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## **FIDELITY visits Audio Group Denmark in Aalborg and Copenhagen**

# BECAUSE WE CAN...

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The three brands Børresen, Aavik and Ansuz have their headquarters in the south of Aalborg in Denmark.



The Danish manufacturer has grown to take up an extensive compound consisting of several linked buildings—last time we visited, Børresen resided in the flat building on the left.

## A VISIT TO BØRRESEN, AAVIK AND ANSUZ: AFTER A LENGTHY WAIT, WE FINALLY HAD THE OPPORTUNITY TO LOOK BEHIND THE SCENES AT AUDIO GROUP DENMARK. IT'S TIME TO CHAT ABOUT RESONANCE AND MATERIALS.

Our regular readers may be somewhat surprised. Scarcely three years have passed since we published the last article about the hallowed halls of Børresen, Aavik and Ansuz, the three brands comprising Audio Group Denmark (AGD). But rest assured, this new article contains little repetition or redundancy. During our visit we witnessed a company in the throes of transition. AGD's internal structures, as well as its in-house production capabilities and development goals, are currently being shaken up and expanded.

### It's all in the material

Let's do this in the right order, and begin by outlining what makes this Danish company so unique. The products

of all three constituent companies are the brainchildren of co-founder and chief developer Michael Børresen. This passionate researcher never ceases thinking up new concepts for his speakers, electronics and accessories. In addition to benefiting from smart circuitry such as Tesla coils, the company profits enormously from Børresen's expertise in materials and resonance. While we were testing the Mainz8 A2 power distributor, we proposed the theory that Børresen is in fact a "composer"—skillfully arranging resonances from selected materials in order to create his components. And our latest visit only reinforced this theory. We got an insight into the effects that different materials can have. In the large listening room (one of currently four) at the company headquarters, co-owner and sales director ►



Various combinations of materials—nothing shines a more elucidating light on the company's core competency than the accessories from Ansuz (shown here is a selection of "Darkz" component feet and "Sortz" noise filters).



Lars Kristensen handed us some metal rods. "Just tap on those", he told us. They differed in weight and feel, but the rods also varied significantly in their "sound", ranging from a crisp and bright "ping" to a muffled and wooden "clunk". Our hosts had already arranged a hi-fi chain for demonstration purposes (more about this later). Standing on the integrated amplifier were two small footers with recesses on the top. Kristensen placed the rods, one after another, into these recesses.

## Musical atoms

Then we listened to a selection of quiet songs, practically all featuring only a voice and guitar, excellently produced examples of the singer/songwriter genre. After Kristensen placed the first rod in the amp, the superb chain's sound

immediately developed more presence, also appearing more relaxed and spatial. The second rod reinforced this with further subtle but clearly discernible gain. When he deployed the third material, we couldn't believe our ears: the sound was vastly more vivid, delicate and accessible—as if Kristensen had pulled back a heavy curtain. A trite metaphor perhaps, but it was absolutely appropriate.

The first two rods were both titanium, but processed to different levels, known by the manufacturer as variants T2 and T2s. Called "Rezonators", these rods are part of the Ansuz portfolio. Rod number three was made of zirconium, a relatively light "transition metal", and number 40 in the periodic table. To this point, the material has been used in the compact Børresen M1, in the Aavik I-880 and in the limited edition of Darkz Z2s device footers ("Z" for



A zircon does as a zircon should ... if required, it does so on the back of an Aavik flagship.



Compact heavyweight: In the company's big listening room we got to listen to the exclusive Børresen M1.



Driver chassis made from zirconium—exclusively for the Børresen M1. The 3D printing process takes several days.



With the help of pattern parts, individual sand molds are made, which are used to cast parts of the motor structure for the Børresen loudspeakers ...

zirconium) from Ansuz. In the footers, it's combined with resonance-damping tungsten balls. However, Kristensen revealed that we will be seeing and hearing more of zirconium in the future.

## More than double the floor space

Next we went on an extensive tour of the company premises. Three years ago, the tour was much shorter, when there was just an office, a production room and a measurement and development lab. The only other facilities were a tiny warehouse for packing and shipping as well as two smallish listening rooms. The Danes had mentioned then that they were taking over the remaining part of the property, but added that the renovation work might take a while to complete. In all probability, negotiations with

Vækst-Invest were already ongoing during our first visit. This investor finally came on board last April, providing funding for all three brands under the umbrella of the newly formed AGD.

Kristensen led us ever deeper into the new extension: a maze of doors and corridors, confusing for visitors and making the property appear even larger than it actually is. The company's floor space has almost doubled, including a new set of offices for marketing, sales and product design. On the personnel side, one of the new arrivals is Flemming Rasmussen, although we unfortunately weren't able to meet with him.

