FIDELITY

MUSIK UND HIFI

86

FIDELITY 86

04/2026 • 15. Jahrgang • Juli/August 2026

D 13,50 € • A 14,90 € • L 15,80 € • CH 22,20 CHF

FIDELITY MUSIK UND HIFI 86

AN AMAZINGLY ROUND PLANAR PANEL SPEAKER

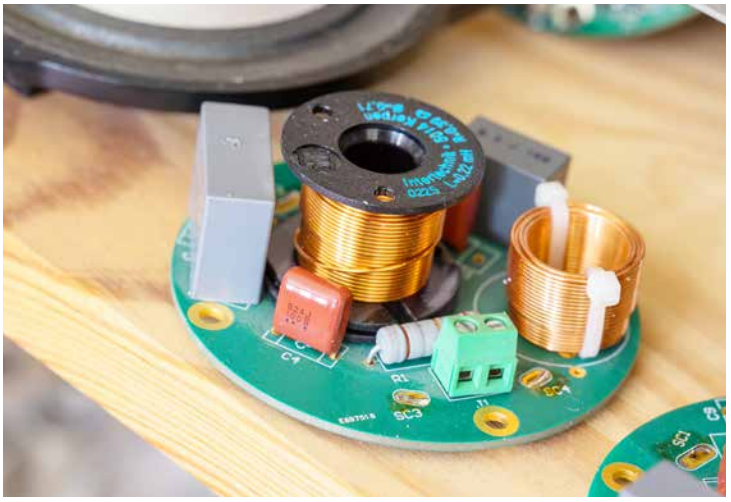
By Sebastian Polcyn. Photography: Carsten Barnbeck, Sebastian Polcyn, ATE

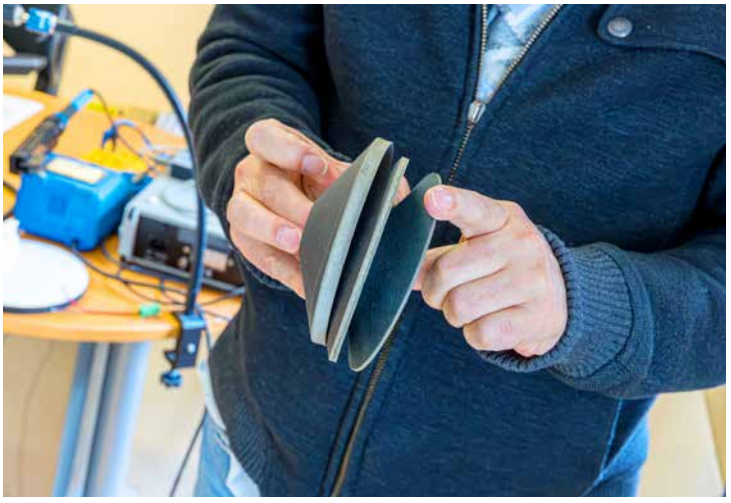
After more than 100 years of loudspeaker technology, one wouldn't really expect anything significantly new anymore. We were all the more astonished, then, when we came across what appeared to be a newcomer at trade fairs, showcasing a rather unusual mid-high-frequency driver – although we were completely off the mark in labelling them a 'newcomer'.

As an experienced OEM supplier, Norman Gerkinsmeyer does not need to source drivers from third-party suppliers – on the contrary, manufacturers purchase driver technology from him. The oval surface with the ring-shaped foam damper immediately stands out as an unconventional solution. Incidentally, the driver is available in several variants – sometimes oval, sometimes in a 'racetrack' shape, as shown in the picture.

Gerkinsmeyer's passion for development is evident not only in his development laboratory, but also within his own four walls, where we were able to listen to the Imagine Monitor with its bass module (top left). At the bottom right of the picture, ATE director Carsten Barnbeck shares some interesting insights into diaphragm development.

