DYNAUDIO

Magazine **04**

Winter 2022

Meet your complete streaming sound system

Inside the new Focus | Game of Tones: why musical scales became life-and-death | The new Emit family | How music alters your mind
The Contour i series | Behind the music of Hollywood | 12 ways to upgrade your system really cheaply | And much more...

Hej

Welcome to Dynaudio Magazine 04

In this issue we're celebrating the launch of our new Focus streaming system. It's the perfect way to listen to a world's worth of music, in true audiophile quality, without extra cables or pieces of outboard gear. See more on pages 12 and 110.

And if you want to know where all that music comes from, you might be surprised to learn that its origins were anything but harmonious (see *Game of Tones* on page 28). We also have fascinating insights into why our speakers look the way they do (*Truly, madly, Scandi* on page 18) and even what they can do to your mind while you're listening (page 50).

Want to peek behind the curtain into how your favourites are produced? Check out our interviews with producers Greg Penny (page 44) and Justin Stanley (page 68), and Hollywood composer Steve Mazzaro (page 64).

Finally, of course, you can read all about our products from page 76 onwards.

Enjoy!

Contents

Meet the new class

Since the last issue of our magazine, we've launched four brand-new products – and one old favourite has been given some stunning new finishes

Focus

Focus is our flagship active streaming system. It can hook up to any streaming service, features Spotify Connect and Tidal Connect, it's Roon-ready, and it also includes Apple AirPlay 2, Google Chromecast, UPnP and Bluetooth. It's even Dirac Live-ready for room-correction.

All you need to do is plug each speaker into power, connect to your Wi-Fi network and you're listening in minutes.

Read all about it on page 110.

Emit

Emit is our entry-level passive hi-fi family. But don't confuse 'entry-level' for 'compromised'…

It contains tech you'll find in our top-tier ranges, and packs it all into a speaker that will get you started in true high-end audio or home-cinema (yes, there's a centre-channel too).

See page 78 to find out more.


DYNAUDIO

Heritage Special

A salute to traditional high-performance Danish audio design.

Heritage Special is brimming with the spirit that made the Dynaudio name – plus some new surprises. Run your fingers over the hand-finished American Walnut veneer. Discover the meticulously crafted joins and corners of the individually selected – and individually matched – veneer panels. Pause at the signature groove surrounding the baffle (you'll remember it from the Dynaudio speakers you coveted years ago).

And then put the top-of-the-line Esotar 3 tweeter and souped-up Evidence woofer through their paces with something that'll rock your socks off.

It's limited to 2500 pairs worldwide – and when they're gone, they're gone.

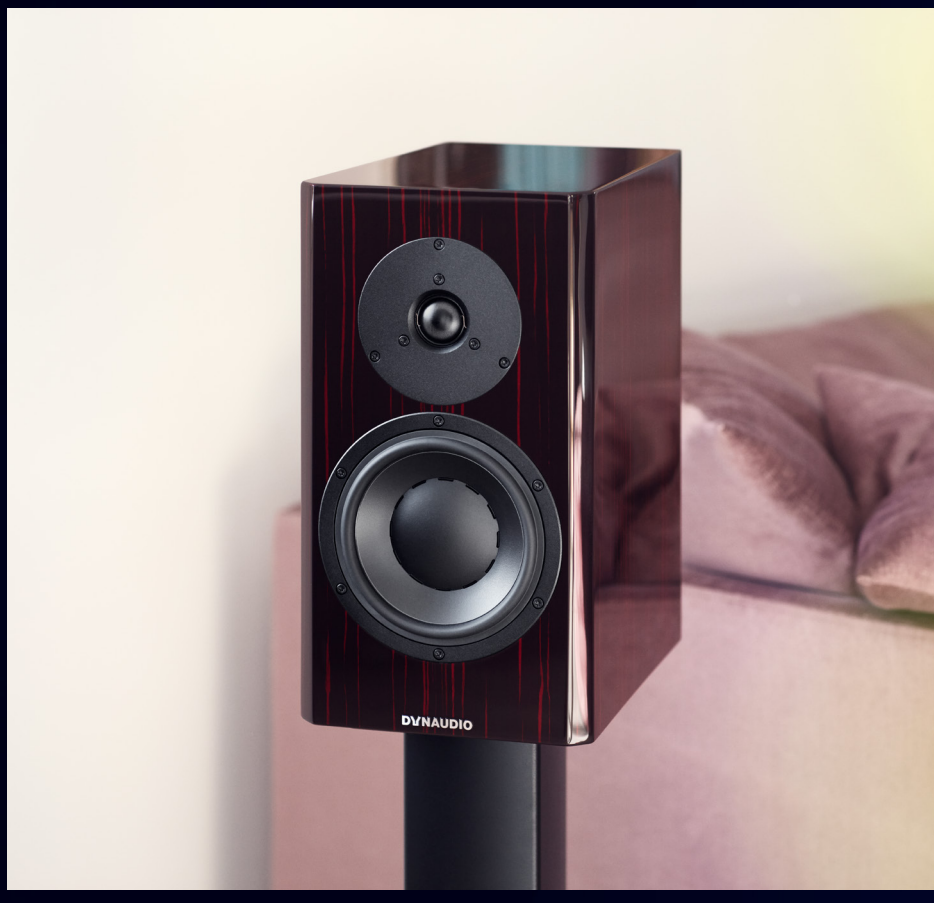
Special Forty

New finishes: Black Vine and Ebony Wave

The Special Forty is classic Dynaudio: all the craftsmanship, attention to detail and total love of authentic sound you've come to expect. It's the connoisseur's choice – a simple pair of high-end passive hi-fi speakers.

And now it comes in two sumptuous new finishes. Black Vine is a striking contrast of dark veneer shot through with vivid orange, while Ebony Wave is a captivatingly sinuous take on the classic hardwood.

See page 96 to find out more.



Contour i

Everything inside Contour i has been re-designed from the 2016 model. Expect more openness, more punch and more detail. Feel the goosebumps as you hear new details in your favourite recordings. Take yourself back to a time when all that mattered was the next track on the album…

Upgraded with a new tweeter, new woofers, new crossovers – and new thrills – Contour i takes all you've loved about the family since 1986, adds up-to-the-minute knowhow, and brings your music back to life.

Read more on page 102.

WIRELESS. LIMITLESS.

Meet your complete streaming sound system

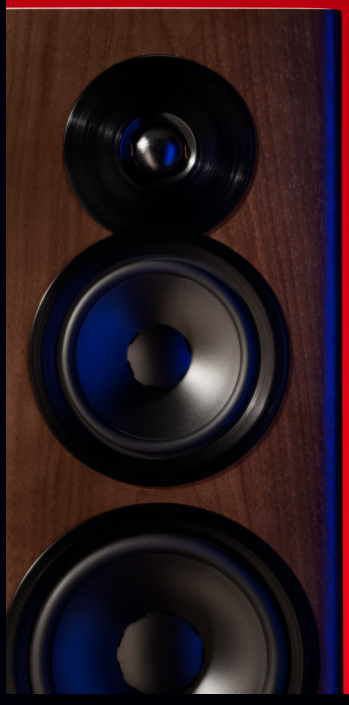
Imagine the possibilities. All the music. All the music ever recorded. Right there, waiting for you to enjoy it, discover it, re-discover it, love it, hate it, share it, put it on repeat and pick out every single detail.

No wires, equipment racks, or extra boxes. Just your streaming apps, your music collection and a bit of boldness.

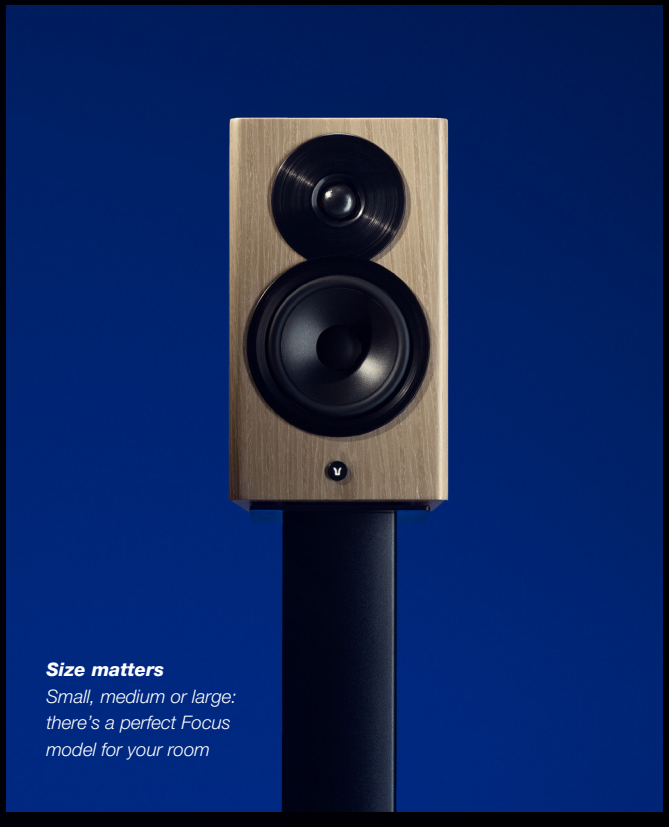
Imagine listening to something different today.

Chromecast built-in · Works with Apple AirPlay · Bluetooth · DIRAC Ready · Spotify · TIDAL connect · CERTIFIED · roon READY · UPnP

All your music, any time
If it's been recorded, Focus will play it: digital or analogue… it's your choice



Classic Danish design
We made them to look good in your living room, not just show off their tech



Size matters
Small, medium or large: there's a perfect Focus model for your room

▲ ***Wireless is more***
You can also hook-up Focus to your network drive for hi-res heaven

Put it wherever you want ▲
You can optimise its performance for wherever you put it – so it always sounds its best

Meet the family
Left-right: Focus 30 (compact floorstander), Focus 50 (full-size floorstander), Focus 10 (compact standmount)

Share it with your friends
Got a pal who wants to try them out?
Anyone can connect via Bluetooth

Truly, madly, **Scandi**

It's ubiquitous, endlessly appealing and perfectly suited for modern life – yet the story of Nordic minimalism is more complex than its simple design might suggest

Words: **Rachel Ogden**

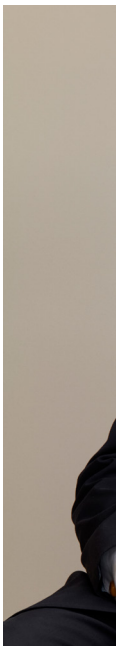
Depending on who you ask, there's a host of household names jostling to take credit for popularising Scandinavian design in our homes. Some point to the so-called 'golden age' from the 1930s onwards, when designers such as Alvar Aalto, Arne Jacobsen, Hans J Wegner, Maija Isola, Poul Henningsen and Verner Panton helped to define the genre with now instantly recognisable products. Others go back further, citing a magazine launched in 1914 by the Danish Selskabet for Dekorativ Kunst (Company for Decorative Arts), which promoted crafts and accessible design rather than the Art Nouveau style that had previously been in vogue.

One thing most can agree on is when the design movement expanded exponentially beyond its birthplace of the Scandinavian and Nordic countries: during the 1950s when its simplicity, minimalism and functionality gained global appeal. A touring exhibition called *Design in Scandinavia* put Scandi design on the map in the US and Canada between 1954 and 1957, while American notables including the Eames couple, and MoMA's Edgar Kaufmann Jr, promoted and inspired Scandi designers. In part, this success may have been helped by Scandi design being exactly what the world was looking for, post-WWII: an antidote to Nazi-era design totalitarianism, instead with a natural focus on the home and family.

A design staple

While its popularity temporarily declined during the excesses of the 1980s and the eclecticism of the 1990s, since then Scandi has gone from strength to strength, morphing into a multitude of interpretations with mass-market appeal. Few homes are complete without a trip to the Swedish-founded world's-largest-furniture-retailer. The result is that it's a design staple in many countries rather than a trend. Why this has happened lies at the very root of what Scandinavian design is: where it comes from, what makes it special and what the future might hold for it. ▶

The Wishbone chair
Designed in 1949 by
Hans J Wegner



Perhaps the best way of understanding Scandi design is to know what it's most definitely *not*...

Decadent frills, clashing colours and visual bulk have no place in its aesthetic. Even the more radical pieces by architect Finn Juhl, such as the Grasshopper and Pelican chairs, have a beating Scandi heart. Although these designs may have struggled to find an audience when they were conceived (the Pelican chair was described by one critic as a "tired walrus" when it was presented in 1940), they're now often accepted as part of the design movement.

Less is more

For Knud Erik Hansen, the CEO of the world's largest manufacturer of furniture designed by Hans J. Wegner, Carl Hansen & Son, Scandi design is best summed up by his favourite piece, the Wishbone chair by Wegner. "There is nothing in that chair that should not be there," he explains. "Everywhere where we need strength, he makes the wood thicker, and when the strength is not needed, it's narrowed again. The material is used optimally; we are not wasting anything. It is also 100 per cent environmentally perfect. The seat is made out of paper and the rest of the chair is wood. If you get tired of it, you take a match to it and there's nothing left."

The desire to make the most of the materials, relying on thoughtful design rather than propping and patching it up, has much to do with Scandi design's birthplace of Denmark, Sweden and Norway. "When you look at the designs, the architects made them comfortable, strong, and used the best quality of wood they could find – we have a lot of that in Scandinavia and the northern part of Europe," continues

“We have nothing except our hands, our brains and then some wood

◀ ***Knud Erik Hansen***
Knud Erik Hansen, CEO of Carl Hansen & Son, champions simplicity in furniture design

Hansen. “They were primarily all carpenters. That means we have a long tradition of craftsmanship. Wood is the only raw material we have in Denmark. We don’t have any metal. We have nothing except our hands, and our brains and then some wood.”

Scandi design’s visual lightness is another element that arises from its birthplace. “Scandinavian homes were quite small, so many of the pieces were designed to suit,” reveals Christian Poulsen, partner at House of Finn Juhl. “You didn’t want a big Chesterfield sofa to put in a tiny room, you wanted something practical and maybe even multifunctional, so a sofa could be transformed into a day bed or a guest bed, or a small dining table could be converted into a large table when entertaining.”

◀ ***Wood, paper and craft***
Hans J Wegner in his famous Wishbone chair

This multifunctionality and preference for minimal pieces over bulky furniture meant that Scandinavian design was already uniquely positioned to take advantage of the increasing need for small-space living. As more people have gravitated towards cities and new-build homes shrank, it’s generated more interest in the Scandinavian aesthetic.

“A good example of Scandi’s visual lightness is the 45 chair,” says Poulsen. “Wegner said that he would have never made this chair because Juhl went to the borders of what was possible with wood-working: some of the early pieces were quite fragile. But it has this separation between the elements where the wooden frame is holding a seat and a back but they’re detached. It’s subtle when you look at it but when you go closer, you can see it’s a very extravagant chair. Yet you can either admire it or ignore it because you can see through it.”

Design for everyone

Were Scandi design’s appeal just down to a move towards minimalism, it may yet have been more of an on-off trend rather than a permanent fixture of everything from electronics and fashion to architecture and interior design. Its simple design is scientifically easier for our brains to process, but Scandi taps into something deeper in our consciousness; something fundamentally human.

For some, it’s rooted in the idea of democratising high design: timeless, long-lasting pieces that suit most homes are widely accessible, and work seamlessly with other interior styles. “Historically, there has been a big movement in Sweden, from around the early 1900s, to propagate the idea of an aesthetic and healthy home; a phenomenon known as ‘Skönhet för alla’ (beauty for all) inspired by the Arts and Crafts movement in England,” says Maria Olofsson Karemyr, brand manager at Scandinavian furniture designers Offecct. “Nowadays, Scandi’s enduring popularity is part of making our society more equal and inclusive, encouraging a healthier and more functional home to avoid overcrowding, and creating an optimum environment for children to grow up in.”

For others, the appeal lies in Scandi design’s reliability and durability. ▶

"Scandinavian furniture has typically seen a big increase in demand following times of crisis," explains Poulsen. "After the economic crash in 2008, for example, people had less money and even the people who had money to spend were looking for something that sent a different message from the previous extravagance, and was more subtle. Scandinavian design ticked that box: it generally has a high level of craftsmanship and the materials used are something that invite you to maintain it. If you maintain it well, it will last forever, it's not disposable. You can pass it onto your children, and if they don't want it, it still has value for someone."

This sentiment is echoed by Hansen. "The oldest piece of furniture we produce is from 1914 and it has never been more popular than it is today. It's quite fantastic that these architects and carpenters in those days could produce furniture that we can benefit from decades later. Now, when you buy a piece from Carl Hansen & Son, it'll last for generations. Children are actually fighting over the day they're going to inherit the furniture. There is a history to it, and a story."

Versatile style

The idea that design from previous generations can fit perfectly in a modern-day home is something that may be uniquely Scandi: it's rare to find younger people desperate to inherit their parents' hulking Welsh dresser or flatpack kitchen table. This may also be because of Scandi's easy colour palette and inherently cosy aesthetic. The concept of 'hygge': comfortable conviviality and contentment, long regarded as a defining characteristic of Danish culture, sums up Scandi style to a T. While there's no direct translation of hygge in English, it might help you to know that, etymologically, it's related to the English word 'hug'.

What is thought of as Scandi-style colours can vary, but the theme of intrinsic warmth and natural materials remains the same. "I think that the climate plays a significant role in hygge," says CEO Søren Lundh Aagaard of Garde Hvalsøe, a Danish maker of bespoke kitchens, bathrooms and interiors. "We have a long, dark winter and three seasons where a lot of time is spent indoors. This naturally leads to a general focus on furniture, lighting, and interior design. Typically, Scandi design is very muted with earthy, woody tones, but you also see bold colours, especially on upholstery, which contrast beautifully against wood that's been treated with natural colourless oils."

Those woods – often oak, beech and ash – have become synonymous with the Scandi aesthetic, bringing brightness that's warm without being stark. Even when the 'golden age' designers stepped away from pale woods to palisander, rosewood and teak, these rich grains add an extra layer of beauty.

When colours are used in Scandi design, there's a tendency to lean towards those drawn from nature. For example, 2022 saw a new colour palette for five of Wegner's chairs at Carl Hansen & Son, created in collaboration with British designer Ilse Crawford. The nine shades are inspired by Danish expressionist ►

Teruhiro Yanagihara
Osaka Ottomans, Tables and Sou table/chair

◄ ***Garde Hvalsøe***
Susanne Rützou's Minimal bathroom in Elm wood. Photo ©Wichmann Bendtsen

The Sideways sofa
by Rikke Frost

artist Per Kirkeby's paintings and reflect the raw beauty of nature. Their names, including Seaweed, Clay and Barley, nod to the landscapes that inspired them. Slightly transparent, when combined with wood grains, the effect is one of sophisticated nuance.

Design synergy

Scandi's versatility has led to the style often being blended with others, from Boho to Industrial, and interpreted in a number of ways. One of the most enduring is Japanese 'wabi-sabi', resulting in the pleasing portmanteau of Japandi: a style that blends the modern rustic feel of Scandinavian design with a sleek simplicity. Rather than key pieces that could dominate, the aim is to create harmony. There's a greater emphasis on complementary neutral tones, with the introduction of dark stained or painted woods. The two styles work well together because they're both rooted in comfort but with a minimal, clutter-free approach. This is often borne out by collaborations: Tadao Ando's Dream chair, created as a tribute to Wegner, as well as Offecct's furniture collaborations with Jin Kuramoto and Teruhiro Yanagihara.

