the fast horns. The woofer achieves tremendous stroke length, and can produce even the lowest frequencies, down to around 20 Hz cleanly and tightly.

The main musical range of 300-3000 Hz is transmitted by the injection-molded ABS mid-range horn, whose shape is calculated and manufactured with extreme mathematical precision to ensure a homogenous sound. It's energized by a 13cm "soft mesh membrane" driver with a high-impedance "Omega" motor, fed without any crossover components in the signal path. The minimal gaps of the mesh forming the driver diaphragm are sprayed with a permanently elastic material to create its surface, and the effort pays off: the driver works with the horn attachment as a homogeneous unit. Meanwhile the treble horn is driven by a 2.5 cm compression chamber driver, which kicks in at 3kHz and goes up into the

highest frequencies, with a slight decrease towards the high end, which fits very well tonally.

Patented switch technology

In order for the small high-tech tweeter to be able to reach its full potential, the team thought of a great trick, since patented: feeding a DC current to the inside winding of a specially constructed capacitor is supposed to prevent the dielectric memory effect, which up to now we had only heard in the context of batteries. However, Avantgarde considers dielectric memory to also have effects in terms of sound, so uses a "capacitor polarization circuit", consisting of a capacitor with several pole plates and a diode network to increase the voltage of the musical signal, which it says reduces distortion significantly and uncovers the finest detail in high-frequency signals.

In order to prevent negative effects on the music signal, a high-impedance transmitter couples the diodes to the music signal, and this also has a pleasant side-effect: due to its ability in processing high voltages, the diode chain prevents overloads of the capacitor and thus also effectively protects the tweeter.

The transition from bass to midrange is also perfect to the extent we could measure it. The power amps are fed via the DSP module with the prescribed volume of the horns so that the bass unit can keep up in terms of control and speed, but the drivers are of course not everything: the interplay with the other components of the chain is also important.

Let's look at our sound test, in which we played around with the speakers' operation with various amplifier designs. As a tube amp we used the solid 300B SE Triode by Silbatone Acoustic, with just 9W output power per channel, wondering whether this gentle could drive the great horn. The answer was "Oh yes! And how!" With its high efficiency of more than 105 dB, the Uno XD set to "10 o'clock" plays with such a full bass and fine sound that we listened to a large spectrum of music with enjoyment.

The potent active module of the speaker



▲ The proprietary design, mid-range driver M1 Omega with the elaborate soft mesh diaphragm



▲ The powerful SUB225-XD chassis with ferrite magnet and full 16 mm hub

supported the modestly-powered tube amp with sufficient pressure for the bass, and at the same time the Uno XD conveyed the melodiousness of the 300B triode via the midrange and tweeter horns – a dream for every tube fan.

To deliver transistor power we used the new T+A PA 1000 E, (for the test see page 80), and with this the Avantgarde also played flawlessly, presented the music with passion – pure and pristine. It remains a matter of taste which amp you prefer; however, the speaker makes these fine tonal differences clearly audible, and delivers musical power and subtlety with all the amps we tested. The bottom line is that it's astonishing such



▲ Uno, Duo, and Trio are just three of the many sound sculptures in the showroom of Avantgarde Acoustic.

different amp designs can play so well with the same speaker.

Music at its best

During the extensive listening sessions we played all kinds of recordings, artists, and genres: the Uno XD presented the drum work of the sensational Jack DeJohnette on the simply marvelous ECM Album “In Movement” in credible size and power, the gentle shimmering of the cymbals sounding solid and three-dimensional. The clearly contoured saxophone of Ravi Coltrane and the bone-dry bass of Matthew Garrison made us want to get up and approach the musicians, their positions seeming so precisely fixed. More “live” is hard to imagine.

Arvo Pärt’s “Musica Selecta”, a retrospect of the Estonian composer edited by the producer Manfred Eicher, gave us shivers down our spine: we felt transported into the vaults of the Niguliste Church in Tallinn, in particular when the music rests briefly and you can hear the silence of the dome, the unmistakable characteristic sound of cathedrals in which the endlessly large resonance of the smallest sounds creates a breathtaking spatial experience. Then out of nowhere, the full power and majesty of

the entire choir explodes into this space, in a meeting of fantastic recording and superb speaker.