— 'Ring Mode Drive' is the name of the driver fitted to ATE's speakers, which we were already very impressed with sonically on both the NDHT and the MHT. The walls of the demonstration rooms were adorned with diagrams visualising the behaviour of the transducer across various frequencies, accompanied by some very ambitious claims: the driver aims to reproduce a full eight octaves – from 180 hertz to 30 kilohertz – whilst demonstrating an exemplary wide dispersion pattern right up into the high frequencies. As seasoned audio veterans, we're naturally always a little sceptical of such claims, but during the demonstrations we couldn't find a single thing to criticise. On the contrary, we were very impressed by the effortless transparency of the sound. Our curiosity was piqued, so we went to see Norman Gerkinsmeyer, the mastermind behind the driver, exchanged the usual pleasantries and began to bombard him with questions. He was not at a loss for answers, though there were so many that he promptly suggested we visit his hallowed halls, not only to explain everything to us but also to demonstrate it in person.
Even though ATE, in its current, RMD-proven form, has only been on the home hi-fi scene for a year – Gerkinsmeyer has been working in loudspeaker development for over 40 years and is anything but a small fry … When we arrived in Neu-Ulm a few weeks later, he immediately took us, via the entrance to his private home, to his home-based developer's 'man cave', whose shelves are packed to the rafters with countless chassis that he has developed over the years for clients in sectors including the automotive and aerospace industries. His client list (which you can scroll through on the ATE website) includes a whole host of big names in the industry. We can see vast quantities of inverted cone and coaxial drivers, all optimised for particularly shallow installation depths, alongside conventional dome and cone drivers for hi-fi and pro-audio applications. The fact that ATE is not (yet) widely known as a hi-fi manufacturer is simply because Gerkinsmeyer operates primarily as an OEM supplier: Sound systems developed by the company can be found in touring motorbikes, in cars – ranging from family to hypercars – and even in VIP, government and business aircraft; numerous hi-fi manufacturers, whose names you are likely to recognise, also source driver technology from him.After this initial taster, we move on to his actual development office, which is also well stocked with examples of his work. Gerkinsmeyer recounts a whole series of anecdotes from his collaboration with car manufacturers, chassis suppliers and hi-fi specialists, who repeatedly draw on his development expertise.
It comes as no surprise, then, that the cone drivers from the Imagine series are also his own design. Gerkinsmeyer has very clear ideas about how, for example, a speaker cone should behave – although his opinion is, of course, based on data from his extensive and reliable array of measuring equipment. ▸





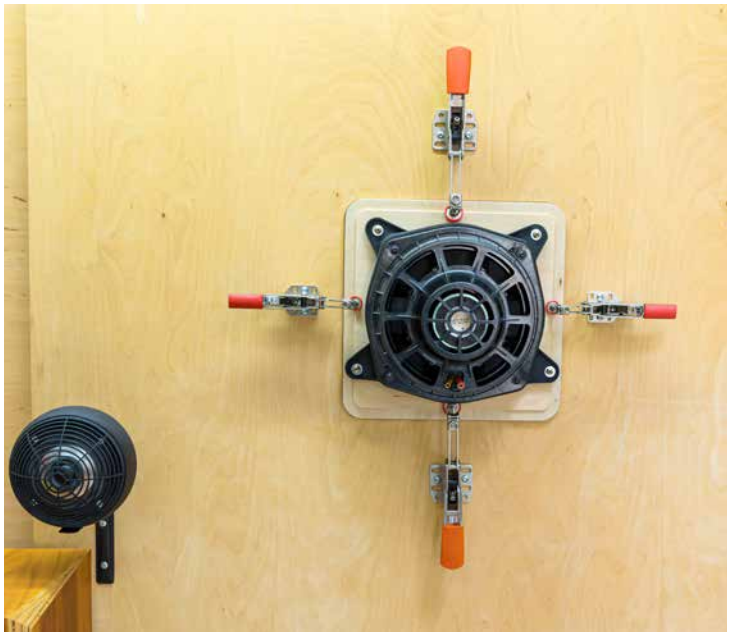
Als OEM-Lieferant für Automobilindustrie und Luftfahrt beschäftigt sich Gerkinsmeyer schwerpunktmäßig mit dem Thema „Großer Klang auf kleinem Raum". Kompakte Elektronik und geringe Einbautiefen sind dabei Pflicht. Unten rechts sehen Sie einen Teil eines Motorrad-Armaturenbretts, der als Klangkörper dient, unten links seine Papier-Schaumstoff-Sandwichmembranen in verschiedenen Stärken.