Looking to the future

The final piece of the Scandi success story comes in the form of sustainability. Unlike design styles that have leaned on artificial textiles, bright synthetic dyes and plastics, Scandi was in many ways 'future ready' before ideas of minimal waste and eco materials took hold.

"Wegner was phenomenal at creating fantastic designs in a minimalistic way and using raw materials," explains Hansen. "If we, our children and our grandchildren are going to survive, we had better think about being conscious of everything what we do. For example, at Carl Hansen & Son, whenever we make a tabletop that is rounded, the triangle we cut off is used for making accessories: we make plates, we make small ornaments. We've been sustainable for 114 years: all our waste is used for heating for the factory as well as 470 houses around it."

Design that lasts is also essential: furniture that can be repaired and refinished if damaged, products that fit seamlessly into different interiors and be passed down through families or find new owners are all part of the 'buy better, buy less' ethos.

Even as Scandi evolves with new architects, the design DNA remains the same. Rikke Frost's Sideways sofa is a perfect example of a future classic. Created from wood and paper cord, like Wegner's Wishbone chair, but with the addition of wool upholstery, it features a 45-degree curve to invite both comfort and face-to-face conversation. It's a gentle appeal to human connection in a digital world.

This kind of harmony ensures Scandi design's continued appeal. We might not agree on when Scandi style began its global trajectory but one thing is certain: its place in the future of design.

Form and function
Marcus Heinrich Abrahamsen, Industrial Designer at Dynaudio, explains how Scandi aesthetics and exceptional audio go hand-in-hand

DYNAUDIO: 45 YEARS OF SCANDI SPEAKERS

"As an industrial designer, I get to interact with the entire product-development process, from the first sketching session to building scale mock-ups and choosing the right materials. Many of our core principles are derived from or have roots in the Scandinavian design principles. One of them is craftsmanship, and has been so for 45 years: artisans with decades of experience hand-built our cabinets and drive units. If you treat it right, it will last you a lifetime. We strive to strike the right balance between leaving in, and taking away – there are no superfluous details.

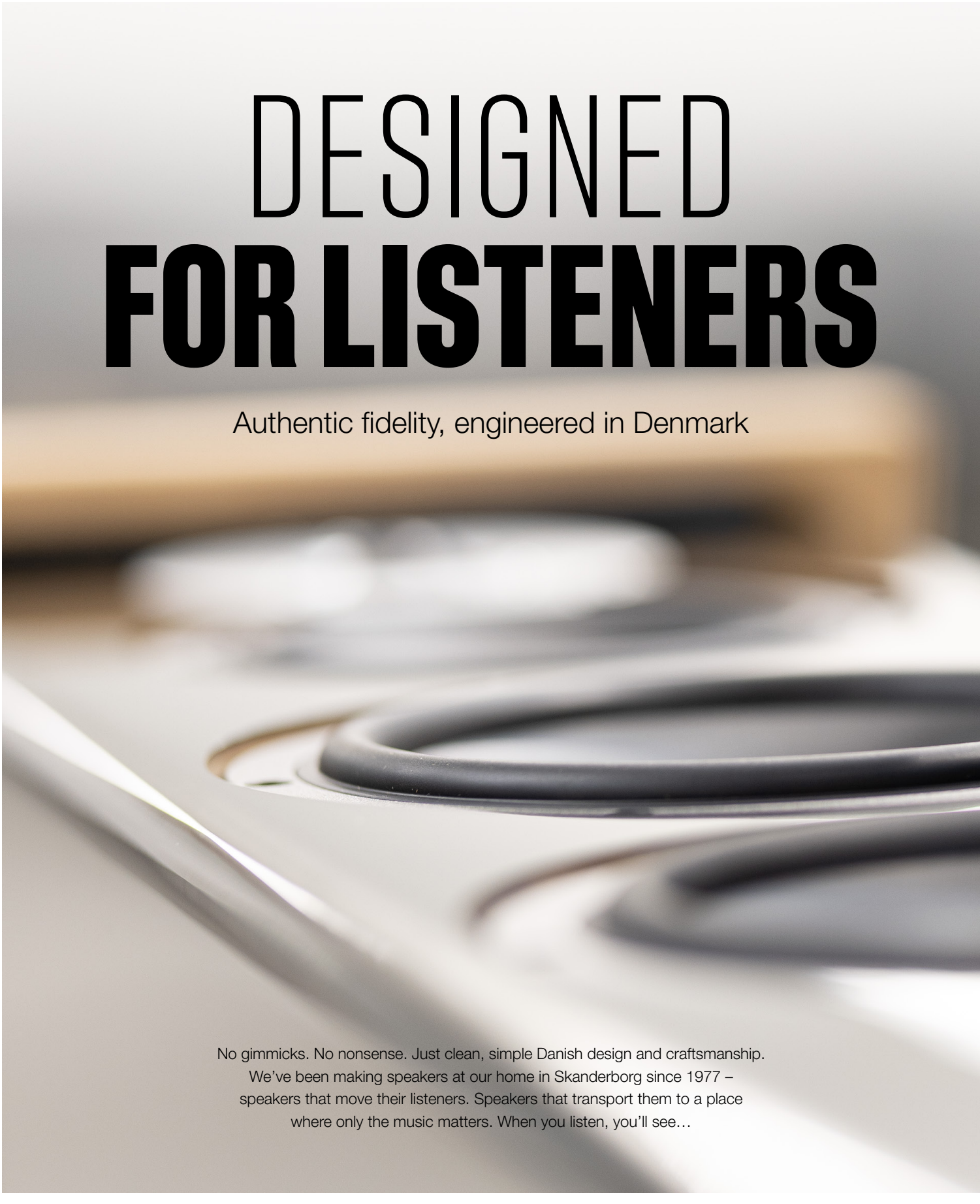
When choosing materials and colour-ways, we look to the nature here in Denmark. We get inspiration from the west coast, marshlands and many beautiful forests. Deep blues, mossy greens and soft earth tones. It's all about inviting nature into our homes.

We also seek to create products where form follows function. A perfect example is the baffle of Confidence, where the shape is blended into the waveguide for the tweeter. This mechanical element becomes beautifully integrated into the shape. The littlest changes in the geometry of the speaker, or the placement of drive units in relation to edges, will have an effect on the perceivable sound it produces.

It's rare that we are asked to slim down a product. It's more common to be asked to increase the size of a speaker, to allow for more cabinet volume. It's a fine balance.

Over the past couple of years, we've been allowed to push the design to be more on par with the needs of the acoustics team. But we still have 45 years of hi-fi heritage to protect – so we tread firmly but lightly."

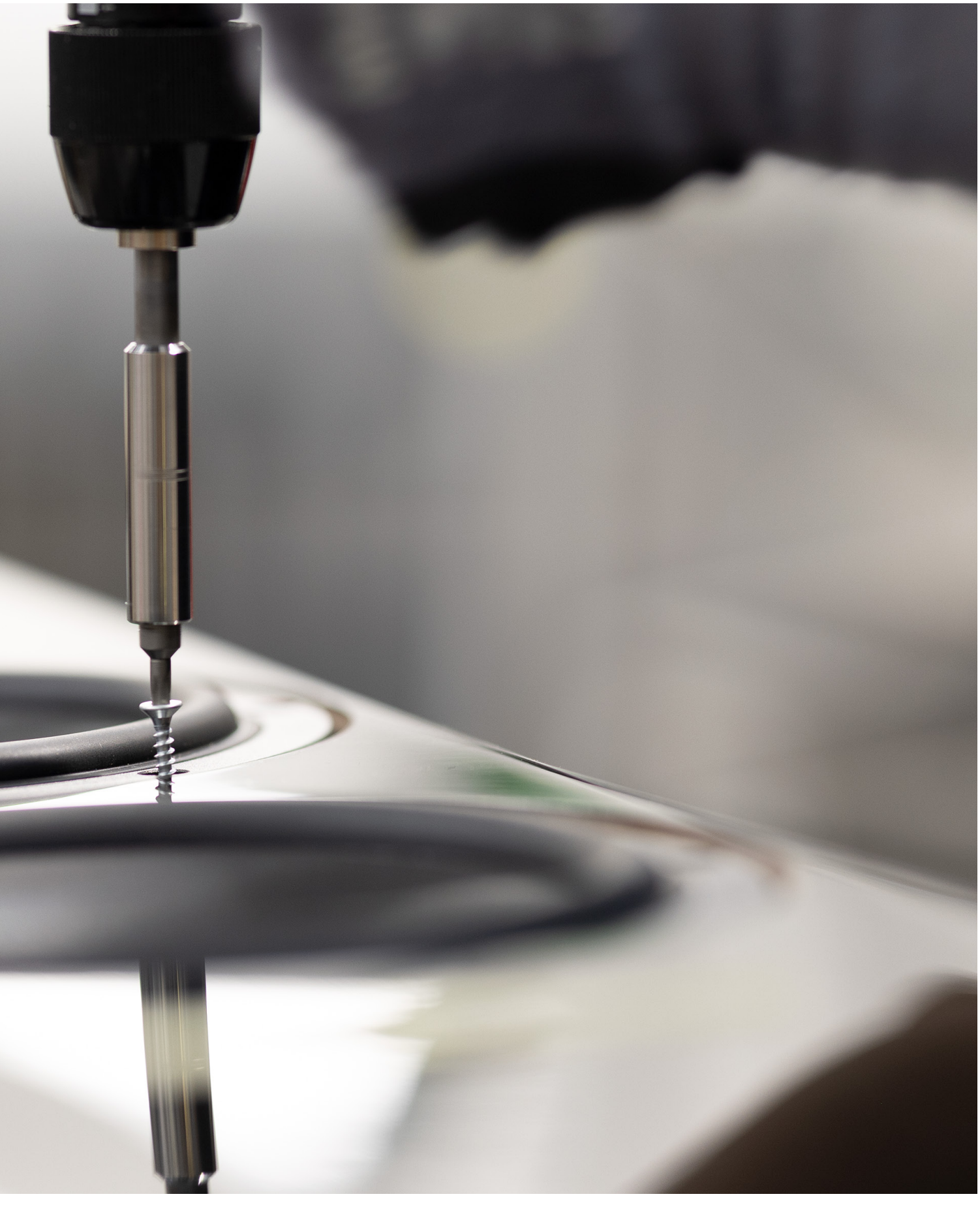
◀ ***Confidence baffle***
Its shape is blended into the waveguide for the tweeter.
See more on p118



DESIGNED FOR LISTENERS

Authentic fidelity, engineered in Denmark

No gimmicks. No nonsense. Just clean, simple Danish design and craftsmanship.
We've been making speakers at our home in Skanderborg since 1977 –
speakers that move their listeners. Speakers that transport them to a place
where only the music matters. When you listen, you'll see…



Game of TONES

What happens when you try to decide how a simple octave should be divided on a keyboard? Feuds, vandalism, death threats… and hit pop records

Words: **Jimi Famurewa**

Think of the most noxious music debate you can imagine and there's a good chance your mind will wander down some familiar historical corridors. Perhaps you journey back to 1934, when nervousness about the provocative nature of jitterbug dancing led to clutched pearls and an 'anti-jazz' protest march in the Irish town of Mohill. Or maybe you head straight for 1957, when Elvis Presley's hip gyrations were deemed so scandalous they warranted an official warning from local Los Angeles police before a concert. Then there are the more recent philosophical tussles over '90s gangsta rap or the late 2010s sonic bogeyman that is UK drill music.

All of them good suggestions. But there is another, more surprising dispute that has rumbled on for centuries and split the musical world with a deep, impassable fissure. It takes in disagreements about religion, science and the way power is arrayed in the field of classical composition; it features name-calling, cries of godlessness, threats of violence and even the vandalism of instruments. And the source of all this invective? The seemingly innocuous question of how an octave is divided or – put more simply – how a musical instrument is tuned.

"There were real battles happening and people really wanted to kill each other," says Stuart Isacoff, pianist, lecturer and author of the essential book *Temperament: How Music Became a Battleground for the Great Minds of Western Civilization*. "The fight over tuning replicated similar fights going on in literature, philosophy and art. And so it became a useful lens to tell the story of Western civilisation." ▶

“There were real battles happening and people really wanted to kill each other

What’s more, perhaps most surprisingly, despite the fact that this war began in at least the 16th century, it is still raging. When Isacoff published his book in 2003, his subject matter was deemed so controversial that he was subjected to abuse both on and offline. “I gave a lecture on the book once,” begins Isacoff, with a little laugh, “and a piano technician came up to me afterwards and said, ‘I expected to see horns and a tail on you’.”

Natural dischord

So how does this happen? How does something that is really a difference of mathematical opinion, inspire such vitriol? How did equal temperament – the relatively recent practise of dividing an octave into 12 equal parts – become the dominant tuning method in Western music? And what of the future? To understand all that we first need to go back; specifically, back to ancient Greece, where pioneering scientist and philosopher Pythagoras first noticed – and measured – the distances between notes on a musical scale.

As he experimented with a simple stringed instrument, marking primitive versions of the octaves and fifths that are the building blocks of all music, the Greek guru spotted something else: an aberration in the 13th note on the scale. A sound that should have been a repeated version of the first note Pythagoras had mapped, sounded vexingly off-key. Isacoff has called this natural dissonance a “curvature in musical space” but it is, essentially, a consequence of less discernible natural vibrations (called ‘the overtone series’) building up and screwing with what should be a perfect note sequence. “This was the origin of the idea that one had to temper, or alter, these tones,” notes Isacoff.

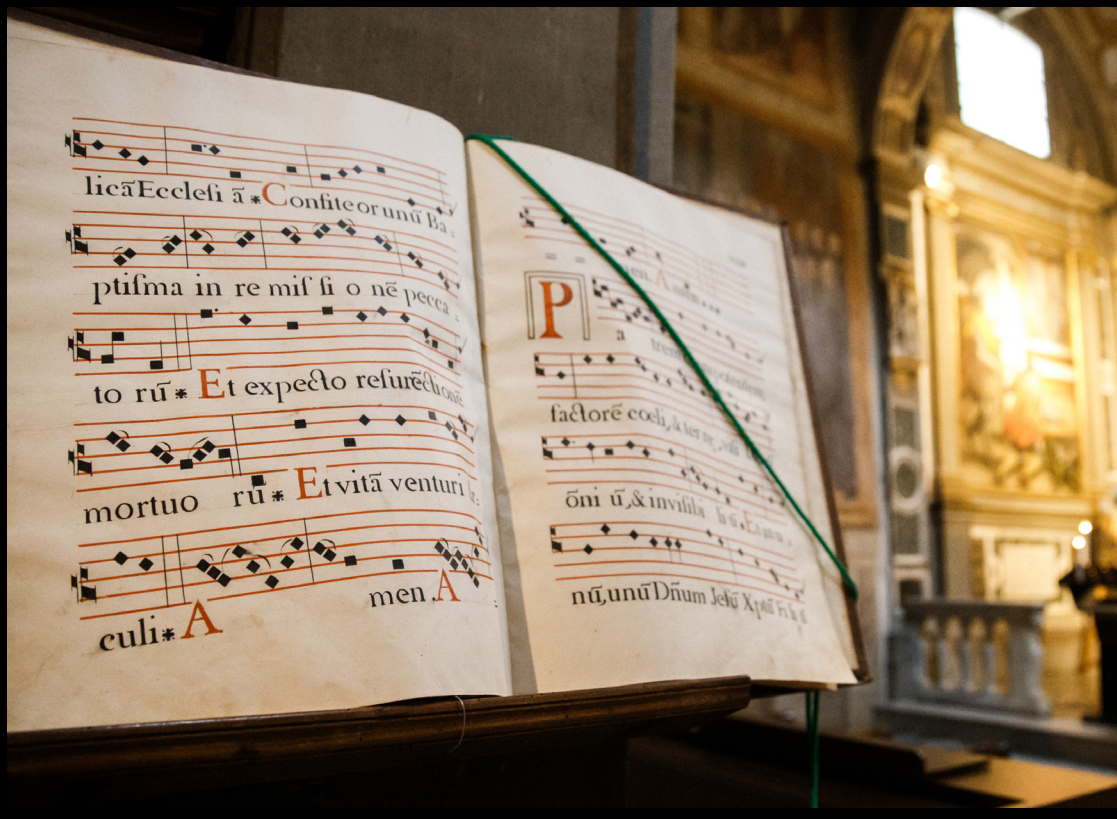
The matter of how to square this unbalanceable equilibrium – generally by shifting that tonal wrongness to keys that aren’t used as frequently – has inspired more than 150 methods of tuning or splitting an octave… and a lot of conflicted thinking.

There is Pythagorean tuning (which prioritises so called ‘pure fifths’. There is Meantone (which shaves a little off the fifths in pursuit of a nice sounding third. And there is Well which, as Isacoff notes, gave “different keys different qualities and was seen as favourable because one key would be angry and one would be happy.” But it was equal temperament – which is the reason why there are 12 keys on every piano you’ll have seen – that prospered in the end; it was first developed in the 17th century and then popularised in around the 18th century.

“Equal temperament was kind of a utilitarian compromise,” explains Asaf Peres, musicologist, composer and founder of music production platform Top40 Theory. “A way of transposing between keys that everyone got kind of used to.” What’s more, it brought an even distribution of tone to music that would still readily feature disharmony or natural notes that sounded ‘wrong’ to the ear. It efficiently cleaned up that which was naturally ▶

Scale model

Why are there 12 notes in an octave? So people could change keys without horrible dissonance



Codifying art ▶
Musical notation as we know it has been around for a lot longer than you might think

murky. And – in an age when music was invariably linked to religion – it was this perceived interference with the natural order that caused some huge, philosophical problems.

"It seemed to go against god's law," explains Isacoff. "And so the church became involved and ordained that Christ had tuned the world in a certain way. Which led to things getting more complicated, huge fights and occasions when organs that were tuned to equal temperament had their bellows slashed."

Classical mass

So, in the face of such resistance, how did equal temperament come to be the dominant system for instruments with fixed-tuning? Simply put, come the early 19th century, the powerful musicians of the day demanded it. "Once composers started changing keys – often within a piece – or writing music that had those little half-steps on the keyboard, the need for keys with some sense of a homogeneous sound became more important," says Isacoff. "So by the time you have Beethoven, Chopin and Schubert, [you have] composers writing music that requires something like equal temperament in order for it to work."

It was an instance of the demands of the classical world's big beasts shaping the entire order of modern, Western music. And while no serious appreciator of artistry would deny, say, Beethoven the tools he needed to create all those tempestuous masterpieces, many have understandably pined for the alternative approaches that have been swept aside by equal temperament's supremacy.

What about the heady turns of Middle Eastern music, which generally splits the octave into 24 parts? Or the evocative sound of Gregorian chant? The new possibilities that live in the imperfections of an impure fifth? Or the disconcerting, horror-movie power of atonality, when harnessed correctly?

Apart from those loudly calling for Isacoff's head, there has been a long history of musicians and thinkers who acknowledge equal temperament's one-size-fits-all usefulness and yet agitate for something different. Overtone disciple and American

> “And so the church became involved and ordained that Christ had tuned the world in a certain way

musician Harry Partch designed countless new, alternatively tuned instruments during his maverick career (these included the Chromelodeon, which split the octave into a head-scrambling 43 tones). In 2009, British composer Geoff Smith unveiled a ‘fluid piano’, capable of playing microtonal music from Indian and Iranian cultures. And Australian psych-experimentalists King Gizzard & the Lizard Wizard, were so inspired by the sound of a banana yellow microtonal guitar that they used it as a jumping off point for a 2017 album.