After this, the Lounge Lizzards – the remarkable New York band around John Lurie – gave us a few relaxed moments with their “Tarrantella” piece, which was reminiscent of circus music. The full splendor of the entire soundstage presented itself in a great atmosphere, the multitude of wind instruments, supported by tilted guitar sounds, keyboards, and percussion once again contoured clearly to create a musical experience in their interaction which magically made the band appear in the sound booth. The use of voices transported one of our colleagues back to a concert he had attended years ago.

Even large classical orchestras were reproduced realistically, Shostakovich’s Symphony No. 15 performed by the Duisburg Philharmonic under Jonathan Darlington creating an incredibly wide and deep presentation. The gentle bell sounds from the depths of the room were precisely positioned, as with all other instruments or groups, without running the risk of losing their cohesion. The orchestra appeared as a closed unit, strong dynamics mastered smoothly and seamlessly.

Whether classical music with large orchestras, tender overtones of acoustic guitars, the rush of cymbals, harsh hardcore punk, or even a swingy jazz trio in a small club – these horns reproduced every instrument and every type of music in a real and plausible manner.

Thanks to the room-specific speaker adjustment the Uno XD delivers addictive music reproduction at the highest level, so buyers should definitely use the calibration services of an Avantgarde dealer to achieve the optimum sound, while the partially active design allows you to run it in your existing set-up, keeping your favorite amp and enjoying its benefits completely.

The only thing you are missing now, dear reader, is one thing: your own impression, which is all that matters. We recommend making an appointment at your nearest Avantgarde dealer, bringing along some music you already know well, and hearing what the Uno XD can unlock. The sound experience might result in some very emotional decisions.

Volker Pigors



▲ Holger Fromme guided the company on its way to a global brand with a number of international awards – here the EISA Award for the Zero1.

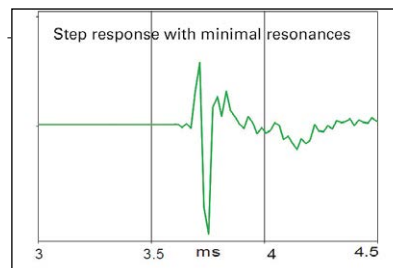
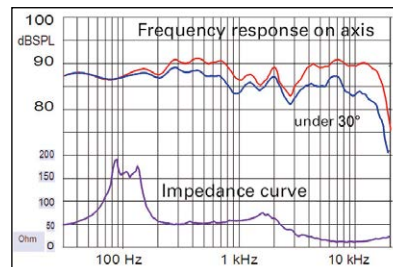
AVANTGARDE ACOUSTIC UNO XD

Pair for ca. € 21,900
 Dimensions: 50 x 138 x 59 cm (W x H x D)
 Warranty: Electronics: 2 years, Driver: 5 years, Material horns: 10 years
 Contact: Avantgarde Acoustic
 Phone: +49 6254/306100
 www.avantgarde-acoustic.de



The calibration and tonal adjustment of the active bass module to the faster horns was executed flawlessly. The speaker is tonally homogeneous and balanced. Pesky room modes are simply eliminated, in particular after equalizer correction.

MEASUREMENT RESULTS



Measurements Nominal impedance	16 W
minimum Impedance	16 W at 8000 Hz
maximum Impedance	180 W at 90 Hz
Nominal sound pressure (2.83 V/1m)	105.5 dB SPL
Power for 94 dB (1m)	0.0W/5 W
Lower cutoff frequency (-3 dB)	27 Hertz
Distortion at 63 / 3k / 10k Hz	0.2 0.1 0.2 %

LAB COMMENTS

Very linear frequency response which decreases slightly in the upper range. The smooth transition from active bass to mid-range is plausible. High efficiency of 105.5 dB and precise step response with very low-ranging lower cutoff frequency.

STEREO - TEST

SOUND QUALITY	97%
PRICE/PERFORMANCE	
★★★★☆	
EXCELLENT	