For the cone drivers, he developed a sandwich diaphragm consisting of a foam core sandwiched between two layers of paper, which, according to his measurements, offers the best possible combination of rigidity and internal damping. Back at his home, we were then given a glimpse into a chapter of Gerkinsmeyer's development history that could well be repeated in the foreseeable future – this isn't ATE's first foray into hi-fi. Right up until the 2000s, the Neu-Ulm-based engineer was working on electrostatic speakers, which were enthusiastically received by the specialist press. During the first listening session of the day, we were immediately treated to the sound of an impressive high-end system featuring dynamic tower subwoofers. It comes as no great surprise that electrostatic speakers are enormously transparent and subtle – but what really had us pressed back into our sofa cushions was the sheer, utterly effortless dynamics and level stability of the system. In fact, electrostatic speakers developed by Gerkinsmeyer, when combined with dynamic subwoofers, have already been used to provide sound for both indoor and open-air concerts; in the latter context, they not only delivered completely distortion-free sound pressure levels of up to 120 decibels, but also ensured a particularly even distribution of sound pressure across the entire audience area thanks to their dispersion characteristics.

Over the last two decades, Gerkinsmeyer has once again focused primarily on the OEM market and continued to tinker with ways of achieving a rich, undistorted sound whilst taking up as little space as possible. And it was precisely in the course of this that he came up with the ring-mode driver, which, incidentally, had already been playing music for us in the car on the way to the development office and back. If you're now picturing oval panels with felt rings in the door panels, you're mistaken: we were somewhat baffled to see how the music appeared to be coming directly from the (mind you, unperforated) velour and Alcantara inlays. By this point at the latest, we wanted to take the driver apart to examine its individual components – a request Gerkinsmeyer was only too happy to fulfil.

In principle, the ring-shaped driver is a kind of bending-wave transducer. The problem with this type of driver is that you have to get to grips with the reflections of the wave generated at the centre from the driver's edge, because otherwise they interact uncontrollably with the intended musical vibration. The key innovation here was the oval shape of the driver: when a circularly propagating wave encounters a straight edge, it simply breaks up and is thus essentially neutralised. That sounds simple, but in reality it is anything but. ▸

In the living room, Gerkinsmeyer is listening to a further development of the giant electrostatic speakers that he used to sell commercially until about two decades ago. His fascination with them has, of course, never waned: he definitely intends to bring a similar system to market in the foreseeable future.



An IEC sound baffle and a whole fleet of measuring instruments from Klippel and other manufacturers enable extremely accurate measurements. Development work is carried out in this laboratory on behalf of numerous major players in the industry.

That's when the development work really started: as this is a bending-wave driver, the diaphragm does not oscillate back and forth in a piston-like motion, but is instead set in motion in a wave-like manner. If sound pressure is to be generated in the process, care must be taken to ensure that the positive half-waves are larger than the negative ones, so that the diaphragm does not cancel out its own sound energy at the same time. And if one then wishes to achieve a linear frequency response, this 'balance of forces' between positive and negative wave crests must remain constant across all radiated frequencies. Getting all the cogs to mesh cleanly was the real challenge. A central damper, which must not store any energy, had to be developed. Nevertheless, dips remained in the vibration pattern, causing level drops at certain frequencies – ironing out all these dips took half a year and around 30 prototypes, but was finally achieved through design tweaks which we are not at liberty to reveal here. In any case, the measurements prove beyond doubt that the developer's bold claims are anything but wishful thinking: From around 500 hertz, a ring-shaped wave becomes apparent, the basic shape of which remains virtually unchanged well beyond 16 kilohertz. This not only results in an impressively wide bandwidth; the dispersion characteristics also remain exemplary in their breadth and uniformity from the low-midrange right through to the high frequencies.