No one could possibly contest the elegant genius of equal temperament but now – after all the harsh words, feuding composers and damaged instruments – musical thinkers are lucky enough to exist in an era that can accommodate more than a strict binary. A gleaming 12-note piano octave doesn’t need to be a headstone for the old way of doing things; for the natural inconsistencies of the natural world. As music reminds us every time, something doesn’t necessarily have to be flawless to, in its own way, be utterly perfect.

Cracking the code

Writing speech or a narrative is easy. We use words. But what about musical language? How do you put musical emotion down on paper?

In 1967 at Atlantic Studios in New York, two very different musical stars – at very different points in their careers – found themselves, briefly, aligned. On one side, there was Aretha Franklin; riding high from the spring breakthrough of *Respect* and deep into recording on her twelfth studio album, *Lady Soul*. On the other was then-Cream axeman Eric Clapton, still only 22 but already showing the prowess that would etch his name in the Big Book Of Important Guitarists.

Clapton had been drafted in to play on the song *Good to Me as I Am to You*. Guitars were readied and the other players prepared themselves as the young Brit entered the room. A hush fell. But there was just one problem. Clapton looked at the musical notes set before him and saw nothing but meaningless squiggles. “I was so nervous,” he wrote, remembering it years later. “[Because] I couldn’t read music and they were all playing from music sheets on stands.”

Native language

Clapton, unsurprisingly, was able to play his part by ear and save embarrassment. But here we have an illustration of one of the more fascinating dichotomies in music. Though notation is one of the most important inventions in the history of sound, it sorts musicians into two camps: those that can read it and those that either can’t or find it a struggle.

And, though you’d imagine a degree of musical literacy would be essential for any serious performer, Clapton is in pretty esteemed company when it comes to non-reading. Hendrix. Grohl. McCartney. Time after time, instinctive players have shown that a lack of formal training doesn’t automatically put a cap on your abilities or ambitions. And even Grammy-winning saxophonist Kirk Whalum – who *can* read music – says he’s always had to work at it.

“In the beginning I made a lot of mistakes and that was part of having to read a lot,” he says. “I would find myself ▶

◀ ***Comparing notes***
Even Grammy-winning saxophonists can struggle with reading music sometimes. Luckily, Kirk Whalum can improvise his way out of any musical hole

in the back section of a big band and I'd struggle. To this day, it isn't a forte of mine – but it is part of what we do."

Time travel

So just why – if it is not too simple a question – is the centuries-old practice of notation so important to modern music creation? How does the hierarchy between those who can read and those who can't, play out? And, given the rise of computerised production tools and alternative forms of notation, is the old system of notes and staves restrictive and exclusionary to those that can feel it, even if they can't transcribe it?

Well, the first thing to acknowledge is notation's immeasurable significance as a cultural breakthrough. Notation of some form has existed as long as music has but, what we understand as written music began in the 11th century with an Italian monk, known as Guido of Arezzo, and a desire to bring some consistency to the way pieces of religious chant were performed. It was Guido of Arezzo who first devised the stave and his other inventions are still, remarkably in use today (he essentially came up with the 'Do, Re, Mi' scale).

But the ramifications were deeper than standardising the pitch of a few choirboys. Notation was a way to capture the unseen and the ephemeral. It was a way – through its ability to translate sounds that were first born many years and many miles away – to almost travel through space and time.

As Thomas Forrest Kelly, medieval music expert and author of *Capturing Music: The Story of Notation*, put it: "The people who developed this technology also prayed, sang, studied, read, and wrote. They travelled, they danced, they married… they got sick, they grew old, they lived in a world that is not our world but that was very real. To the extent that we can decode the music they wrote, we can hear the music they heard, and we can transport ourselves to a world that teaches us much about them, and even more about ourselves."

So, yes, notation is important in terms of our connection to the musical past. But here and now, in the present, it is still – in all its dense complexity – the most efficient means of quickly relaying intricate information to musicians, particularly in the classical field.

Notation gives us a lot. But what do we lose in the process of setting things down and codifying that which is improvised, unpredictable and felt in the

> "The thing that music connect intangible and

gut rather than the brain? Wasn't Michael Jackson's inability to read music – his reliance on using tape recorders and hummed harmonies to build melodies – precisely what made him such an unconventional, ingenious songwriter? As Slash, another prodigiously gifted non-reader has said: "I just try to make what's in my head come out [of] my hands and in the guitar."

Sometimes, you have to let loose

Surprisingly, there's some evidence to back up this anecdotal theory. In 2008, a Johns Hopkins University study found that when jazz musicians improvised, MRI readings showed that their brains turned off areas linked to self-censoring and inhibition, while also allowing more freedom of expression. Simply put, there are avenues of creativity that only open up when you aren't squinting at a music stand.

The mention of jazz is key, too. Though – as Kirk Whalum's words tell us – lightning-quick literacy is important in the genre, it's a skill that has to coexist with the loose-limbed, free association that is key to also part of jazz's DNA. The same is perhaps not true of classical composition (where composers who might not read at lightning speed are colloquially dismissed as 'whistlers' who have to hum their tunes to a transcriber), but these pecking orders between readers and non-readers are always there. "In jazz you can get away with a lot without sight reading that well," says Asaf Peres. "But you still will kind of be looked down upon when you're playing with saxophone- and piano-players who are great sight-readers."

It's worth noting, however, that this old binary – readers on one side, non-readers on the other – might be changing slightly. On one hand, traditional notation is being adapted into a modern, alternative system known as graphic notation: beautiful, idiosyncratic scores that contemporary composers use to transmit information about things like 'tongue-ram' and striking a particular part of the instrument for a percussive beat. On the other, DAWs – or digital audio workstations – are levelling the playing field for songwriters who don't know their quavers from their clefs. "Mozart in the 1700s could only use a paper and pen to signify pitch and rhythm," explains Peres. "But now, with modern technology, you have the tools to not just control those but also to surgically control the entire sound. Mozart's final product was a score. Whereas what people produce now, in the most popular genres, is a recording."

We have reached, you might hope, a point of equilibrium; a place where the musical past is respected and easily accessible but technology is also empowering people to create sound in new, exciting ways. But it begs the question. Will notation ever fall out of favour? Will there be a point when the Eric Clapton of the future doesn't need to worry about potential embarrassment lying beyond the door of an unfamiliar studio? In short, no. The new doesn't have to sweep away the old. "As long as the genres that require it are alive, traditional notation will be alive too," says Peres, with a chuckle. "It's kind of like evolution. We evolved from monkeys, but monkeys still exist. The old things may be lower in the hierarchy, but they won't die out."

Bottling the secret sauce

From Jimi Hendrix at Woodstock to The Sex Pistols at the Lesser Free Trade Hall, music history has its fair share of myth-forging live moments. But for fans of Oasis – or, in truth, fans of British guitar music in the 1990s – King Tut's Wah Wah Hut in Glasgow is hallowed ground. It was here, in 1993, that former rail clerk and Creation Records founder Alan McGee first saw the Manchester band perform. Well, in truth – if you believe the legend – the first thing he saw was the Gallagher brothers and their bandmates threatening to trash the venue if, as the gig promoter had initially suggested, they weren't allowed on stage.

But that's not the part that now belongs to the ages. That moment came when, four songs into their fourth-on-the-bill set, Oasis unleashed a wholly unexpected, typically snarling cover of *I Am the Walrus* by The Beatles. While McGee – only at the gig because some friends in another band had dragged him along – had been impressed by the Mancunians before then, this was something he hadn't seen before; something that prompted the urge to offer them a record deal as soon as they stepped off the stage. "Seeing them there [it felt like] what seeing The Stones must have been like in the early days," was how McGee would describe it later. "Brutal, exciting, arrogant."

How does this happen? How does a particular chord progression or musical phrase – a certain vocal or soaring middle eight – prompt this reaction in people? You can see it in the 1955 New York radio DJ who was so taken with the driving thrum of Chuck Berry's *Maybellene* that he played it on repeat for two hours straight; you can see it in the awestruck applause that rocked the foundations of Vienna's Kärntnertortheater in 1824, at the premiere of Beethoven's *Symphony No. 9*. We all ►

makes a piece of
is infamously
unpredictable

know it. We all recognise it. But what prompts it? And can this particular brew of sonic special sauce be perfected, bottled and whipped out as required?

Unpacking the DNA

Well, yes and no. Analysts have been taking a surgical scalpel to hit records and particularly stirring compositions throughout all of recorded history. But in the past 20 years – perhaps inspired by the rise of ruthlessly effective, largely Scandi-honed modern pop songs – this fevered dissection of what makes certain tunes work has intensified. And, while a certain unknowable magic is always going to be part of a special piece of music's curious power, there are certain, definable things that the human ear tends to respond to.

First among these is the fact that – generally – we tend to favour songs with consonant intervals (bright, decisive progressions that are the opposite of harsh-sounding, elliptical dissonant intervals). However, there are areas where slightly different rules apply. Sifting through two decades of Eurovision Song Contest data, musicologist Kit Lovelace found that 15 out of 20 winners had songs in the darker, more sombre minor key. "Moody songs are key in the modern contest," is how Lovelace put it in one analytical article. "It's a misconception that songs need to be happy-clappy singalongs in order to be successful."

And we know, if we are even partly interested in music, that this isn't the only instance when conventional wisdom can be thrillingly subverted. The thing that makes a piece of music connect is infamously intangible and unpredictable. Motown

▼ ***Hitting you right in the feels***
There is a school of thought that says the more primal – or, perhaps, primitive – an element of a song is, the deeper and more profound its resonance.

boss Berry Gordy thought Marvin Gaye's searing, era-defining *What's Going On* was "the worst thing [he'd] ever heard" until it was secretly released behind his back and duly became the hit-making label's fastest-selling single of all time.

Gloria Gaynor's *I Will Survive* was held in such low-esteem that it was originally the B-side to a low-charting Righteous Brothers cover. Keith Richards was so convinced that an early sketch of his iconic *(I Can't Get No) Satisfaction* riff was "filler" that he practically had to be strong armed into recording it. Everywhere you look, there is evidence these moments are more about capturing lightning in a bottle than working with a repeatable formula.

Breakin' the law

"I think of each song in the popular music world almost as a person in a social space," suggests Peres. "You have the popular kids, the average kids and the really unpopular kids. Popularity means you know the social norms but you're confident enough to break them. Average kids – or songs – usually follow the rules or are very safe. And then you have the unpopular kids, who break the rules but do it in a way that isn't really coherent to most people. You need a level of familiarity but to also stand out. Which is a tough balance to strike."

It makes sense. We know from Zeitgeist-grabbing moments in rock history – Nirvana delivering catchy rock with a scuzzy new edge; Pulitzer-winner Kendrick Lamar bending the autobiographical blueprint of West Coast hip-hop to his will – that this familiarity, used sparingly, is a powerful ingredient. And this potency, the thrill of getting something we know in an altered shape, can apply to the melodic architecture of an individual song as well. Peres notes that instructive modern pop songs like Rihanna and Calvin Harris's *We Found Love* manage to "build a sonic world by using the same tune but kind of changing the context around it".

And Max Martin – the elusive Swedish producer behind maddeningly catchy hits by everyone from Britney Spears to The Weeknd – has spoken about a trick, borrowed from Prince, wherein a verse melody that matches the chorus tricks the listener into a sense of recognition: "Once the chorus comes, you feel like you've heard it before. And you have!"

Primal theme

There is another kind of unexplainable familiarity as well: it comes from the connection with the person behind the guitar or mic or trumpet. Something exists in our divine wiring that enables those moments when it can feel like it is just us in the room, hearing a sung refrain or spine-tingling plucked chord.

"There are people that believe there are natural notes, like the overtone series, that we are built as humans to resonate with," says Stuart Isacoff. "And because of that, people claim that if these natural intervals are compromised, not only does it not reach our souls, it's actually physically unhealthy for us. When you listen to a great choir, singing very early music, there's something incredibly moving about it; because they're singing in these pure intervals."

Again, we arrive in the realm of a perfection that is easy to recognise but difficult to quantify. When writing about his favourite guitar solos, writer and music teacher Will Byers perhaps put it best: "All of these solos contain rhythmic flourishes and extraneous noise, whether it is distortion, microtonal string bends or fret noise, which are impossible to notate but essential to the finished item. This is why popular music cannot succumb to musicological analysis which is steeped in harmonic theory – it misses the point of the thrill in the noise being made."

Musicians might not always be able to replicate it, label-bosses might not be able to predict it and fans might not be able to define it. But – like Alan McGee having his mind blown – by god we know it when we hear it.

DYNAUDIO

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12 WAYS TO UPGRADE YOUR SYSTEM REALLY CHEAPLY

You'd be surprised at the results you can get with a few free (or nearly free) tweaks. Each of these might only give you a small gain – but put them all together and you might well notice a big improvement

01

Check positive and negative polarisation on speaker cables

It might sound almost too elementary to be true, but make sure the + and – on the amplifier are connected correctly to the + and – on the speaker (or red-to-red and black-to-black/white-to-white). If not, and the speaker is connected out of phase, and its sound will be diffuse and lacking bass.

Price: €0.00

02

Remove the cloth grille when listening

The grille protects the speakers' drivers and provides a discrete appearance. However, it's an extra layer that the sound has to pass through and, as much as every manufacturer strives to make it as acoustically transparent as possible, still slightly affects the performance. An exception: our Focus range of streaming speakers can auto-compensate for this with some clever electronic wizardry (see p110).

Price: €0.00

03

Experiment with speaker placement relative to the back wall

Too close to the back wall will result in boomy bass. Too far away, and the sound can become too thin. Try moving the speakers back and forth a few centimetres at a time until you zero-in on the sweet spot. Trial and error is your friend here.

Price: €0.00

04

Play around with angles

This is called ‘toe-in’, and affects the width of the stereo image. If the speakers are angled too sharply inwards to your listening spot, the soundstage will seem to lack space. Too wide, and the precision in the centre of the stereo image is lacking. You’ll probably notice it most in solo instruments, vocals and snare-drums.

Price: €0.00

05

Experiment with the included port plug

If the speaker has to be placed close to a wall, or it’s in a small room, it can help to plug the rear port to decrease the amount of bass. Some speakers have two-part plugs with inner and outer sections for even more fine-tuning. Or if you’re feeling brave, you could hollow-out your one-part plugs with some careful wielding of a craft-knife.

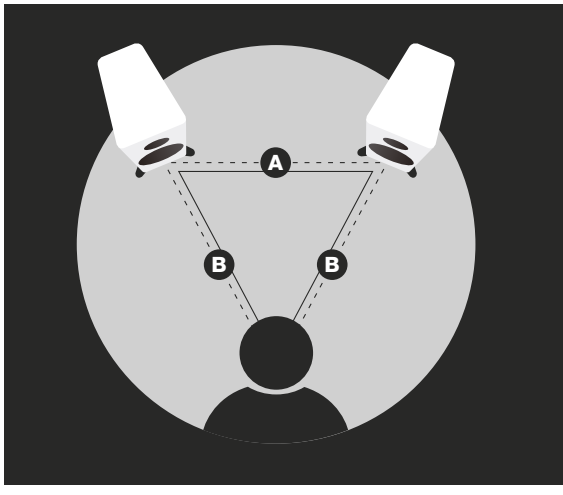
Price: €0.00

06

Place your speakers in an equilateral triangle

For the best imaging, make sure the distance between the speakers is equal to the distance from each speaker to you. This assumes that you’ll be sitting right in the middle of the sofa or in a chair in the centre, of course. If there’s more than one of you, there will be an inevitable compromise (unless you manage to persuade your listening companion to move!).

Price: €0.00



07

Put your subwoofer on your sofa

Yes, really. But not permanently. One way to find the best position for your subwoofer is to put it where you'd normally be sitting. Then crawl around on the floor and listen to it. The place where it sounds best is where the sub should be positioned to deliver the best performance when you hear it from the sofa. You will probably feel very silly doing this. That's OK. It'll be worth it.

Price: €0.00

08

Close the curtains

If you have large walls and windows, try closing the curtains. This can improve the sound by increasing absorption at higher frequencies and reducing flutter echoes, giving improved imaging and a reduction in harshness.

Price: €0.00

09

Turn down the lights, close your eyes or wear a mask

In our brains, vision generally takes priority over hearing. If you decrease the amount of light, the brain will put more emphasis on hearing, and it is easier to hear the finer details. Closing your eyes can help too, although some have argued that this also requires mental horsepower which could otherwise be used for listening. Some listeners even go so far as wearing an eye-mask. You can find out more about musical mind-tricks on page 50.

Price: €0.00

10

Isolate your speaker from your desk

If you have speakers on a desk, make sure they're isolated from the surface. There are various ways to achieve this, but this is an area where the "something is better than nothing" rule really comes into play – a piece of soft adhesive putty under each corner of the speaker can do wonders.

Price: €3.85

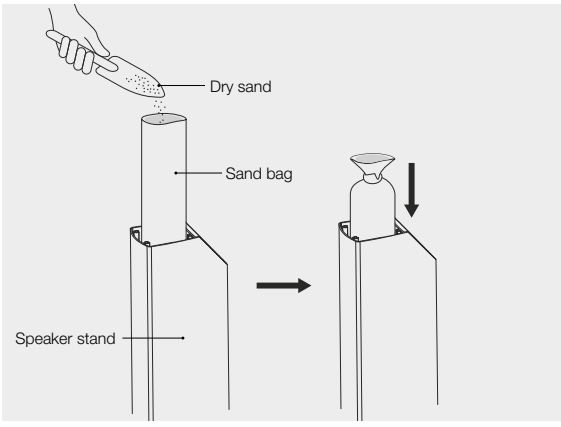
11

Close the doors

This has two effects on your listening: reflections from an adjacent room can become echoes that deteriorate sound. Also, it might decrease the noise level in your listening room, which greatly increases your ability to hear the finer details and improves the perceived dynamic range of the performance.

Conversely, if it's not too reverberant or noisy in the adjacent room (and if you don't mind the dog coming in to listen with you), opening the door can improve your listening room's bass response.

Price: €0.00



12

Put sand inside your speaker stand

If you have standmount speakers, make sure to fill the stands with bagged-up dry sand (or safely packaged shot blast material) to create the best foundation for the speakers. This both reduces vibrations from the stand itself, and creates less unwanted vibration from the speaker cabinet.

Price: Ask your local builder's supplier

Interview

GREG

PENNY

The king of immersive audio

Words: **John Steward**

Greg Penny cut his teeth in the stereo world – producing, mixing and even performing on some of the biggest albums of the past 35 years. Now he's embarking on a quest to bring immersive audio to the masses. And, it's fair to say, the results are astonishing…

Whenever Greg Penny gets bummed out by work, he remembers a simple exchange he had with Michael Jackson. "I was working at Westlake when he did the *Thriller* album, and he came out to have a lunch break by himself at a little table. He invited me to sit down with him for a minute and asked what I was doing. I said, 'I'm working on a demo for some friends of mine'. He said, 'Do you love your work?' Nobody had ever asked me that before. I said, 'Yes'. And he said, 'It's great, isn't it? It's amazing when you get it right. Doesn't it feel good?'. And that was it. 'See you later!' Wow."

Forty years later, Penny has clearly lived by those words. He's the exact opposite of bummed out as he sits in his new immersive studio, set in the corner of a huge warehouse space in Ojai, California. It's a charming hippie town about 90 minutes north of LA – all coffee shops, and fantastic restaurants, and more celebrities per square metre than anywhere except maybe Beverly Hills. It has… a vibe. You'd love it.