The former CEO of Gryphon joined AGD as a "design consultant, and quickly made his influence felt at Aavik. In the new assembly facility, just a few short steps from Rasmussen's office, numerous Aavik I-880 integrated ►

... and here we can see the oven used for the process. The iron-free drive components are then finished on a lathe, one by one. This level of individual manufacture has got to be unique in loudspeaker production.



amplifiers were waiting for the final construction stages. AGD's new flagship sets new standards in various ways. Unusually wide, its 60 cm cabinet boasts huge cooling elements that are slightly reminiscent of Gryphon. But that's where the similarities end. The circuit designs inside this cabinet are entirely the work Michael Børresen, who has assembled latest creation with superb musicality transparency and a meticulous eye for detail. We had already heard the results for ourselves—the amplifier that demonstrated the properties of the metal rods was an I-880.

## The new flagship amplifier

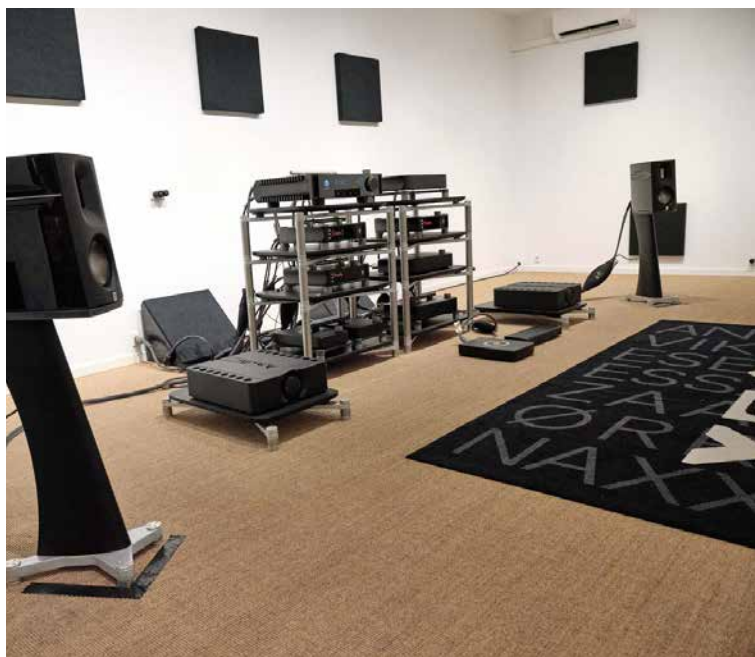
You can read every detail of AGD's new flagship in this article. However, standing in the assembly facility, what

impressed us even more than the features were the neatness and elegance of Aavik's craftsmanship, and not just in the quality of the housing. The amp interior is an advert for transparent engineering: separate PCBs and function groups make signal paths clear as day. Instead of flat cables between the sections, the Danes use surprisingly sturdy wires, all fitted with gold-plated screw connectors firmly attached to their PCBs.

The cabinet itself resides within a thick copper enclosure. Inside we find countless tiny, hand-wound Tesla coils that AGD installs in almost all of its products. You can read more about the purpose of these tiny coils in the article linked above. And it won't surprise you to learn that this weighty amplifier also comes with a set of zirconium feet from Darkz.



In the listening room, we got to listen to quite a few approaches and ideas the Danes had come up with—since all of them were prototypes in an early development stage, we cannot show them here.



Among a plethora of new products, Michael Børresen (seen here in conversation with Ingo Schulz from FIDELITY) showed us “sketches” of a planned retro project.



Keep your cool: Børresen drivers and other components are cryogenically treated in a complex procedure taking several days in this infernal contraption.

## More in-house manufacturing

Immediately behind the carts with the 880 amps, we entered a more rough-and-ready section of the building. This is where the less sophisticated tasks are conducted, such as polishing the speaker cabinets. On a large table, driver components were being assembled in their baskets. These baskets are also made of zirconium, and produced using a 3D printing process that takes several days to complete. Kristensen explained that these drivers are used in the Børresen M1 flagship speakers. When we asked why they'd opted for such a seemingly bizarre idea, Kristensen had an answer that says it all: “Because we can”.

The Danes have set up new manufacturing processes in the rooms adjacent to the large production hall. Room

One is responsible for a crucial aspect of the driver production. In this small foundry, practically all of the components needed to surround and mount their super-strong neodymium magnets are created. Only the magnets themselves aren't produced in-house. We got to handle a few of these, and flick them onto one of the metal shelves in the neighboring warehouse—with a pretty unnerving result. The magnets are so powerful that we needed almost our entire body weight to pull them off.

## Self-produced membranes

Yet another room is used to manufacture loudspeaker membranes. Two layers of incredibly thin carbon are attached to a honeycomb core and then baked under high pressure in an oven. This generates rock-hard, yet ▶

Wound to measure: Audio Group Danmark manufactures more and more parts for their devices and accessories in-house, all the way down to the wiring.



feather-light structures that sound wonderfully organic even when just flicked with your finger. However, the material of the honeycomb layer wasn't revealed to us. The Danes want to keep some secrets under wraps. Eventually, we were shown into the tiniest room. It contained a refrigerator-like appliance where various components undergo cryogenic treatment. The "Cryo" editions of Børresen loudspeakers contain drivers that have been through a cryogenic cooling cycle. In addition to the membranes, we learned that other Aavik electronic components and various crossover parts are also subjected to the same treatment. But, here too, Kristensen preferred not to reveal much. The very last place we visited was a small measurement lab, where Michael Børresen wanted to demonstrate

what else he is experimenting with. He was performing measurements on several samples in order to gain a better insight into what makes good chasses and drivers. His was currently occupied with a Celestion Gold guitar speaker. A short time afterwards, we found out why!