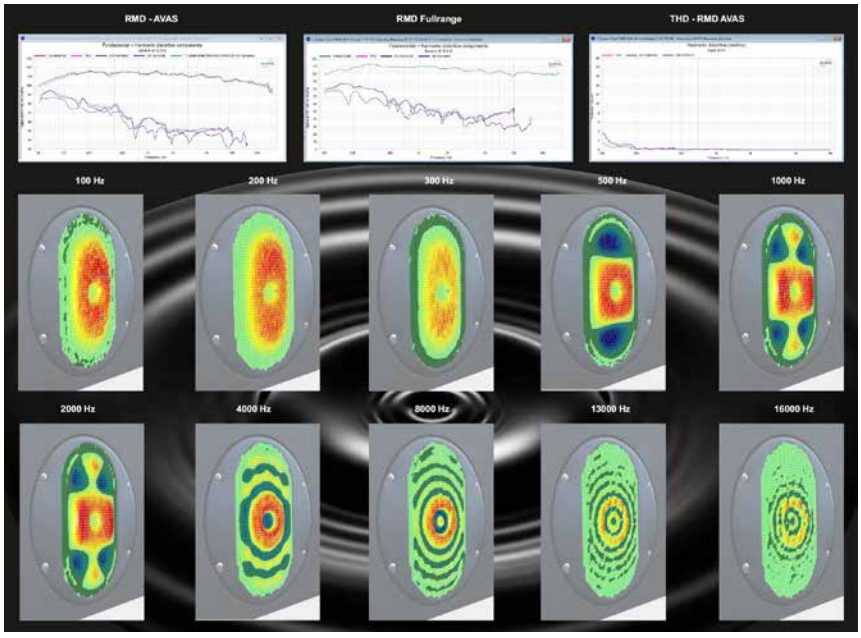
In this respect, the driver exhibits characteristics that are, in many ways, as unexpected as they are welcome. It is easy to imagine that a dynamic driver would react negatively if, say, you were to cover it with leather. The ring-mode driver responds to this with a slight rise in the high frequencies, without any significant change to its dispersion pattern or other characteristics. Gerkinsmeyer is trying to work out why this is the case himself; in any event, intuitively he would have expected anything but this.

However, this behaviour is very beneficial for its use in car hi-fi systems, where the Alcantara driver delivers a neutral and high-resolution sound.

Incidentally, the fact that the driver combines so many desirable characteristics is the reason why Gerkinsmeyer decided to return to home audio. Speaker design has been his passion since his youth, and it never left him even during his previous career as an electrical engineer – though OEM solutions are more lucrative, and besides, there are only 24 hours in a day. Now, however, he wants to find out what this marvellous transducer is capable of in a really well-made hi-fi loudspeaker, and that is how the current Imagine series came about. We were keen to find out too, and were given the chance to have a listen for an hour or so. The programme ranged from audiophile singer-songwriter fare à la Annette Askvik to Hedegaard's infamous 'Ratchets'. Just as in the trade fair demonstrations, the Imagine Monitor – mounted here on the matching bass modules – impressed us with its remarkable openness and a soundstage that remained astonishingly consistent, regardless of the listening position. Even during the more aggressive tracks, the bass came across as beautifully fast and controlled, despite its intensity.

The impression that stuck with us, however, was that, despite all its directness and fine resolution, you can comfortably listen to the Imagine at high volumes for long periods without it ever becoming tiring. Will all mid-high range drivers look like this in future? We don't know. In the automotive sector, at any rate, we're likely to see more of them in future. And finally, Norman Gerkinsmeyer tells us that, as the icing on the cake of his return to hi-fi, he'd very much like to bring a really good electrostatic system back onto the market. ▪

ATE | Norman Gerkinsmeyer | Kasernstraße 41 | 89231 Neu-Ulm | Tel +49 731 1766 2271 mob +49 171 6808 600 | ng@ateaudio.de | www.rmdaudio.de |



Here you can see the vibration behaviour of a prototype ring-mode driver, measured using a Polytec laser. The red peaks must outweigh the blue troughs for net sound pressure to be generated. For the frequency response to be linear, this ratio must also remain constant across all frequencies. In this iteration, there was still room for improvement between 500 and 2000 hertz. Dozens of prototypes and ingenious ideas for vibration damping were needed to get the oscillations under control.