A baptism of fire

As vibes go, Penny's is as chilled as his home town's. He has the relaxed, convivial air of a man at the very top of his game, who was nurtured by people at the very top of theirs.

And that's his secret weapon. Think back to your mentor when you were a teenager: it might've been a schoolteacher, an older sibling, a peer. They took you under their wing, protected you from calamity, dispensed harsh advice (even when – especially when – you didn't think you needed it) and set you on a path you can't ever imagine not treading.

Greg's mentor was Elton John.

If you thought you had a big hill to climb when you were finding your passion at that age, picture a 17-year-old Penny sitting wide-eyed and fresh off the plane in a French recording studio, getting an exclusive run-through of the then unfinished *Goodbye Yellow Brick Road* album. Surrounded by the band and production team. With the biggest singer in the world performing live backing vocals next to him.

"They played me the whole album, which is, like, 75 minutes of stuff," he says, still quite obviously marvelling at the absurdity of it all. "I'd been to sessions before, but to see how the up-and-coming biggest-artist-in-the-world was doing it, I was super impressed. And impressionable. It wasn't done yet, so with Elton next to me, you get to the chorus of a song, and he did the harmony in my ear. I really had to look around sometimes and go, 'This is jet-lag-induced. I'm not really here'."

Square roots? Hardly...

Penny grew up in a musical family. His parents, Hank Penny and Sue Thompson, were adventurous, prolific and gifted musicians with many hits under their belts in the 50s and 60s. (Hank also had a side-gig designing and troubleshooting guitars with Leo Fender. As you do. And Sue hosted a TV show in LA with her husband. Again, as you do.)

"There was always music in the house," says Penny. "There was always an initiative to school me about the singers I was listening to; the stuff I was tuning in to. Everything from old jazz records and big-band records to more cutting-edge stuff." But it was when his older sister turned him on to Motown in the 60s that everything changed. "That was it. I was gone," he grins.

It was inevitable that he'd pick up every instrument he could get his hands on. He played the drums, piano, guitar… but tagging along to recording sessions with his folks gave Penny a much more immediate thrill. After the whirlwind of bands, session musicians and hangers-on had blown itself out for the day, he was left fascinated by the person still sitting at the desk: the producer. "I was looking at him going, 'Ah, this is great. This guy gets to stay in this room every day and make cool records'," Penny says. The fact that the unmatchable, God-like George Martin did that job too was the icing on the cake.

Meanwhile, he was racking up some serious dancefloor time at shows in town: "I was like that kid from *Almost Famous*. All the backstage guys knew me, the bouncers knew me… it was an easy entrance." And because he grew up surrounded by musicians, he was able to cut a neat, Greg Penny-shaped ▶

▲ ***Use them wisely***
There might be 20 speakers here, but the key is to use them tastefully in a mix

> “Most people put their phone away. They don’t talk. They become completely hypnotised

hole in the whole ‘fame’ thing. He took his mum to a few Elton shows, where it turned out the singer was a big fan of her records. A familial vibe developed, and it wasn’t long before Penny was sitting around on the second floor of an old French manor house listening to a playback of the *Yellow Brick Road* multitracks.

As you do.

Into the archives

And that was just the beginning. Penny has carved out a stellar production career for himself, including the likes of k.d. lang’s *Absolute Torch and Twang* and *Ingénue*, eponymous albums by Paul Young and Eddi Reader, many, many Sparks and Rickie Lee Jones records, Cher’s *It’s a Man’s World*… and Elton John’s *Made in England*.

While he was churning out hits with k.d., a bit of matchmaking from a mutual friend of his and Elton John’s led Penny to record a duet with her and Sir Elton. And, from there, he was asked to produce increasing amounts of Elton John material. “We started this process of him saying, ‘Why don’t you go dig that out and figure out what we can do with it? So I’d go to London for weeks at a time, get the masters out, bake them, transfer them and get them in the box. Every little bit of memorabilia; every little bean,” Penny says. He started messing about with them, and the resulting mixes became a huge set of material that could be used for… well, whatever Sir Elton wanted. Films, deep-cuts, you name it.

Elton’s level of trust in Penny’s artistic abilities and sensibilities – as well as a never-ending desire to push himself to new contemporary heights – is what led to the fully immersive Atmos mixes of some of his most classic material.

Rock it, man

If you’ve ever read the classic novel *Flowers For Algernon*, you’ll have some idea of what going back to listening in stereo is like after hearing a full-fat, cherry-on-top Dolby Atmos mix of *Rocket Man*. Frankly, it ruins you a little.

The intro seems to physically surround you with buttery-smooth piano and vocals. The mellow ‘oooo’s and acoustic guitars gently bathe you in calmness. And those ‘whooshes’ soar up in front and then actually *pass through you*. “It’s transcendental,” says Penny. He has a gift for understatement.

Laughter is a common first-time immersive-listener reaction, he notes. Slack-jawed amazement is another. He even recounts a story of a journalist who full-on ugly-cried while listening to an Atmos mix of a Sting track. (“She just turned around and said, ‘I can’t believe it, I’ve never heard music like this’. Then she was up dancing for the next song!”)

Made in Ojai

The canvas upon which Penny creates these musical tapestries is simple enough. It’s a 3D box on a computer screen that contains varying numbers of little green balls, each representing a part of the multitrack recording. They fade in and out as instruments start and stop playing, sometimes gently drifting around the virtual space, and sometimes darting with the energy of a furious wasp.

Is there a temptation to fill the box with balls, and make them do all kinds of wacky things just to make the listener understand what the tech is capable of? Absolutely, says Penny: “I’ve had that

◀ ***Studio master***
The studio in Ojai is totally custom-built for immersive audio production and listening

Photo: Universal Music Group

▲ ***Captain Fantastic***
Greg Penny has worked on something approaching 150 Elton John tracks – the largest catalogue of immersive content available

happen a couple of times. I'd be working on something serious, and someone will come in and say, 'Man, you've got to move stuff'. So we do, and then at the end they say, 'There's too much moving'. My objective is to emotionally impact the listener. If you can create that experience, then the machine goes away and what lingers – it could be ten seconds after or for years to come – is that they've had this amazing experience." With great power, and all that…

'This is happening'

The most surprising part of listening to a really well-made immersive mix is that you can't quite remember how the original sounded. It's as if it *always* surrounded you like this; it captures the spirit of the track you know, and then makes you want to crack open a beer. "That's when you actually surpass the emotional feeling of the stereo version that's in the market right now," Penny smiles. "That's when you say, 'Yes, I got it!'."

And you can throw snobbery out of the window. Just because something was mixed on a four-track in the 60s, that doesn't make it the definitive, superior version. Stevie Wonder is writing new material *specifically* for immersive formats. You can bet your bottom dollar that Prince would have been all over it. It even has its fans among the die-hard analogue artists, according to Penny: "Dan Auerbach from The Black Keys heard us working on an Atmos version of *Goodbye Yellow Brick Road* for a film. He's such a natural-sound guy; roots-y. I was thinking it would bum him out, because it's so digital. He sat down… 'Crank it!' – and, man, when it hit the chorus, this huge smile came over his face. He said, 'Wow, this is happening. I love this'."

The beauty of all this is that you don't need a set-up like Greg Penny's to enjoy immersive audio at home. These mixes are designed to 'fold down' into smaller systems. Got a 7.1 rig in your home cinema room? You'll still get some of the magic. Listening in stereo? You won't get the total experience, but you'll still notice a difference. Headphones? The binaural experience gives you real depth – even on standard cans.

And if you choose to go the whole hog and wire up a 7.1.4 system, you're in for *such* a treat. But forget the speakers when you're actually listening, Penny says: "I want people to lose all the things that attach them to the technology. And it's amazing: most people put their phone away. They don't talk. If they're in the right spot in the room they will be completely hypnotised."

No wonder he loves his job.

How music alters your mind

Music has power. Sure, it can entertain and be enjoyable. But it can also change how you feel and even what you do.

Words: **Richard Gray**

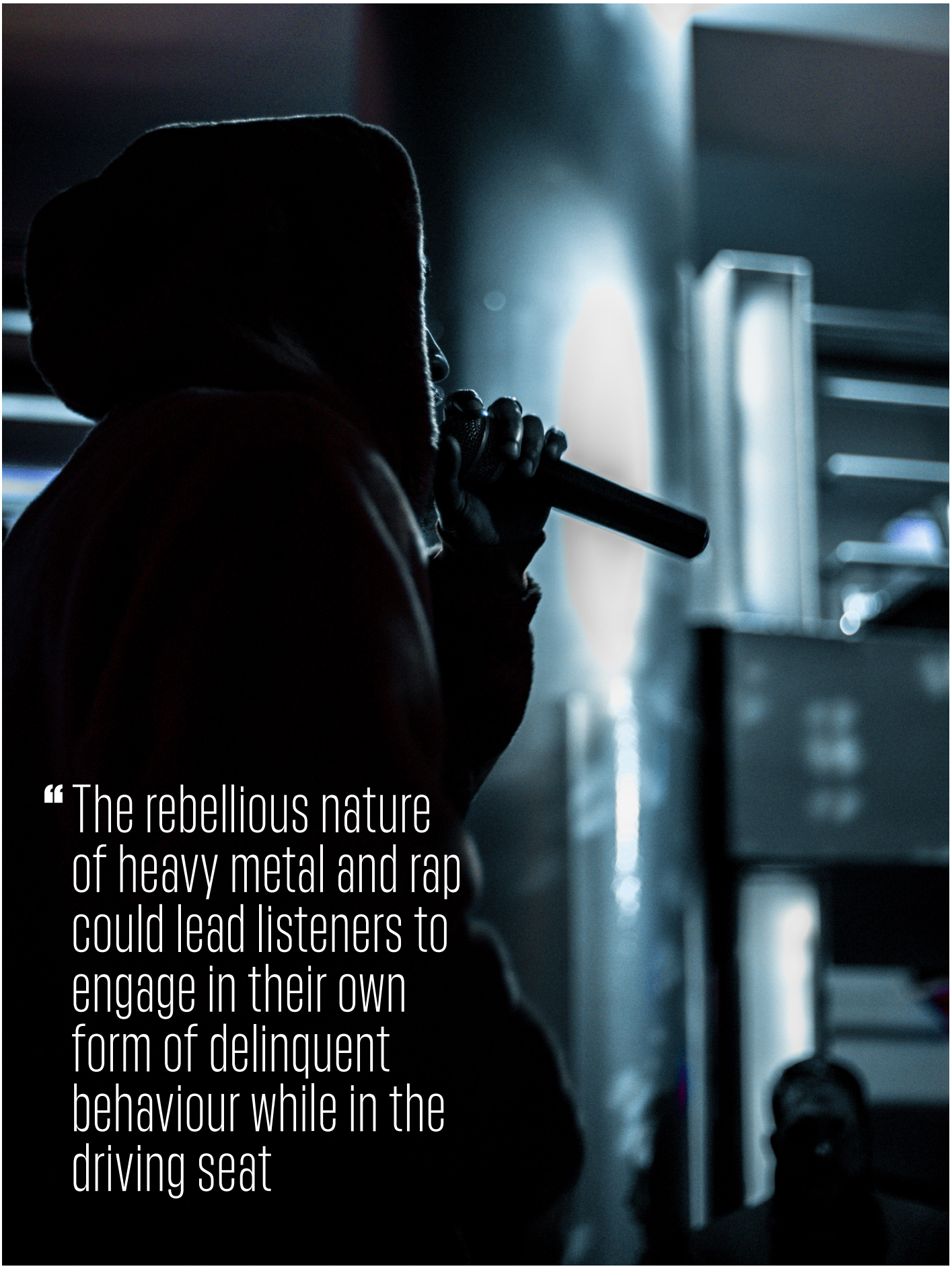
A few months after I passed my driving test, I crashed my dad's car. It was no ordinary rear end bump – rather a full frontal smash into an oak tree that flipped the ageing green Rover onto its roof. The fault was entirely mine – the combination of inexperience behind the wheel and teenage cockiness.

But sitting on the verge, surveying the crumpled wreck and waiting for my rightly furious father to turn up, another culprit presented itself. Somewhere within twisted metal and shattered glass, the keys remained in the ignition and the car stereo was still blasting out the angry thrash of guitars into the surrounding Scottish countryside.

I remember at the time feeling suddenly embarrassed – not for what I had done to our family car – but about what the roar of mid-90s Smashing Pumpkins and Green Day betrayed: I had been driving too fast, too recklessly. I had let the music take hold of my senses.

With many years to reflect since then, I know it would be wrong for me to blame the accident on the music I had been listening to that day. But as a science journalist, I've also learned it might well have played a role in the decisions I took leading up to that moment.

Music can be art and entertainment, but it is also a powerful tool for manipulation. We can use it to alter our mood, or it can trigger certain emotions and influence our behaviour. The right tune can lead us to make good decisions or bad ones, encourage us to take risks and spend money. It can even leave us more likely to hurt people. ▶



> “The rebellious nature of heavy metal and rap could lead listeners to engage in their own form of delinquent behaviour while in the driving seat

An entire car-boot-load of research now exists on just what can happen to us while listening to music behind the wheel.

Studies using driving simulators have shown, for example, that motorists listening to energetic, exciting music by artists such as Mötley Crüe, Metallica and Eminem drifted from their lanes more often and tended to have less control over the vehicle. A recent study by researchers at the University of Zagreb in Croatia found that drivers listening to fast, aggressive music, such as Metallica's *Master of Puppets*, made more errors than those listening to other, calmer forms of music. Interestingly they don't drive any faster than those who do so in silence, but eye-scanning technology showed they look around far less.

"Music represents a form of distraction that 'takes away' a part of our attention," says Dario Babic, an assistant professor in traffic science at the University of Zagreb and one of those who conducted the research. This increase in mental load in a stressful driving environment could lead to mistakes.

Rhythm is gonna get you

But there are other theories for why some forms of music lead to potentially dangerous driving behaviours. A fast rhythm, for example, might increase a motorist's heartbeat, leading to a more aggressive driving style; or the rebellious nature of heavy metal and rap could lead listeners to engage in their own form of delinquent behaviour while in the driving seat.

"The effects of the music on the driver's mental state and driving behaviour can be attributed to a broad range of mechanisms," says Costas Karageorghis, a psychologist at Brunel University London, who has studied the effects of music on driving behaviour. "Across the studies we undertook, it was clear that, in a driving context, the most potent effect of music was on drivers' emotions. If they are prone to feeling angry and frustrated while driving in an urban environment, the use of calming music in a tempo range 90–110bpm can be helpful. Using aggressive rap or thrash metal is unlikely to optimise mental state and driving behaviour in an urban context."

Certainly, there is some evidence that music can make us quicker to anger if driving conditions change in a way that we find frustrating. One group of around 100 volunteers taking part in a study at Liverpool John Moores University had their heart rate, blood pressure and reactions monitored during a 12-minute simulated journey to pick up a child from school. They all seemed similar – until they hit a virtual traffic jam.

Those who had been listening to Linkin Park, Slipknot or hardcore techno before the traffic jam suddenly saw their heart rates soar compared to others listening to Hans Zimmer, Depeche Mode or The Temptations. With blood pumping faster around their bodies, the metal and techno group were also found to be angrier than the others when their mood was tested afterwards. Some even expressed their anger verbally while behind the wheel. The researchers concluded that the intense, energetic music had primed their cardio-vascular systems to pump blood faster when they encountered a frustrating situation.

"Only low-activation music, like jazz trio or gentle strings, lowered blood pressure during their experience," explains Stephen Fairclough, a professor of psychology at Liverpool John Moores University who led the study. These people, however, didn't report feeling any calmer than those listening to other types of music. "This suggests that the effects of music on cardiovascular physiology are achieved without our conscious awareness." ▶

And this is where the power of music may really lie. But these influences don't always have to be negative. The Croatian study, for example, found that participants listening to Ed Sheeran's *How Would You Feel* and Beethoven's *Für Elise* took their foot off the accelerator a little, driving up to 10kph slower than those listening to metal or driving in silence.

Karageorghis and his colleagues, who conducted a series of studies funded by the Economic and Social Research Council in the UK, have also found that soft, calming music might be deployed to help improve driving on the roads.

Music that won't drive you crazy

"The pleasant feelings induced by some forms of music engender a mental state that can result in safer behaviours," says Karageoghis. And it appears to be particularly effective in urban environments, where driving is often most difficult. It could be that allowing people to choose low intensity music they enjoy simply makes them happier and so less likely to get frustrated or do anything rash. It could also help to prevent drivers from becoming overwhelmed by the noise, bright lights and busy streets of city centres, he suggests – not to mention having a direct affect on how our brains send signals to our limbs.

"Music with lower levels of energy holds implications for the efferent nervous system, or how the brain controls the working muscles, meaning that there's a lower likelihood of hard acceleration and sharp braking," he says.

Choosing the right music when driving could help reduce the risk of accidents, Karageorghis claims. He and his colleagues have even developed playlists specifically for urban driving (they include tracks such as Sia's *Cheap Thrills*, *Closer* by the Chainsmokers and *Beautiful People* by Ed Sheeran and Khalid).

It's all in the mind

Perhaps inevitably, most studies looking at the effects of music on driving tend to be small, involving a few dozen participants, largely due to how time consuming they are to conduct. It means care should be taken when generalising the results – some of us will react differently to others. And there is some evidence that suggests our personalities play a role.

"Extroverts tend to seek stimulation from their environment, and there is a propensity for extroverts to benefit more than introverts from the stimulation that music can offer," says Karageoghis, by way of example.

But music also has a more visceral affect on us than simply influencing the way we drive. It is universal across human cultures and used in surprisingly similar ways around the world. Lullabies are sung to send children to sleep; repetitive

Photo: Warner Music

▲ ***Want to be safer in traffic?*** *A certain red-headed Brit might have the answer...*

chants are used in rituals; rhythmic beats get dancers moving to cement group bonds; lyrics stir the emotions and create the mood for romance.

These are clues of just how deeply music is ingrained into human social and cognitive practices. Charles Darwin, the English naturalist of *On the Origin of Species* fame, even suggested that music had played a key part in the evolution of our species. Others have since claimed it was instrumental in the development of our large brains and complex social structures.

Music is thought to play a key role in social bonding, helping to create and strengthen a sense of togetherness among group members, and also perhaps romantically between individuals.

Rhythmic sounds, for example, are common in music we dance to, an activity typically done with others. Research at the University of Singapore has found that our brainwaves can synchronise to the beat of a drum, which may help to align the thinking and behaviour of people in a group. It might be one reason why rhythmic drumming plays such a big role in tribal ceremonies and why armies march to a beat.

Listening to music passively is also known to activate a pathway of chemical signals in our nervous system known as the endogenous opioid system. It includes a number of small neuropeptides and hormones such as endorphins, and plays a key role in how we form friendships and other social bonds.

Indeed, a number of studies have found that people turned to music during the height of the Covid-19 pandemic restrictions as a crutch that helped them deal with the stress and uncertainty they were experiencing.

"Subjectively music gave people a sense that they're in touch with other people," says Naomi Ziv, a behavioural psychologist at the College of Management Academic Studies in Rishon LeZion, Israel, who led one study on the use of music by people at home during the pandemic lockdowns. Other research has suggested that music can combat loneliness. "It speaks to the social aspect of music – the enjoyment of it has something to do with the connection it gives us to others. And that makes sense when you think about the origins of music – it was necessarily a social activity before we had recording equipment and loudspeakers. To hear music you had to be physically present in a place where it was played, with other people."