## Bar? Great idea!

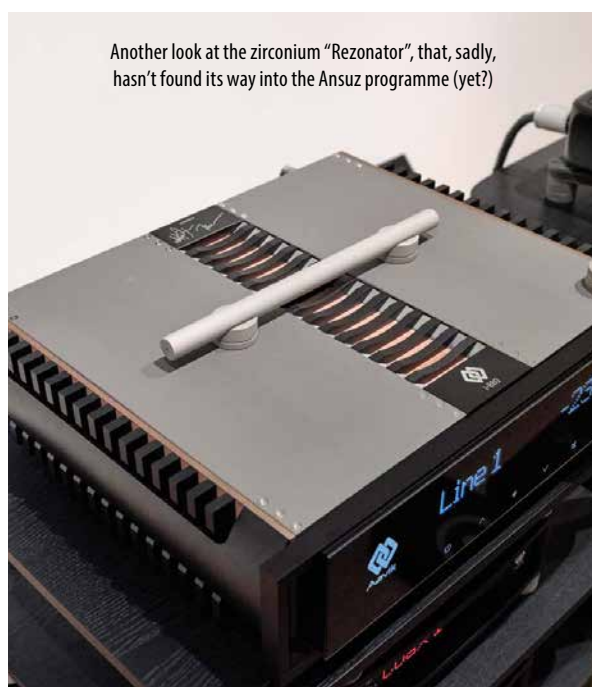
After a brief break spent in the company's private Irish Pub, we returned to the large listening room to hear more of what the Børresen M1 can offer. Unveiled in the middle of the year, this compact speaker contains practically all of the tricks and techniques we had seen throughout the tour. The M1 was the original reason why many of these production steps were moved in-house, and thus are now



Visit to the company's house bar. Regrettably, we didn't get to sample its selection: In day-to-day business, the lovingly appointed room is used for meetings and conferences.



At the time of our visit, several Aavik I-880 were waiting for completion. A minor delay of a parts shipment made it possible for us to take a peek inside these fascinating amplifiers.



Same amp, different angle: The Aavik I-880, brainchild of Michael Børresen and Flemming Rasmussen.

used for other products as well. Connected to the I-880, this expensive box displayed a sheer magical musicality, erecting an incredibly lifelike stage in the listening room. Yet fascinated us even more was its enormous bandwidth. Listeners with eyes closed would never believe that the sound was emanating from such a compact loudspeaker. So we were surprised to learn that our listening session would not be completely devoted to the M1. After we had listened to the I-880 and M1 “for comparison purposes”, Kristensen and the Aavik development team brought out a small loudspeaker that looked to have been only recently cobbled together. Then, one engineer produced a wooden board with various assemblies and an improvised dot-matrix display used in the 180, 280 and 580 series. “This is our first receiver”, said the sales director. The

device combines streamer, DAC, preamp and power amplifiers. The compact boxes with rigged-up wooden fronts were prototypes from the bottom end of the forthcoming X series.

## Going down!

When Kristensen pressed Play, astonishment followed. This prototypes collection demonstrated similar gusto to the top-of-the-range models that we had heard previously. Admittedly, the speaker bandwidth might call for a subwoofer. And, on the electronics front, the unit would come off worse in a comparison with its larger siblings. Nevertheless, these “spin-offs” still retain the charm and character of their role models. ►



Several employees are constantly at work winding little Tesla Coils in a painstaking manual process. Some components utilize hundreds of those.



But there was a realization that brought us neatly to the subject of “things to come”. The company plans to sell the new models—both electronics and speakers—for an affordable price. And Kristensen was more specific: “Around € 5000 for the receiver and probably less for the speakers”. However, because they are prototypes still lacking numerous logos and certificates, and the situation regarding raw materials is still so uncertain, the prices have yet to be pinned down. The finalized details are scheduled to be announced at the next HIGH END in Munich, where plans are already being made to demonstrate these new models from the lower end of the price scale.

## Two-fold increase in capacity

Of course, this new loudspeaker can't be handcrafted to quite the same extent as other products. This is why, as Michael Børresen clarified at the end of the listening session, the company will be purchasing the drivers from elsewhere. And this also explained why he was testing

products from potential suppliers, including the guitar speaker we previously encountered. Experiments of this type show that the Danish developers are always prepared to look beyond their walls when necessary.

Due to its somewhat improvised appearance, we can't yet show you images of the receiver. But it's the first in a whole family of electronics that are meant to be equally affordable. On a side note, at the other end of the price range, the I-880 will also be welcoming numerous siblings to an 880 family of its own. The capacities necessary for handling these extensive additions to the product range have already been created, as the new CEO Kent Sørensen explained to us. Over the last three years, he reported, the workforce had grown from 17 to 40. So it looks as if we'll have plenty more to report about from Denmark. ■

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