Another study by psychologists at the University of Southern California, Los Angeles, and Columbia University in New York, found people in four different countries listened to music to help them feel more positive during the stress of the pandemic.

The ability for music to alter our mood and emotions is something that composers and musicians have been taking advantage of almost instinctively for centuries. Filmmakers also exploit the powerful effect of music to manipulate how we feel. Think about the growing terror that two simple notes, played repetitively with increasing tempo, still instills into anyone who hears it 47 years since *Jaws* was released. Or what about the drama of Wagner's *Ride of the Valkyries* just moments before US helicopters unleash their rockets in *Apocalypse Now*.

But we also use music to manipulate our own feelings too. We might put on something energetic, for example, to help get our blood pumping before doing competitive sports. People who are feeling depressed or unhappy will also often choose to listen to sad songs – but perhaps not for the reason you might expect.

Putting on a mournful track when feeling low can actually help to boost our mood rather than drag us further down into the ▶

> "Lullabies are sung to send children to sleep; repetitive chants are used in rituals; rhythmic beats get dancers moving to cement group bonds; lyrics stir the emotions and create the mood for romance

doldrums, researchers have found. The reasons for this are complex, and somewhat disputed, but it appears many of us actually enjoy sad music. Some researchers have suggested that because this type of music often uses slow, beautiful melodies, it is aesthetically pleasing and the lyrics help to trigger feelings of empathy. This might also trigger the release of a 'consoling' hormone known as prolactin, which is thought to help counteract the mental pain of grief and sadness. As the music simulates sadness often in a safe setting, it might be tricking the brain into producing this hormone and helping to reduce any pain the listener is experiencing.

But not everyone is as susceptible. The strength of certain personality traits, such as absorption – the tendency to become deeply immersed in sensory and imaginary experiences – and openness help to determine how much someone will benefit most from listening to sad music.

Equally, the context we are listening to music plays a role too. People who are in happy relationships tend to prefer listening to love songs, while those who are dissatisfied with their love-life will tend to find laments about lost love and break-ups more appealing.

There are effects that music appears to have that do appear to be more universal than others, however. Melodies in the major key, for example, are seen as happier than those in minor keys across cultures around the world.

But why music has such a strong impact on our emotions is still something of a mystery that has yet to be fully unravelled. Modern brain-scanning technologies such as functional magnetic resonance imaging (fMRI), are providing some clues.

Processing power

Music, like all sound, is picked up by our eardrums and passed along to the cochlea in our inner ear as vibrations, where they turn into electrical signals that cascade along nerves to the brainstem. But once here, music is processed by a surprisingly large number of areas – not just the auditory cortices, but also those involved in vision, movement, timing, memory, reward and those deep in our brains involved with emotion.

Unique patterns of neural activity light up when volunteers listen to clips of musical instruments selected to induce particular emotional responses. Most activity is found in the auditory cortices, but it also shows up in neighbouring areas involved in recognising emotions (such when we look at someone's facial expression

Mind over matter ►
Dynaudio's chief acoustic engineer says our brains can be tricked into believing stereo sound is happening in 3D space

or from body language, for example) and those further away that play a role in triggering emotions and empathy.

The sheer complexity of the way our brains process sound allows them to do some incredibly impressive feats.

"The processing part of our brains is basically a pattern recognition machine," says Stephen Entwistle, Dynaudio's chief engineer, acoustics. "This is why we can localise exactly where a sound is coming from even with our eyes shut. Our brains can figure out the size of a room from the way sound reflects off the walls and objects in it, and recognise the voices of people we know on the phone even if they're distorted. They filter interfering sounds and even replace fundamental notes from music if they're missing."

But it also means that our brains can be tricked through the use of auditory illusions. The most familiar of these psychoacoustic effects is the use of stereo to fool our brains into believing a sound is coming from a 3D space rather than a left and right speaker.

Where it's at

"With a really good speaker, you can localise sounds with incredible accuracy," says Entwistle. "At Dynaudio we evaluate our speakers in stereo even though many others follow guidelines from the AES (Audio Engineering Society) to use mono because it's easier to get a consistent result."

Entwistle and his colleagues use a wide range of music to help them assess the performance of their speakers during development, but he points at two particular favourites that make use of the ability to recreate 3D sound effects. The first words of *Vogue* by Madonna sweep across the listener before a click appears high on the left. The *Ballad of Bill Hubbard* by Roger Waters features a dog barking behind and to the right, before a radio appears on the floor to the left.

"A lot of this stereo imaging and immersiveness has to do with the fundamental tracking that appears when you put a properly integrated subwoofer onto a speaker," says Entwistle. "The low-frequency information seems to help our brains process the other information in some way."

Close your eyes and see

There is some evidence that depriving ourselves of our other senses, such as sight, can also alter our experiences. A small study conducted by researchers in Israel found that when volunteers closed their eyes while listening to clips of music from films, they experienced a greater emotional response. They also showed greater activation in a ▶

part of the brain known as the amygdala, associated with processing emotion. Victoria Williamson, a music psychologist who until recently was a researcher at the University of Sheffield but now works as an independent academic, describes getting "chills" when attending a concert held in a totally dark room because "expectation based on the performers' movements was removed, which resulted in some lovely musical surprises".

But going to a concert or deliberately putting on music at home or in the car lets us control the psychological effects of what we are listening to, to some degree. What happens when we experience music as part of our everyday soundscape?

Slow down, spend more

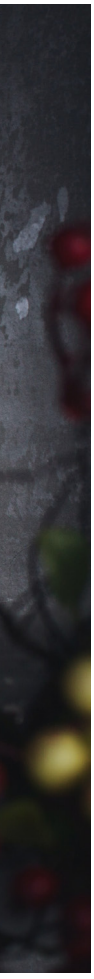
Music in shops, for example, can have a surprising impact on what we choose to do. A number of studies have demonstrated that background music can influence how long we spend perusing the aisles in a supermarket (slow music can lead people to linger for 15 per cent longer than fast). Part of this could be due to the way music messes with our sense of time – slow music, it seems, causes people to underestimate the time they spend shopping.

Playing pop in a cafe frequented by students in one study saw them spend more than with stereotypical 'piped' music, perhaps because it created an atmosphere they found more enjoyable.

But music can also cause us to gamble more with our money too. Strangely, a study by Ziv and her colleagues found that calming, low-tempo music seems to lead participants to make riskier financial decisions about where to invest their money than those listening to high tempo electronic music.

"Music can affect people in different ways depending on the situation," says Ziv. "It's possible that the low-tempo music made people feel like everything was fine, so they took risks. The high-tempo music may have increased their arousal, so they were more alert and careful. But it depends on the individual – if you like the music, or if you have a high ability to focus."

Ziv's research has also focused on some other, rather disturbing aspects of the way music can influence us. She found that listening to happy music – specifically tracks like James Brown's *I Got You (I feel good)* – can alter people's moral judgements, making them more willing to accept unethical behaviour and cheating. She has found that it can even lead people to be willingly callous towards other human beings.



◀ ***Feeling like paella?***
Don't blame it on the boogie, but you might be able to blame it on flamenco

In one study she and her team asked participants to call a female student to tell her she could not take part in the study, even though she needed to in order to complete her course, or they were asked to tell another who'd been off sick they couldn't have lecture material they'd been promised. Those who were asked to do these 'favours' were more likely to say yes if upbeat, easy listening music had been playing in the background. The reason for this willingness to do someone else's dirty work? Being in a good mood can make you more compliant.

"Music can also conjure stereotypes," adds Ziv. "Think about how you might perceive someone who likes classical music compared to someone who likes country or pop."

She is currently working on a study to examine how these stereotypes impact how we might judge people we have just met. "People aren't aware of how music colours your experience and the traits you attribute to people," she says.

Food for thought

Music can also alter the way our other senses work. The music you listen to while eating could well change how your food tastes and even the type of food you crave.

"The more we like the music, the more we like the food," explains Charles Spence, a psychologist at the University of Oxford, who studies how our senses affect our experience of food. He and his colleagues have experimented with how music can create 'sonic seasoning' in food and drinks, even creating menus with carefully curated musical accompaniments. Some research suggests that the simple tinkling of a piano can induce a sweeter taste. But many albums and singles can change mode midway through – such as Queen's *Bohemian Rhapsody*. This can alter the taste sensations you might experience while drinking the same glass of wine, according to some studies.

But how you listen to the music can have an effect too. "Noise suppresses taste when it gets too loud," says Spence.

Music's effect on our choice of food can also be profound. Listening to jazz led participants in one study to have a preference for savoury foods such as a vegetable sandwich, while classic music saw them reach for sweeter options.

"We are rarely aware of music's influence over our food and drink choices," says Spence. "However, our food choice, and possibly the perceived authenticity of a dish, is affected by our semantic associations with music. For example, flamenco makes people more likely to order paella."

Music therapy

But while Spence is hoping to harness music to enhance our dining experiences, there are others who believe music could have more wide ranging impacts on our wellbeing. It is common, for example, for people to use music to help them drift off to sleep. Some researchers have been using its strong connection to memory as a therapy for dementia patients. Others are using it to help treat PTSD sufferers. And one study has shown specially composed tracks might help to reduce levels of acute pain. Music has even been found to trigger immune-system changes that could be beneficial for fighting disease.

They are all good reasons to put on a playlist we enjoy and let the music work its magic. But Brunel's Costas Karageorghis has one small tip for when I get behind the wheel of a car: "Police often find vehicles with music blaring at the site of road accidents," he reminds me. "We recommend a sound intensity of around 70dBA." This should be loud enough to enjoy but not to mask the sounds of potential hazards. His research suggests that soft, non-lyrical music can be most effective at optimising the emotions of people when driving. So next time I get in the car, maybe I'll put on a bit of Chopin…

> "Music could be used as therapy for those with dementia and even acute pain

Revved up

The automotive industry is working to take more and more of the driving away from us. But what to do with all that tax-free time? Listen to music, of course. Dynaudio is working to give people a new, world-class sound experience on the road…

Listening to music has been proven to reduce stress. That's useful. Especially when driving – and especially, of course, when the car is moving very slowly. Stress can reach boiling-point when you're stagnating in a traffic jam (read more about that on page 50) .But there's an antidote: for it's also when you can hear your music's subtleties at their best.

That's why, at an automotive show in China, Dynaudio presented our most ambitious car system yet. We bought a Porsche Cayenne, ripped it to bits in Denmark, and used it as a test-bed to show where automotive audio can go next.

Let's sit down with Bjarke Pihl Bovbjerg, Head of R&D Automotive at Dynaudio, to find out what's what…

Dynaudio has been working closely with car manufacturers for decades. What's different now?
We've developed this system completely independently. We want to show what's possible; how we imagine maximum audio performance in a car can sound. We've developed completely new high-end speakers for this project, as well as a never-seen-before high-end amp to control the intelligent sound system.

What's the goal?
We see a market here that we want to enter with all our expertise. With developments such as autonomous driving and electric vehicles, listening to music in particular is becoming more and more of a real experience, and quality is becoming more and more important. We've always said that our automotive systems must be taken to the same heights as our home and pro products. So we need to set our flagship under sail and work towards our goal as the global leader in delivering incredible experiences to listeners behind the wheel.

Mobility is undergoing a drastic change right now. Will an audio system developed for an internal combustion engine vehicle work at all in an electric vehicle?
No. They aren't two completely different systems, but you have to consider both types of drive. Electric cars are generally quieter, but this means that quiet noise is more noticeable, while in the combustion engine it's masked. The less noise from the car, the more attention needs to be paid to the details – so there's a need for good sound systems like never before. There's also an additional challenge: we have to pay extreme attention to the weight of our components. The mantra here is always 'weight, weight, weight'.

There's also sustainability to take into account…
Absolutely. Someone who opts for a Dynaudio system will perhaps keep their vehicle a little longer than someone who changes to a new vehicle every three years. That would already be a point that definitely pays off in terms of sustainability. But it becomes more concrete when it comes to the materials used.

During development, we already pay a lot of attention to ensuring that we can produce and build environmentally friendly vehicles in series production. Recycled materials are also finding their way into the speakers and we think about sustainability in all phases of our development. Soon, organic materials will be ready to be qualified for automotive usage – and we'll use them.

Are any musical genres hard to reproduce in cars?
Simply put, there are no differences. Every style of music is equally complicated or easy to reproduce. Subjectively, however, there is one very crucial thing to consider: the most difficult style for us is the one the listener knows best and listens to most

In the engine-room ▶
Dynaudio's automotive R&D chief, Bjarke Pihl Bovbjerg, says in-car listening can (and should) be every bit as thrilling as what you get at home

often. This simply has to do with the fact that they're far more attuned to the subtleties. And this is one dominant reason to choose a Dynaudio sound system: it will reproduce that well-known music truthfully. In development, it's very important to us how the ear perceives the sound; it requires a great deal of experience and knowledge.

People who are used to going to concerts, for example, pick up just 20 per cent of the sound experience from the orchestra; the rest comes from reflections in the concert hall. Of course, a car offers a completely different space, but that in itself has an enormous influence on the experience – whatever the genre.

Compared to the challenges a moving car poses in terms of sound experience, are there some advantages?

Sure. The room as a whole is relatively small compared to a living room or studio, and we know exactly where people are sitting when listening to music. This makes the car particularly suitable for lots of bass and good stereo or surround-sound. Looking at the moving car, there's noise from the engine – of course this does not come into play with an EV – and there is, of course, the noise from wind and rolling tires on the tarmac. This starts to become more relevant above 20-30kph.

A Dynaudio system compensates for these noises, and can maintain the listening experience at all speeds. I'm sure we've all tried to drive on the highway and listen to music amid all the noise… when we stop at the end of the road or at a traffic light we suddenly realize how loud we've turned it up just to make sure we still can listen at high speed. This doesn't happen with a Dynaudio system – so the person behind the wheel can focus on driving and still enjoy the music.

Sounds tempting. The car as a retreat for listening to music…

That's actually one of my little dreams, that one day people will actually get into their cars not to drive somewhere, but to listen to music. Here, we'll be all by ourselves: we can listen to the music that we want and we can sing along, as loudly and tunelessly as we like!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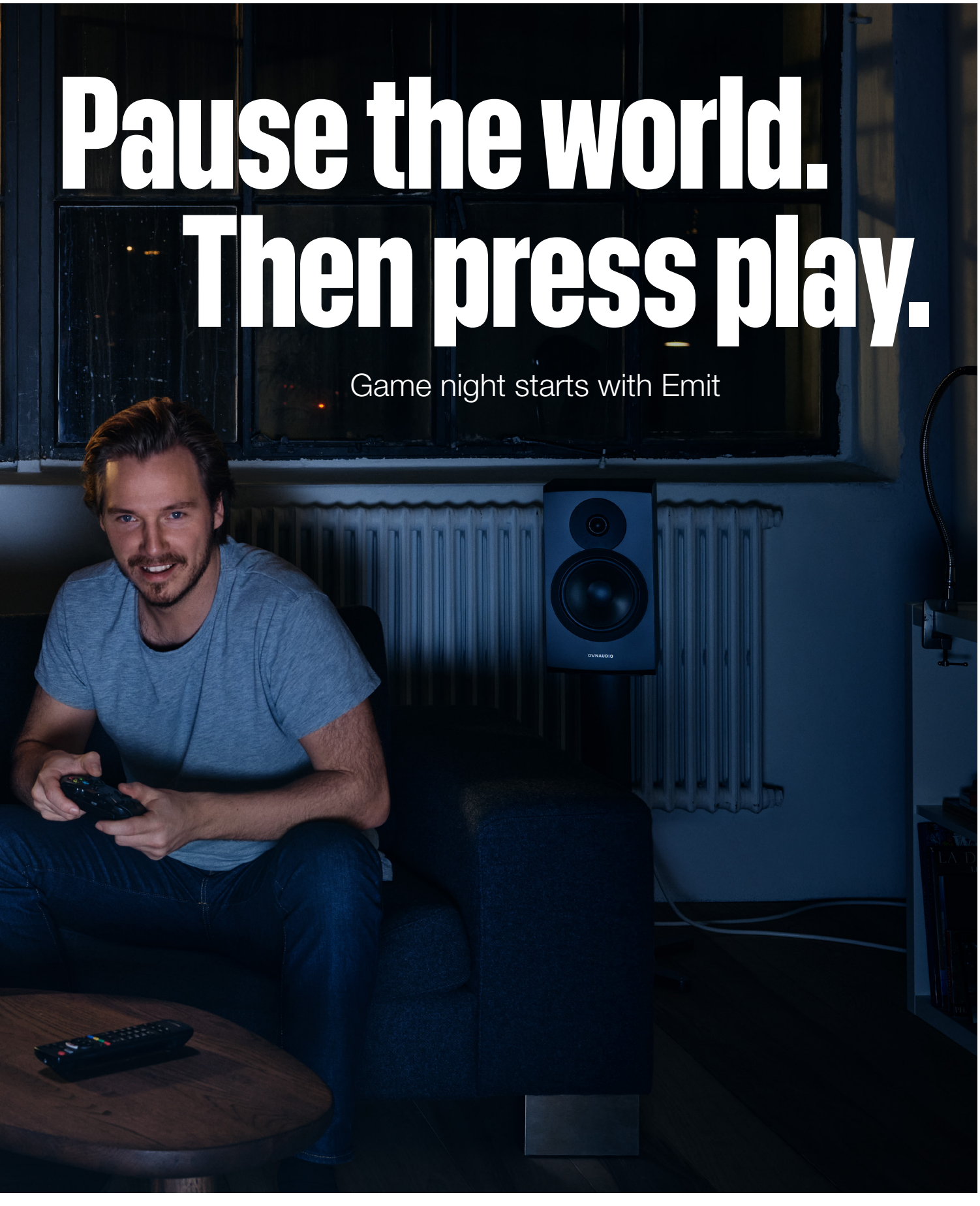

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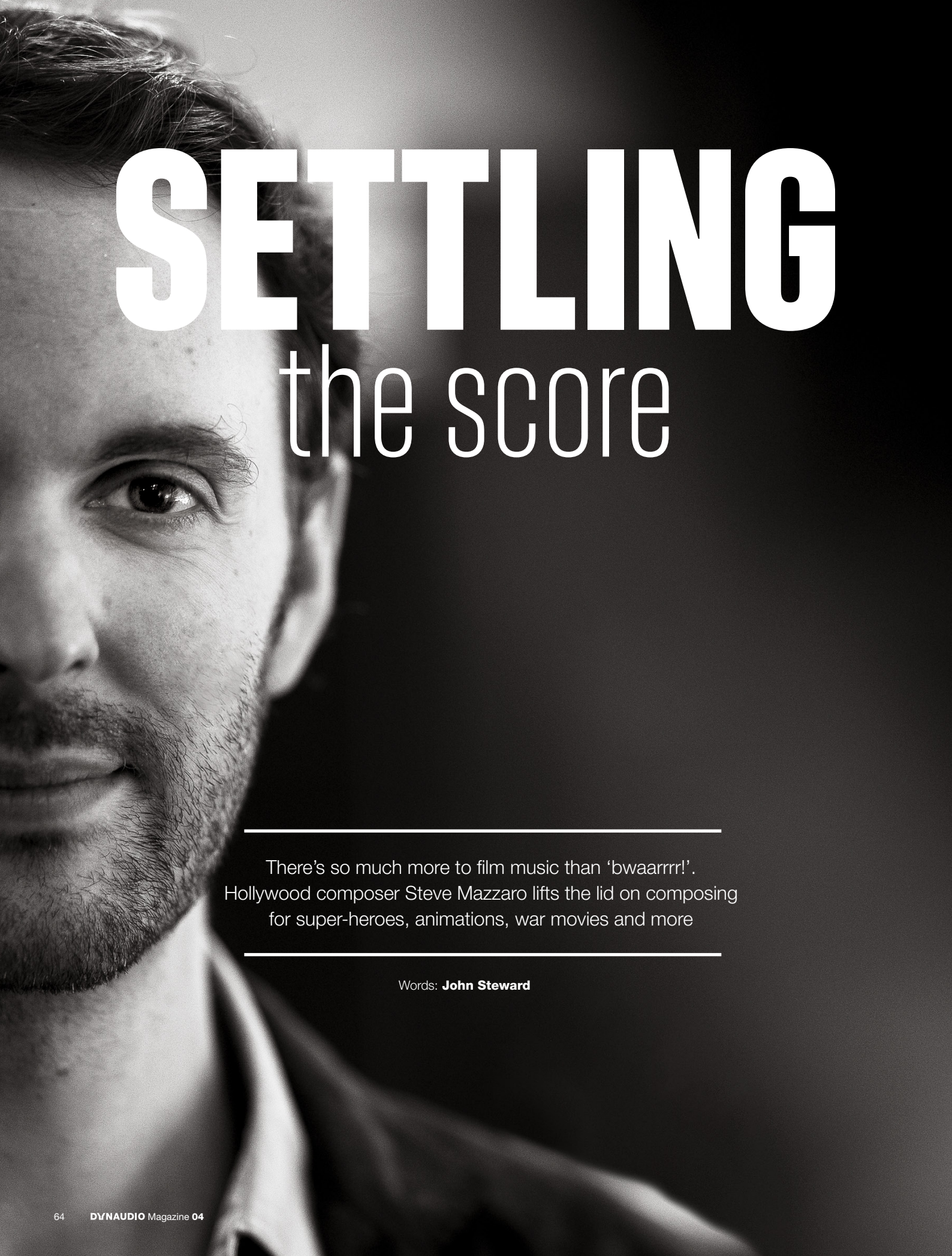


SETTLING the score

There's so much more to film music than 'bwaarrrr!'. Hollywood composer Steve Mazzaro lifts the lid on composing for super-heroes, animations, war movies and more

Words: **John Steward**

> “Hans just wanted to hear it because, ‘Oh, this’ll be good’. He was taken aback that it was just a mock-up, so he said: ‘Cool, let’s sue this guy’.

Steve Mazzaro doesn’t mind being put on the spot. It takes him just fifteen minutes and nine seconds from receiving a friendly challenge during our interview, to playing back a fully written, fully arranged and fully orchestrated character theme for a petulant kid who will never exist, in an animated film that will never be made.

Close your eyes and you can actually picture her, stomping down the hall with a scowl on her face. You can listen to it at *dynaud.io/stevemazzarotheme*.

“I just love writing in this style,” he says, as we talk about his favourite project to date, *The Boss Baby*. “There’s something about animation music that’s so energetic and fun. You can be so creative with it because you’re not constrained by real humans on the screen. The music is allowed to be animated as well.” He’s smiling broadly.

It’s all about the story

You’d think Mazzaro might have said he’d most enjoyed working on *The Amazing Spider-Man 2*. Or *Man of Steel*. Or *Interstellar*. Or *Dunkirk*. Or *No Time To Die*. Or *Top Gun: Maverick*. Or *Dune*. Or… Nope.

“You’re writing for children’s imaginations, essentially,” he continues. “The whole point was that you’re writing in the head of an imaginative kid… we put in funk, jazz, and then I think we did Holst at one point. It was just everything. It got to the point where if there was a scene I hadn’t done yet, I was, like, ‘OK, what style haven’t we used yet? Let’s do that.’ It was so much fun.”

Mazzaro could be forgiven for being cynical after working for a decade at the top level of probably the world’s most cut-throat industry. But his glee at subverting the stereotype is infectious: putting heavy metal music into a cartoon, just because it’s objectively funny, is something we just don’t see enough of in Hollywood.

It is, he says, all about what serves the story.

Perhaps it’s because he was a gamer growing up. (He still is, in fact.) “I used to play the *Final Fantasy* games, and I loved the music. It was just so different from what I’ve heard, because it was a Japanese composer,” Mazzaro says. Nobuo Uematsu became a huge inspiration – and even a template when, in his early teens, Mazzaro was able to start creating similar sounds and new video game-style music on his computer.

There’s no more immersive story than a great game, after all. The player is the star.

Mazzaro started playing the piano at the age of five and, like many successful pro musicians, picked up pretty much every other instrument he could lay his hands on, too: alto sax, French horn, drums, guitar, bass…

And, again, like so many seasoned pros, it’s fair to say he walked a well-trodden path to Hollywood. After leaving high school in Ohio and considering the likes of Boston’s Berklee College of Music and the Eastman School of Music in New York, Mazzaro settled on composition over performance. “I felt like I had a good foundation from playing piano when I was young, and from all the writing that I’d been doing for six or seven years, so I decided to move out to Los Angeles on a whim,” he says.

‘Cool, let’s sue this guy’

Soon he ended up getting a gig re-creating pre-existing film music for a UK-based company called Silva Screen: “I would recreate everything you heard as closely as I could get. I got really good at it, and I was particularly good at doing Hans Zimmer’s stuff.” Mazzaro had done a piece from *Angels and Demons* called *160BPM* which, unbeknownst to him at the time, was intended to be impossible to play by real musicians.

“Hans just wanted to hear it because, ‘Oh, this’ll be good’. He was somewhat taken aback that it was just a mock-up, so he immediately said: ‘Cool, let’s sue this guy’.

“It started off as an email from his assistant: ‘Hi Steve, Hans would like to speak with you when you have a moment, please ▶

◀ ***Nothing by halves***
Mazzaro started off just riffing out a few ideas for us. Then, after his inner perfectionist took charge, he went at it with all the dedication you'd expect from someone working on a telephone-number-budget blockbuster. And, of course,he's monitoring on a pair of Core 59s (see page 142)

call us'. I'd get emails from a lot of composers asking me what samples I'd use in my mock-ups, because they'd hear that through the Silva Screen work, so I just thought it was another one of those. At the time he was thrilled! 'It sounds great! Are you in town? I'd love to meet,' and all that stuff. It wasn't until a year ago that I found out that he actually was going to sue me. Thankfully he did not!"

In fact, Zimmer hired Mazzaro. Then immediately left for London.

Hooray for Hollywood

After working on small projects for three months, offering bits of help here and there to other composers, Mazzaro was twisting in the wind a little. "I was like, OK, I don't really know what I'm doing, why I'm here, why I've been hired," he remembers. He got his answer when Zimmer returned and gave him his first proper project: *The Dark Knight*.

If you want to do some storytelling through music, we think you'd agree that Chris Nolan's second *Batman* film is a fantastic reference point, Mazzaro says.

"A lot of times what happens with these sequels is a lot of the music from the previous films will get reused, and for a very specific reason. Hans's music is very precise in its production, in the same sense that you can't just have an orchestra sit down and play it. There's so much nuance to it – again, this is why I became so good at mocking it up. You're creating that nuance."

It became his job to figure out which movie these sections came from and put them together, so the team could create a score and re-record the orchestra. "It ended up going one step further to where it became: 'we need your mock-up to sound like the fully mixed, mastered, live version of the previous film'," he says.

Character building

Man of Steel followed, where he was able to write new material (there were no previous films to draw from). That became a case of sometimes taking Zimmer's themes and stretching them, writing suites of them and so on. Or sometimes piling into a room with all the other composers and coming up with stuff together.

A film score isn't like an album. You don't have a series of tracks – more a

series of ideas that flow across the whole thing, ebbing and flowing with what's up on screen. Again, that crucial nuance.

"When you're writing a theme for a character, a lot of what you end up doing is just navigating through the film and piecing together their scenes to get a sense of the character arc," says Mazzaro. "So for instance, if it's a super-hero theme and the main character has a lot of trauma and the whole movie is *about* that trauma, there are a lot of chords and note movements and things that give certain emotions – so you'll gravitate towards a thing.

"Sometimes you'll have the instrumentation first, and you'll just write with that in mind. For a lot of scenes you'll end up changing it all the time – even though it's the same concept or emotion."

A lot of the time, he'll create the base of a theme and then explore it: a big version, a 'B-theme', little riffs and motifs. That all goes into the character's toolbox: "There's a lot of storytelling. There are so many little things that 99 per cent of people don't know that's in film music that we spend so much time trying to figure out. It's good storytelling, and it creates an arc."

Sometimes that storytelling is almost subliminal, coming from tiny musical cues. A pensive chord-change here, a little flourish there – always a variation on a central theme. It gently steers the viewer in the direction the character's emotions are facing.

Behind the scenes
Next time you see a film, try listening too – you'll be surprised at what you hear

But sometimes, it's a much bigger beast. And big beasts are harder to fight.

Take *Dunkirk*, which has music throughout. No gaps. "Somebody on the team – and we all collectively agreed – had this idea where we would make the music constantly speed up. Like a Shepard tone, in rhythmic form," Mazzaro says.

The pressure is on

The aim was to create a relentless sense of tension: the music would get faster, the fastest bits would fade out, and different, slower patterns would replace them. Then the cycle would continue.

"The problem with that is, we've mapped the whole film out to get faster and faster. There's never a second of silence. When you're working on a film, they make a lot of edits. When they edited out a second in the middle, we had to re-do the *entire film*. Every single time they changed the film, we had to re-do everything. And this isn't just, like 'Oh, OK, just change the tempo'. No no no. It took hours, and then we'd have to plan on where the note would be at the current frame rate, to get to the next scene – but what tempo would that start at? It was pure agony!"

Music matters

But listen to the finished product and you're pinned to your seat. Often, film music gets swallowed by dialogue and foley effects. Here, it's front and centre.

Which brings us back to animation. Have you ever seen a great animated film that didn't have an amazing musical score at its heart? Didn't think so. The themes and motifs, the riffs, variations, licks, suites and stings all connect you deeply to the characters in a way that live-action movies often can't match.

Perhaps that's why Mazzaro looks so happy when he plays back the impromptu theme for our angry animated kid. "That's only six seconds of unapproved stuff," he grins. "Now you know why this takes so long!"

And yet that six seconds is music to our ears.

Shut up 'n play yer guitar

Justin Stanley doesn't want you to obsess over nailing every take. He doesn't want you to sweat over polish and poise. He just wants you to create – and he has just the right place to do it

Words: **John Steward**

Close your eyes and picture, for a minute, Sherlock Holmes' residence at 221b Baker Street. It's all crushed velvet and gold fixtures. Dark corners and hidden alcoves. Well-thumbed books, newspapers and periodicals everywhere. Everything Holmes needs to make those wild mental leaps to greatness.

Now imagine it's stacked from floor to ceiling with vintage guitars and amps, percussion instruments, keyboards, microphones and countless other gems of outboard recording-gear.

Also, it's in LA.

In at the deep-end

Once your eyes get used to the low, warm lamp-light in Justin Stanley's studio, you don't know where to look first. You want to try *everything*. He's created the ultimate playground for artists to let loose, experiment, play and create.

Murders don't get solved there (as far as we know), but you can feel the same maverick spirit of creativity almost seeping from the walls.

"I think you embody something when you pick up an instrument," he says in his soft Aussie accent after he spots us salivating over a lovely old Strat on the wall. "It's almost like acting. When you grab an instrument you try to embody the character of the person you think is playing."

In other words, give it a go – whether or not you know what you're doing. Magic might happen. The Strat is handed over…

That almost spiritual advice might seem like the antithesis of the stereotypical big-shot producer image, but it's far more common than you'd think in the industry (see our interviews with Greg Penny, p44 and Steve Mazzaro, p64). And it's absolutely core to Stanley's philosophy as a producer, engineer and musician. He should know, too: it's an approach that's worked with the likes of Prince, Eric Clapton, Beck, Sheryl Crow…

'Giving it a go' has never not been a thing for Stanley. At school, he says, he was always tapping on things. ("I wanted to be a drummer. It was the only focus I had.") And, of course, that got him in trouble a lot. Things came to a head at a meeting between him, his headmaster and his mum: "He said, 'Look, Justin's always tapping and humming and looking out the window…' My mum turned to me and said 'What do you want to do?' And I said, 'All I want to do is make music'."

It's probably fair to say that neither the headmaster, nor the 15-year-old Justin, were expecting his mum to get up, shake the man's hand with a "Thanks for the education", and leave straight away with her son.

"Driving home, she said, 'OK, here's a newsagent – go in there and grab all the classified papers. Find a band to play in.' There was one called 'Customer Parking'. I called them up, went for a little audition and got the gig. They're all like twenty- ▶

“Big hands-up to my mum for seeing the spark and encouraging me to follow my dream!

something, I'm 15, and away I went. I was playing in pubs and my mum would have to drive me to the gigs. We shoved all these drums in her VW Beetle. She was the coolest. Big hands-up to my mum for seeing the spark and encouraging me to follow my dream!"

You can see where he got his 'just try it and see what happens' mentality. Stanley became interested in writing and, after his mum grabbed him a Yamaha DX7 keyboard from Asia to encourage him, he seized the chance. Three months later, a chance call from a bassist friend led him to another audition ("I was still trying to work out how to play a triad!"), and together they formed what would end up being the successful band Noiseworks – where he played keys, touring and recording, for ten years.

"I worked with a bunch of different producers, and was always the guy in the band going, 'How do you do that?'. You know, really annoying, like, trying to work out how this console or that piece of gear worked. I became obsessed with the studio world."

The more you sniff around Stanley's studio complex, the more the word 'obsessed' seems inadequate. Everything there is designed to put artists at ease with relaxing, ignoring the red 'RECORDING IN PROGRESS' light and not being afraid to mess up in front of their peers (or their producer).

Trust the process

He hands over a gorgeous vintage Gibson SG which, it turns out, was used by a lot of wonderful guitarists he's worked with – including Doyle Bramhall II, Eric Clapton and Craig Ross (Lenny Kravitz). "Have a go! Check out this crazy pedal," he smiles, immediately plugging it in. And what started as a serious interview about Core speakers turns into a session, with tablas, analogue amps, a live drum recording and more than one classic Moog synth.

"If I'm going to spend money on gear, I'm going to look at instruments first for something that's creative," he goes on. He isn't looking for the latest compressor plug-in for Pro Tools. It all starts with the instrument.

"I love the creative process. Touring in a band you're playing the same twenty songs day in and day out, you know? There's a lot of other shit and boredom that goes down with it. For me it got really mundane – apart from that moment of actually playing. I get so much joy out of creating and collaborating. I like having people communicating at the same time."

Some producers are like your dad. They wag their finger and point to the spreadsheet, telling you you're supposed to be working on this track today – and to hell with whether or not you're feeling it. "Oh, I'm definitely not that," says Stanley. "I can be blunt,

◀ ***In session***
Don't be afraid to experiment: you might well make some magic

> “If I’m going to spend money on gear, I’m going to look at instruments first for something that’s creative

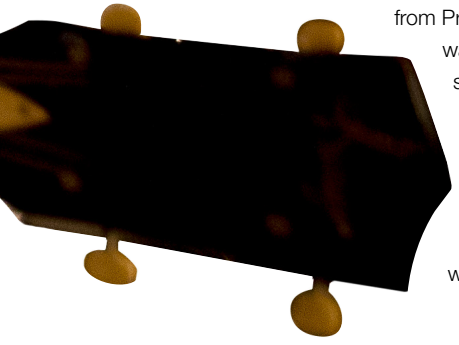
▲ ***Studio master***
Vintage tape and state-of-the-art Core 47 monitors: a winning combination

but it’s about being creative. I’m not a pre-production person. I listen to the songs, I look at arrangements, but beyond that it’s instinctual, where they’ll come in and we’ll go: ‘Let’s try this song, starting here,’ maybe the guitars or whatever. Just find the key, the vocal placement, and then I’ll just kind of feel it. And that can be reactive to the mood I’m in or they’re in, or what we’ve talked about.”

If you’re an artist, he’s much more likely to take you for lunch or a couple of beers to get that connection. It lets down a lot of guards on both sides of the glass, he says – essential when you’re opening up creatively. “You have to be very vulnerable and able to share yourself with the people in the room.”

And then you start playing and see what happens.

Often, he’ll even work on open-reel tape – transferring material from Pro Tools to analogue to get that warm tape-slap. “I love tape, but it’s such a debate. It blurs the lines a bit, which I love. It also gives you time to think between takes.



You can only fit three songs on a reel – and then when you’re rewinding you’ve got this moment where you’re contemplating what to do next. Just the sound of that tape; it’s soothing. Digital doesn’t allow that. Anything goes, which is the upside, but you have to create that space to reflect – make a cup of tea or whatever.”

The joy of the unknown

Stanley grins as he remembers a specific example of just letting an artist get on with it, in their own time: a session with Celine Dion, Quincy Jones and a host of other well-known engineers. “She was singing a take, and then one of the guys went to stop her. ‘Why don’t you try going up there at the end?’ The next guy was, like: ‘Do you mind phrasing that a little bit differently?’. It happened three times. The fourth time, when they stop the tape, and before anyone can say anything, Quincy stands up and says: ‘Will you just let the woman bloody well sing?’ She did one more take and that was it. It was beautiful! Sometimes you’ve just got to shut up and let the artist do their thing.”

And that, he says, is the most important thing – whether you’re producing or playing. Don’t give unsolicited advice, and don’t tell someone that something is ‘wrong’. It isn’t; it’s just a step along the road to ‘right’.

“That’s the joy of it. The unknown is the joy of it.”

Just give it a go. You’ll probably create some greatness of your own.

JAZZ AND **METAL** AND **CL**
AND **GRINDCORE** AND **RO**
AND **TRANCE** AND **DANCE**
AND **SOUL** AND **THRASH**
AND **ELECTRONICA** AND
REGGAE AND **HIP-HOP** AN
MUSICALS AND **INDIE** AN

Chromecast built-in · Works with Apple AirPlay · Bluetooth · DIRAC Ready · Spotify · TIDAL connect · CERTIFIED · roon READY · UPnP

LASSICAL
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If you want to drive from Berlin to Jupiter, you should allow about seven hours for the journey. This is enough time, for example, to listen to all nine symphonies by Ludwig van Beethoven, recorded by the Berlin Philharmonic Orchestra under the direction of Herbert von Karajan.

And the beauty of it is, you don't need expensive spacecraft (or recalcitrant AI computers) to make the trip. The Jupiter we're talking about is one of the largest and most powerful acoustic

Measures of success: welcome to Jupiter

We built a huge acoustic-analysis robot that only tells the truth – whether our engineers like it or not…

measurement centres in Europe. And it's at the heart of Dynaudio Labs in Skanderborg. It's here that our development team work with a giant robot to reveal the secrets behind the speakers they create. They're not just looking for perfect sound; they're looking for truth. Because that's what music is all about.

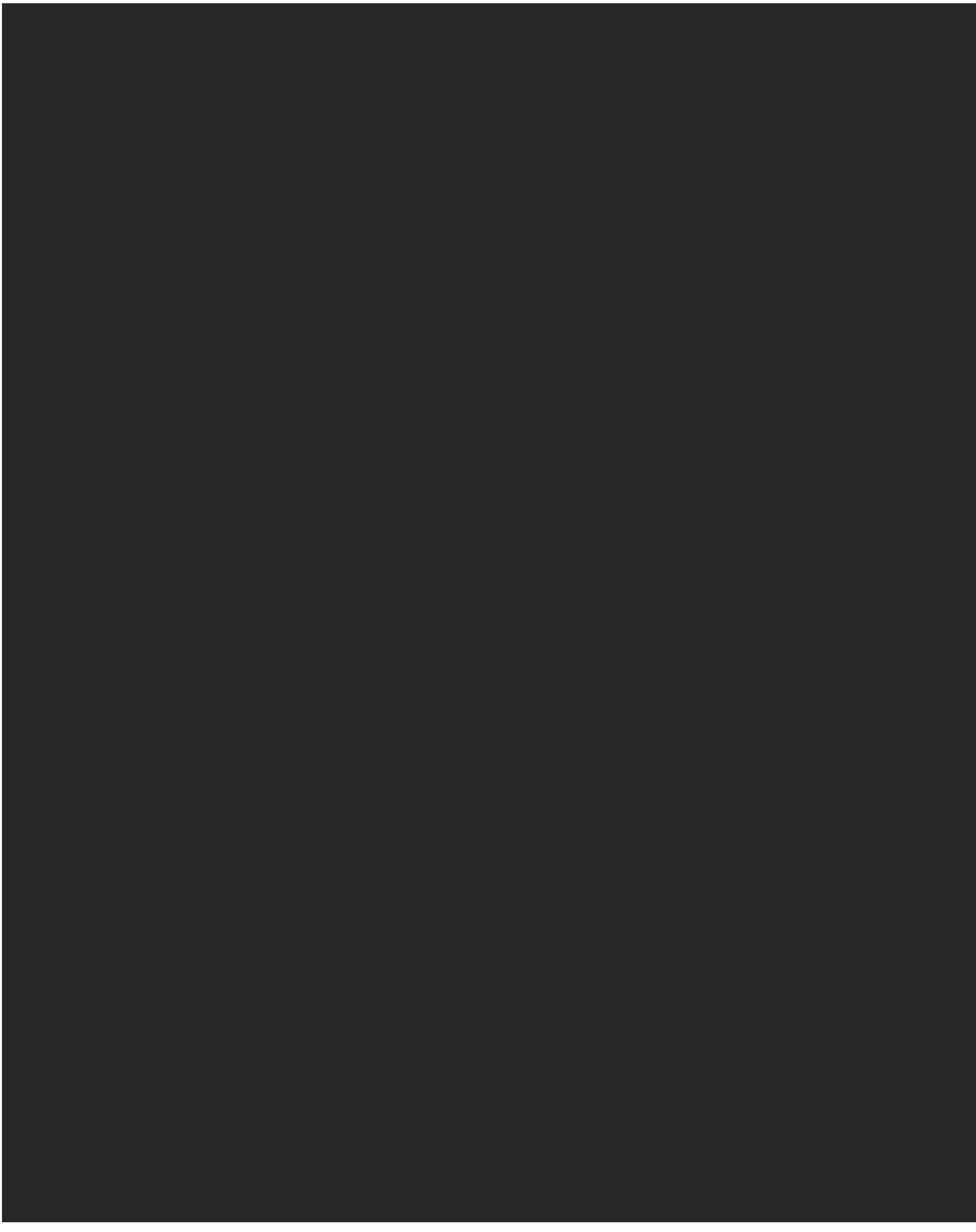
Jupiter is big. Very big. It's is a huge, hollow cube with an edge-length of 13m, deep in the bowels of the Dynaudio Labs building. It's equipped with technologies that allow it to measure even the smallest details of the Dynaudio products examined there. Every speaker we make takes a trip to Jupiter.

The way the room works is fascinating. A speaker can be measured individually or, given the room's size, engineers can install several at once to simulate a typical home audio setup. Then, the robot arm – with its 31 mics – takes a 360-degree measurement. So we end up knowing how a speaker sounds not only in the sweet-spot, but from everywhere else too.

The old-school way of doing that would've been to use an anechoic chamber – a room full of sound-dampening material that almost completely eliminates echoes and reverberations. Clap your hands right now; unless you're actually in an anechoic chamber this very second (and if you are, then why?), you'll hear the sound tail off. Anechoic chambers get rid of that by absorbing that extra energy and remaining almost totally silent. The problem is, they don't tend to work so well when you delve down really deep into the frequency range. Their weird wedges and foamy bits only really work well in the midrange and treble. The only way to get around that is to make the room bigger – which means more acoustic treatment, much more cost, and not that much gain.

Jupiter can simulate an anechoic chamber's benefits without the undesirable bits. We shut off the microphones between their measuring the impulse sound (an instantaneous 'click' that contains all frequencies) and the reflection coming back off the walls. It takes the room out of the equation.

Seems like a lot of work, doesn't it, creating a huge room that ends up being be acoustically invisible? But it works amazingly well. In our engineers' ears, nothing is ever perfect – but Jupiter lets us get breathtakingly close.



HOME AUDIO

DYNAUDIO Emit

Discover just how good your collection can sound

Emit is your way into true high-end Danish hi-fi. Enjoy your music and films in a way you never thought possible at the price, thanks to technology from Dynaudio's incredible Confidence, Contour i and Evoke ranges

Whatever your tastes, you'll hear the result of 45 years of painstaking research and listening experience. From the proprietary MSP cone material and fabric soft-dome tweeter technology Dynaudio has been using since 1977, to the up-to-the-minute Hexis inner dome and magnet systems, Emit lets you join the 'high-end club' in style.

Use them in stereo. Use them in a home-cinema system. Stream through them. Play your old vinyl records. Take your next step into authentic audiophile performance.

Hi-fi starts with Emit

Dipping your toe in the high-end water can be daunting. You want to trust that you're spending your hard-earned money on the right thing – especially if you've never owned a separates system before.

The good news for you is that Emit will pay-back that trust – and then some. It might be the lowest-priced family in our range, but we've still packed it full of many of the advances you'll find in our other, much higher-priced speakers.

For one thing, it uses the same coated fabric soft-dome Cerotar tweeters we've deployed in the Evoke range (p88). And those, in turn, derive *their* technology from the top-of-the-top Confidence family (p118) and Core professional studio system (p142). That's quite the family tree.

Behind the 28mm tweeter dome sits our much-talked-about Hexis device. It's an ingenious dimpled inner dome that sits directly behind the playing surface, modifies the behaviour of the moving air, optimises the frequency response and eliminates unwanted resonances. That means the diaphragm can move more precisely, so you'll hear even more detail.

It's driven by a strontium carbonate Ferrite+ ceramic magnet system for more sensitivity, improved clarity and a natural, dynamic response.

The mid/bass drivers use Dynaudio's own MSP (Magnesium Silicate Polymer) cones – made in one piece, with the integrated dust-cap bonded directly to the voice-coil motor behind them for even better stability and clarity. You'll find that design philosophy running all the way back to our very first models, produced in 1977. In Emit's case, they're derived from the Esotec+ in the Evoke series. Its double magnet system gives better movement control and sensitivity, which means you'll hear improved frequency response and dynamics at lower frequencies, while retaining crystal-clear midrange performance.

You'll hear what you want from a powerful rhythm section, plus guitars, vocals and more – all without distortion, even at louder volume levels.

A high-quality double ferrite magnet system provides the power. It's a stacked design to keep it compact, but it serves another purpose: using two magnets means our engineers were able to control the magnetic flux, directing it back to the voice-coil, where it's needed the most. (We can't break the laws of physics, but we do rather like to bend them a bit.)

The voice-coil itself is aluminium, wound onto a two-layer glass-fibre former. We've a long history of using aluminium wire in our voice-coils – and for good reason. It's light, so doesn't impede fine movement. We've boosted the BL (or force-factor) further, too, by coating the aluminium wire in copper. More power means more punch.

Attention to detail

Emit's crossovers were designed and tuned by the same team as Confidence, Evoke, Contour i, Special Forty, Core, Focus and more. The range uses a mix of first-, second- and fourth-order designs depending on the speaker, and its drivers.

We've mixed topologies because we don't believe in one-size-fits-no-one methods merely to make things easier for ourselves. Each Emit model has been custom-tuned using the best tools for the job: sure, it took longer, but the results are well worth hearing. ▶

Small but mighty
Emit 10 lets you listen in style, no matter how small your room (or how big your record collection) is

Round the back, you'll see the bass-reflex port. It's a dual-flared design to reduce air turbulence and minimise unwanted 'chuffing', especially with deep notes. We've even tuned the internal damping material (yes, that's possible). It's measured down to the gramme for the perfect combination of damping and openness.

All the loudspeakers in the Emit family were measured in our vast Jupiter testing facility at Dynaudio Labs. It's a huge 13m^3 room in the heart of our R&D building, in the middle of which lurks a vast 6m robotic measuring array. It's bristling with 31 microphones that measure the speakers' impulse response, allowing our team of engineers to optimise their performance in near real-time. You can find out more about Jupiter here: *dynaud.io/jupiter*

The clean, unfussy cabinets were designed and styled by the people who've been behind some of our most famous speakers – all at our HQ in Denmark. They're available in three custom laminate finishes (Black, White and Walnut), designed to complement any set-up (including if you want them to be unobtrusive in a multichannel system). All speakers in the series come with black magnetically attached grilles.

Emit is hi-fi, distilled. Plug in a pair and you'll experience the very essence of your collection, whether that's a stock of CDs, streaming playlists or a library of your favourite films. Astonishing consistency between speakers in the family means that wild panning effects stay locked-in, and stereo systems sing in total harmony.

There's no better way to start your audiophile journey.

Emit 10

Emit 10 is a compact two-way standmount speaker that uses technology derived from our ultra-high-end Confidence, Contour i and Evoke series. It's the ideal model for smaller rooms and satellite channels in a home cinema system.

Under the hood, you'll find a 14cm MSP mid-bass unit: super-fine control without loss of power – essential when a driver is reproducing both low-bass and crucial midrange frequencies.

Emit 10's crossover was designed by the same engineers that worked on Heritage Special and our Core range of professional studio reference systems. It uses a first-order design for the tweeter and a second-order topology for the mid/bass driver.

The cabinets are made from 18mm MDF, covered in beautiful custom laminate finishes. There are three available: Black, White and Walnut. All come with magnetic grilles, too – so if you want a different look, or someone small in your house is obsessed with poking and prodding your speakers with sticky fingers, you're well covered.

Emit 10 is the ideal way to take your next step into the world of hi-fi. Cutting-edge technology, simple Danish design and unmatched performance at this level. What's not to like?

◀ ***The full Home Cinema setup***
Including Emit 25C, Emit 30, Emit 10 and a Sub 3

▼ ***Emit 50 in Black***
The largest and most powerful speaker in the Emit range

Emit 20

Emit 20 is a high-performance standmount speaker derived from our Evoke, Contour i and Confidence series. It gives a stellar combination of detail and punch for small to medium-sized rooms.

We don't use the term 'authentic fidelity' lightly. With Emit 20, that's exactly what you'll get: a premium audiophile speaker that astonishes at the price.

Emit 20 uses an 18cm MSP (Magnesium Silicate Polymer) woofer, based on the one we've used in the Evoke series. MSP is a material we developed in-house, and have used for many years on our most renowned models. The cone itself is a one-piece design; the dust-cap is moulded as part of the playing surface, which gives it a solid connection to the voice-coil that moves it back and forth. You'll hear that connection as supreme control and detail in the low and midrange frequencies.

Combined with the stacked ferrite magnet system and new surround, that gives Emit 20's long-throw mid/bass driver all the bass power you could want, even at high volumes, combined with amazing control over midrange frequencies (where instruments such as guitars, vocals and violins reside).

And because it uses technology from our top-of-the-range Core pro reference speakers (whose users need to listen intently for long periods), you won't get tired when you're in the middle of a long session.

The mid/bass driver and tweeter are marshalled by a custom-designed crossover from the same team that brought you Heritage Special and Core. Our engineers used a hybrid first- and second-order topology for the tweeter and woofer respectively, giving them exceptional control over each driver's behaviour. It means you'll hear what the artist wants you to hear, without compromise.

Emit 20 comes in three custom-designed laminate finishes – Black, White and Walnut – that beautifully complement the cabinets' clean Scandinavian design (conceived in-house at our headquarters in Denmark). Black magnetically attached grilles come as standard in the box.

If you want an audiophile-level standmount speaker for a stereo set-up in medium-size room, or fancy a little more 'oompf' from your rear surround channels, Emit 20 is the ideal choice. ▶

Emit 30

Emit 30 is perfect for larger stereo systems or compact multi-channel home cinema set-ups in medium to large rooms.

If you're looking for a little more power from your system, you've found it. Emit 30 is a compact two-and-a-half-way speaker designed to impress whether it's used as a stand-alone stereo pair or as part of a 5.1-channel (or more) home cinema.

Like its little brother, Emit 10, it uses 14cm MSP woofers similar to those used in the Evoke series – this time doubled-up in each speaker for more low-frequency muscle, plus midrange clarity and punch.

The cones are moulded in one piece; we don't use a separate glued dust-cap. The little balance ribs around the edge of the centre are bonded directly to the voice-coil behind it, making the whole motor assembly one solid piece. Using fewer moving parts gives our engineers fine control over how the speaker moves – which, in turn, means fine control over how it performs. You'll hear it as strong, tight bass and startlingly clear vocals, guitars and more. Even at neighbour-bothering volume levels.

Each woofer is powered by a dual-stacked strontium carbonite Ferrite+ ceramic magnet system. Using two magnets means we can more effectively direct where the magnetic energy goes – it's a lesson we learned developing the award-winning Special Forty anniversary model, and it's thrilling to be able to use it in our entry-level family.

◀ ***Real-world listening***
Emit 50, the largest model in the family, is perfect if you want to fill a larger room with stunning sound

While the twin 14cm mid/bass units deal with the… well, midrange and bass… the upper frequencies are handled by the tweeter. Emit might be an 'entry-level' speaker, but we certainly haven't used any old unit off the shelf; witness the incredible Cerotar tweeter (the same as we use in Evoke). It's based on the Esotar Forty anniversary tweeter and the Esotar Pro found in our Core studio reference speakers, and must be heard to be believed.

The bass-port on the back panel has dual flares (one inside; one out), and has been tuned to minimise unwanted 'chuffing'. It's supplied with foam inserts that can be used to optimise performance for the speaker's position relative to the wall.

Emit 30: powerful floorstander performance in a compact package. If you want to take your listening to the next level, it'll really make your collection sing.

Emit 50

Whether you want to build a powerful stereo system, or really give your multi-channel films and music Blu-rays a boost in a medium to large room, Emit 50 has you covered.

A pair of big floor-standing speakers makes a statement. With Emit 50, you can make that statement without giving your bank manager a heart attack. Its audiophile-grade technology and tuning deliver room-filling hi-fi performance at a price-level open even to those taking their first steps into high-end sound.

Emit 50 delivers a level of power and finesse that, honestly, you could very easily pay double the price for elsewhere. But why would you? Its twin 18cm woofers, 15cm midrange driver and 28mm soft-dome Cerotar tweeter are each dedicated to producing the clearest possible performance – at true cinema-level volume.

Let's give you the bottom line: Emit 50's woofers dig deep. The two 18cm units (the same type used in Emit 20) use trickle-down technology from our high-end Evoke, Contour i and Confidence families to deliver astonishing low-frequency performance, well above the previous Emit range.

It means the speaker can get right down into the bass (-3dB at 33Hz, which equals Contour 60i and Confidence 60, if you're into numbers), but allows us to keep the cabinet at a size that still fits your living room. ▶

An Emit for every occasion

Movie night, date night, Sunday afternoon's coffee break or the end of a really long day...
It all starts with Emit.

Unlike the other speakers in the series, Emit 50's woofers use copper voice-coils. That's because while they don't need to deliver sweet midrange tones (as on the Emit 20), they do need to deliver fast, articulate bass. So, we've used heavier copper for more outright punch. That's intensified by the dual-stacked magnet system, which is optimised to direct its energy directly into the voice-coil.

The midrange driver is a different beast. Exclusive to Emit 50, it's derived from the version we used in the Evoke range – which, in turn, came directly from the high-end Contour i series.

It has a powerful ferrite ceramic magnet, a short version of the 38mm-diameter aluminium voice-coil (specifically optimised for midrange performance), and a lightweight surround. It's designed for speed and precision: exactly what you need for reproducing nuanced vocals, orchestral strings and wind instruments, and more.

Emit 50's Cerotar tweeter is the same as you'll find in the Evoke family. It's a ground-up design that uses key technologies developed for our award-winning Special Forty anniversary speaker, plus Confidence and even our Core range of professional studio reference monitors. Our engineers are really proud of it, and rightly so.

Emit 50's crossover is a hybrid design. There's a traditional Dynaudio first-order circuit for the tweeter, a second-order design for the midrange driver, and a fourth-order topology for the woofers. Sure, we could've just created a single design to cover them all – but that would mean compromising performance, which is something our engineers simply won't do. This way, you get something tailored exactly for the frequency ranges each driver is producing.

Whether you're starting a brand-new high-end system from scratch, or upgrading from another, Emit 50's combination of power and finesse will bring a new level of performance to your music and films.

Emit 25C

It could be argued that the centre channel is the most important part of any surround-sound system. It's where the lion's share of dialogue comes from in a movie, and it's where the focal point of the music often comes from in a multi-channel mix. It's crucial to get it right.

Emit 25C is essentially an Emit 30, turned on its side, with the mid/bass drivers placed on either other side of the tweeter. The drivers are the same; the crossover is the same. We've just put them in a different box and tweaked the tuning of the dual-flared port. But that's not doing it a disservice; quite the opposite. It means you get total consistency between the centre speaker and the two flanking it (whether those are Emit 10s, 20s, 30s or even 50s), along with any others you place around your listening position.

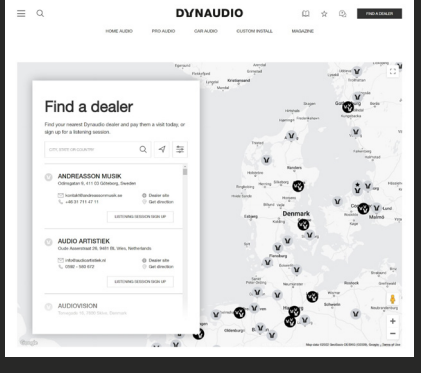
In fact, if you were so inclined, you could even use two Emit 25Cs as a stereo pair, either flat or (as more than one of our engineers has experimented with) up on-end. It all depends where you want the tweeter, height-wise, relative to your sitting position.

Emit 25C uses the same 14cm MSP woofers as Emit 10 and Emit 30 to cement that consistency (especially crucial in the midrange, where most dialogue lives). The tweeter, as with all other Emit speakers, is the 28mm Cerotar unit – backed up by the Hexis inner dome. Again: total consistency.

Emit 25C is the lynchpin of your home cinema system. Power, control and finesse, rolled into one compact unit.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/emit*



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STEP 02
Register your interest in a listening session at your chosen dealer with your name and email address

STEP 03
Wait for an email reply from the dealer inviting you to book your private listening session

And voilà, you're on your way to experiencing Dynaudio sound first-hand!

DYNAUDIO Evoke

Evoke is for you

It's for living rooms. Home cinema rooms. Listening rooms.
Even bedrooms. It's serious hi-fi, everywhere

Evoke takes advanced characteristics directly from our top-of-the-range speakers – including finish quality, driver technology and design. It's the best of all worlds. And that means each of the five Evoke models can vibe with you, grow with you, and live with you – however you listen.

Every single part has been looked at from the ground up. Every driver has been optimised in Dynaudio's state-of-the-art Jupiter measuring lab. And every finish has been painstakingly formulated and executed to reflect the quality of those on our most exclusive speakers.

Music to last a lifetime

Creating a new family of speakers is something our designers relish. At the start, the whole process is a sandbox – one that's full of out-there ideas, wish-lists and ingenious solutions that had been percolating in brains and notebooks.

And because they have four decades of established research and legendary products to draw on, with Evoke they landed right in the Goldilocks zone.

They combined cutting-edge technology directly from the Contour and Confidence ranges (see p102 and p118) – not to mention ultra-high build and finish quality, and traditional, elegant cabinets designed to look great in any listening environment – with exceptional value for money.

Take the Cerotar tweeter. It's a ground-up design based on our award-winning Esotar Forty anniversary tweeter (p96) and the mighty Esotar3 found in the money-no-object Confidence. Underneath the 28mm soft-dome diaphragm sits the resonance-defeating Hexis inner dome – the same as you'll find in the Confidence tweeter. Behind it all, the motor system uses a strontium carbonate Ferrite+ ceramic magnet for higher sensitivity. You'll find this system in the Focus streaming speakers, too (see p110).

The Esotec+ woofers use MSP (Magnesium Silicate Polymer) in their diaphragms – just like all Dynaudio speakers have done for decades.

The diaphragm is 0.4mm thin, which provides the ideal combination of lightness, stiffness and damping to ensure optimum performance. It's made of one piece (what appears to be the

dust-cap is actually part of the playing surface), and is bonded to the rigid glass-fibre voice-coil former. That means the whole unit moves as one, in a predictable (and carefully tuned) way.

The woofers used in Evoke 10, 20, 30 and 25C feature bespoke surrounds and powerful Ferrite+ magnet systems to extend their throw, their frequency response and their low-frequency dynamics – all while maintaining stellar midrange performance. And the 18cm driver in Evoke 50 borrows technology from both the Contour and Confidence ranges to deliver precise low-frequency dynamics and timing.

But we can't perfect all that without some seriously long listening sessions. And that, for us, is the key: we listen like you do. No song is off-limits. Nothing is too cheesy, or too high-brow. We love music, so there's no other way we can design our speakers other than for fellow music-lovers.

Finishing touches

Each of the simple, elegant cabinets (themselves the result of months of painstaking prototyping, refinement and care), is available in four finishes: Black High Gloss, White High Gloss, Walnut Wood and Blonde Wood.

New lacquering techniques mean the gloss versions have a stunning, almost glass-like finish, while the wood variants have open veneers that offer a warm, natural feeling. And they'll only look better over time.

Our designers wanted Evoke to be the kind of speaker you take with you from student residence, to apartment, to house. The kind of speaker you'll rediscover your favourite music with – and then pass it on. ▶

◀ ***In it for the long-haul***
When you upgrade to Evoke, you're getting a speaker that'll last a lifetime

Built for living ►
Evoke's performance will knock your socks off

Evoke 10

We've been creating speakers that perform out of all proportion to their physical size for years, and Evoke 10 is no exception.

The 14cm MSP driver's 38mm voice-coil is made from aluminium, making it extremely light (but extremely controllable at the same time). It's kept stable, centred and true by the Nomex spider (the circular spring assembly that stops the cone from moving when it shouldn't, and lets it move when it should). The whole assembly is driven by one of our new, powerful strontium carbonate Ferrite+ ceramic magnet systems.

Up top is the brand-new 28mm Cerotar soft-dome tweeter. The Cerotar, like the woofer, is powered by a powerful Ferrite+ ceramic magnet assembly.

Linking the drivers together is a high-grade crossover that uses the Confidence's design with different components. So, yes, when we say you're getting high-end tech, we mean it.

And you might notice that you can't see any mounting screws on the front of the cabinet. Evoke has simple, clean trim rings that accentuate the cabinet's finish as well as the moving parts of the drivers. The rings are one-piece moulded, with the surface finish embedded in the moulding process – so what we make is what you get.

Evoke 20

It's true that you can have too much of a good thing. Try as you might, some good things just won't fit in your living room – but Evoke 20 will.

Evoke 20 is a full-size stand-mounted speaker designed for almost any space. Its powerful 18cm mid/bass driver ensures it can flex its muscles when there's heavy lifting to be done, while its 28mm soft-dome tweeter takes care of the fine detail. And, of course, its design looks fantastic wherever you put it.

The mid/bass voice-coil is made from aluminium. We chose that over copper for this speaker because it has the right balance of weight and winding height to give bass frequencies power and enough mechanical and electrical damping, while also letting midrange frequencies sing through clearly.

Our design department took field trips to show-homes, home-interiors stores and real-life dwellings in Denmark to hone Evoke 20's look. It was important for them to be able to imagine the speakers in a variety of living spaces – because, after all, that's how most people listen.

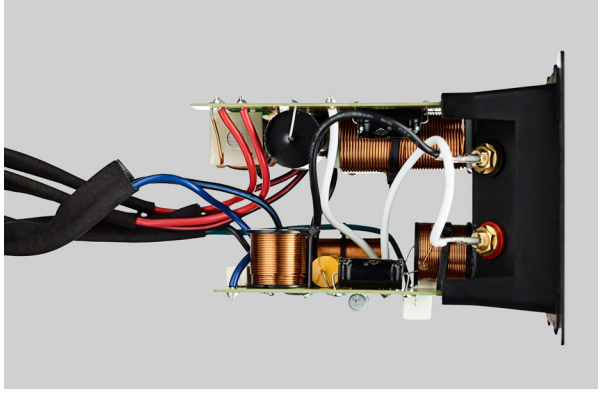
The cabinets themselves are tapered and rounded in a nod to the Contour and Confidence ranges. And because good design doesn't age, you know they'll look every bit as stylish when you're still listening to them in 30 years. Which, we hope, you will be.

Evoke 30

Put a pair of floorstanders in your living room and even the least 'hi-fi' person in the world will know you mean business. Put a pair of Evoke 30 floorstanders in there and they'll also know you have taste. These two-and-a-half-way speakers strike the balance between compactness and restraint, and unabashed, wide-eyed enthusiasm for music.

At the head of the table is the all-new Cerotar 28mm precision-coated soft-dome tweeter with the Hexis inner dome. Under it sit twin 14cm Esotec+ MSP mid/bass drivers. Each cone is made from a single piece of MSP – bonded directly to their 38mm aluminium voice-coils for maximum stability.

Add the eye-catchingly clean cabinets and the result is an instant classic. It's modern, retro, timeless and cutting-edge. The kind of speaker your kids will eye-up expectantly when they're leaving for university. (We'll forgive you for hanging on to them yourself instead.) ►



◀ ***Inside the Cerotar***
It's much more than just a fabric dome: pressure waves from the rear are directed along channels into damping material to reduce resonances that could otherwise colour the sound

Evoke 50

If a pair of Evoke 50s doesn't say 'statement of intent', we don't know what does. Use them in stereo or as part of an Evoke multi-channel cinema system. However you listen, the word 'epic' won't be far from your lips. These full three-way floorstanders boast twin 18cm woofers and a 15cm midrange driver along with the Cerotar tweeter.

While the Evoke 20 standmount speaker uses aluminium in its 18cm woofer, Evoke 50 uses copper. That's because these are pure bass drivers – they don't need the light agility of a dedicated midrange unit, so we were able to give them more moving mass. The 0.4mm-thick diaphragm is the same, though, as is the Ferrite+ ceramic magnet. That means power and detail. It's just one of the many solutions we've arrived at through extensive analysis and simulation in our Jupiter measuring facility.

Evoke 50 is the only speaker in the family to have a dedicated midrange driver, so the engineers in Dynaudio Labs decided to make it a little bit special. The unit they chose is the same as the one used in the high-end Contour i range – which means a powerful neodymium magnet, a 0.4mm-thin diaphragm and a glass-fibre voice-coil former with a trademark Dynaudio aluminium voice-coil.

Why neodymium and not the Ferrite+ of the woofers? Because it's light, and it's powerful. Why aluminium and not copper? It responds with more sensitivity in the exact frequency range the driver needs to reproduce. That's a combination that gives our team amazing control over how the driver responds – they were able to fine-tune it to integrate perfectly with the woofers and tweeter. In fact, the Evoke team did such a good job that you're getting Contour-level midrange performance out of this speaker.

Plug them in and rediscover your love of music.

Evoke 25C

Going to the movies is better at home. You don't have to queue, the floor isn't sticky, and you don't get charged through the nose for snacks. Plus, you can create a far superior audio experience. But for that, you need a centre channel.

Evoke 25C is a dedicated centre speaker designed to integrate perfectly with any and all other speakers in the Evoke family – so you can bathe your ears in high-quality stereo just as effectively as you can shake the fillings out of your teeth with a summer blockbuster.

The two-and-a-half-way design has one 28mm Cerotar tweeter with the Hexis inner dome and twin 14cm long-throw MSP woofers with 38mm aluminium voice-coils and ceramic Ferrite+ magnets for fine-tuned control. That level of fine movement is especially important in a centre speaker, which predominantly deals with speech – its midrange performance has to be absolutely top-notch.

In non-speaker-designer language, that means 'you'll hear your movie the way it was meant to be heard'. No rough edges, nothing standing out where it shouldn't – and nothing relegated to a cameo when it should be the lead. And your ears won't get tired when you decide to binge-watch that nine-series box-set…

Like the rest of the family, Evoke 25C is designed for real-life rooms. After all, it's as much a piece of furniture as the sofa you sit on to watch your favourite movies.

Like a great movie, a great design doesn't age. Evoke 25C will stay as timeless and thrilling as the classics you're playing through it.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/evoke*

Have it your way
Evoke 10 is great as a pair of front stereo speakers, or as surrounds

DYNAUDIO Special Forty

Laurels aren't for resting on

We still surprise ourselves. Some people might be content to sit back and be complacent about their successes after 40 years of constant innovation. We aren't. In fact, we only get hungrier for new techniques and technologies


DYNAUDIO

“What are you going to do for Dynaudio’s fortieth birthday?”, everyone asked back in 2017. We thought about it for a bit and decided that since we aren’t big on huge decorated cakes and candles (although we are partial to a tasty flødebolle), we’d celebrate a little differently…

And yes, we know you’re the ones supposed to be giving *us* gifts – but we just couldn’t help ourselves. Happy birthday to us! Here’s your present: Special Forty. Still fresh after five years, too.

Some companies might be content to sit back and be complacent about their successes after 40-odd years of constant innovation. We aren’t. In fact, we only get hungrier for new techniques and technologies.

That’s why we developed Special Forty. We wanted to revisit those innovations and see what we’d do differently this time.

What you won’t find here is anything revolutionary (check out our Focus (p110) or Confidence (p118) ranges for that – you’ll be amazed at the tech we’ve managed to pack into those). Instead, you’ll discover a look at our past – along with some special sneak-previews of the future.

Special Forty is classic Dynaudio: all the craftsmanship, attention to detail and total love of authentic sound you’ve come to expect. It’s the connoisseur’s choice – a simple pair of high-end passive hi-fi speakers.

But it isn’t about looking back, misty-eyed, at past glories and leaving it at that. It’s about using those glories as a platform from which to launch our next set of breakthroughs – which have now seen action across our line-up ever since. ▶

▲ ***Special Forty, special backplate***
The speakers aren’t just elegant from the front: we’ve also taken just as much care on the parts you don’t usually see

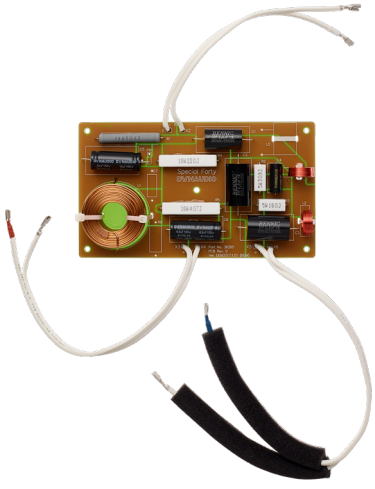
The gift that keeps on giving
Special Forty might be five years old, but it still wows the crowds

We do compact speakers really well. We always have. So, as a nod back to classics including the Special One, Special Twenty-Five, Crafft and the Contour 1.3SE, we kept the Special Forty pure – if incredibly advanced.

The greatest hits of our greatest hits

Of course, it wouldn't be an anniversary speaker if it didn't include some of our greatest hits. But we didn't just get the old band back together to trot out the same old stuff. We remixed, remastered and rearranged things to bring those old favourites into the present – and beyond.

That's why it has one of our classic crossover designs, incorporating our unique Phase Alignment and Impedance Alignment technologies. The crossover expertly marshals the input signal between the woofer and the tweeter – so each driver gets only the frequencies it's supposed to, and can perform at its very best. Its specially selected components handle the impedance optimisation and, because both drivers have extended frequency ranges for even better overlap and integration, that performance borders on mesmerising.



Classic crossover ►
A wide freqency overlap between drivers means stunning smoothness across the frequency range

The song remains the same

Special Forty uses our proprietary MSP (Magnesium Silicate Polymer) material for its mid/woofer driver. MSP delivers precisely the right combination of lightness, stiffness and inner damping for the most faithful sound reproduction. And, unlike some other cone materials, it doesn't change over time – so your speakers will still be singing just as sweetly come our next anniversary.

The diaphragm's (or cone's) movement is controlled by our progressive-roll spider, which has been painstakingly developed to give a symmetrically controlled excursion. This further tightens the performance and make it possible not only to pick out individual parts in a piece of music, but even individual instruments in an orchestra. (So now, finally, the Third Violin section can have its day in the sun.)

And, like all our other MSP cones, it's a one-piece design (you can tell by the special balance ribs around the integrated dust-cap). This gives it an incredibly solid connection to the voice-coil, as well as stabilising its form – which is crucial when you decide to crank the volume.

Flux capacity ▲
The magnet is inside the voice-coil so we can get more power for the same weight

Airflow is king

It all sits in our AirFlow Basket – the part that holds the driver motor securely in place in the cabinet. Its development was one of those 'Eureka!' moments our engineers seem to get a few times a week in Dynaudio Labs (you can often hear them cheering from across the road in our factory).

Take a shine to them ►
The Ebony Wave (right) and Black Vine (p98) finishes are lovingly hand-polished for a sumptuously mirror-like finish

We asked them to reduce internal reflections and increase air movement without compromising the basket's stiffness or stability, and this ingenious design is what they came up with.

The Esotar Forty tweeter takes air-movement to another level. It moves the air in typically sweet fashion in front of the precision-coated soft-dome, of course, but there's a lot of advanced engineering going on behind it as well.

Take the new pressure conduit. It's a shaped vent in the back of the magnet system that allows more space in the rear chamber. That lets us pack in more damping material to reduce back-pressure, while the shape itself optimises the resonant/damping chamber attached to the rear of the dome.

Then there's the voice coil venting. This reduces and controls resonance – and less resonance equals even greater potential for detail.

Flux optimisation and beam control

We love playing with the laws of physics. Physics wins in the end, of course (usually), but we almost always manage to bend it to our will along the way. Just like we have with our advanced magnet systems.

The magnet turns electrical energy that flows from your amplifier to the voice-coil into the physical back-and-forth movement of the driver diaphragm. These movements are very small and very fast (especially in the tweeter), so they need a lot of finesse if you want to hear all that luscious detail and emotion in your music.

In the woofer, we've achieved that finesse in two ways: by placing the magnet inside the voice-coil, and by playing with magnetic energy itself.

Using an inside magnet allows us to use a wider diameter voice coil, giving a longer length of conductor in the magnet gap – and the inside magnet also helps direct the magnetic field inside the magnet system.

Second, we use a hybrid magnet for even greater control over the magnetic flux. An incredibly powerful neodymium rare-earth magnet provides the muscle and powerfully pushes the flux around the steel structure, while a ferrite magnet tempers that enthusiasm by gently moving the flux back to exactly where it's needed most. The result? Symmetrical flux density, a reduction in second-harmonics, and an even more accurate, authentic sound.

Box clever

And then there's the finish. With Special Forty's stunning Black Vine and Ebony Wave, our designers have given you a treat. We've always done something special for our anniversary speakers – from the luscious bird's-eye maple of the Contour 1.3 SE to the Special Twenty-Five's stunning burled birch and the Sapphire's amazing Mocca, Bordeaux, Amber and Ivory veneers.

Special Forty takes that to a new level. We pushed our team to come up with something different to the kind of thing we've done in the past, and they took that to heart. That's why they're raw; visceral; striking.

We wanted Special Forty to look as authentic and honest as the music they're playing sounds. They're things of beauty to look at as well as to listen with.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/special-forty*


DYNAUDIO

DYNAUDIO Contour i

Born in 1986... **raised in 2020**

Leave Dynaudio engineers alone with a speaker and they'll make it better. They can't help themselves. And they love nothing more than improving a legend

Everything inside the Contour i has been taken apart, and re-designed from the 2016 model. Expect more openness, more punch and more detail. Feel the goosebumps appear as you hear new dimensions in your favourite recordings. Transport yourself back to a time when all that mattered was the next track on the album…

With a new tweeter, new woofers, new crossovers – and new thrills – Contour i takes all you've loved about the family since 1986, adds new knowhow, and brings your music back to life.

Evolution, not revolution

There was nothing wrong with the 2016 Contour. We love it. It's gained legions of fans, its trophy shelf is groaning under the weight of awards, and many of us at Dynaudio even bought some ourselves. But when irresistible new acoustic technology emerges from Dynaudio Labs – as it did with the all-new Confidence series – we simply can't hold ourselves back from seeing how it could improve our existing ranges. That's why the new Contour i series has been totally overhauled on the inside.

Taking it from the top, the brand-new Esotar 2i tweeter on all models gains the Hexis resonance-defeating inner dome, plus a new, larger rear chamber that reduces distortion and gives a flatter frequency response.

The Contour 20i, 30i and 25Ci woofers all gain an updated Nomex spider. It's the same core design as the 2016 Contour (with varying-width corrugations for more excursion control), but the new material simply sounds better – the result of many hours of listening in Dynaudio Labs.

Updated magnets and crossovers

Contour 60i has new woofers with a bigger magnet system, a different voice-coil design and a glass-fibre voice-coil former (formerly titanium in the 2016 Contour 60). That means even tighter bass, at higher volume. And Contour 60i's midrange driver? No change, apart from the new, resonance-damping enclosure it sits in.

Contour 20i, 30i and 25Ci have updated crossovers. And, because of the driver tweaks providing an inherently flat frequency response, it means we've been able to remove the impedance correction circuitry for an even simpler board. Take a look on p107… beautiful, isn't it?

Contour 60i has a completely new crossover because of the new woofers and new Esotar 2i tweeter. Plus, the effect of that midrange cup and the Nomex woofer spiders enabled our engineers to shift the crossover frequency up. It now works better at slightly higher frequencies (up to around 300Hz). Better midrange performance, simpler crossover.

Even the internal damping is brand-new – using lessons learned from Evoke and Confidence.

Our engineers are inveterate tinkerers. They used everything at their disposal to make Contour i as amazing as it could be. Hours of measuring in our state-of-the-art Jupiter impulse-response room. Many more hours of listening to everything from Schubert to Slayer. And countless more of letting those massive brains come up with clever new ways of doing things.

They're really happy with what they've achieved. And we think you'll be just as amazed when you hear Contour i for yourself.

Contour 20i

Hear the difference: the Contour 20i is ready to blow your sonic socks off. It's been designed to surpass every other standmount Contour model we've created. And it succeeds.

The Esotar 2i tweeter is a turbocharged version of the much-loved Esotar2. It now features a larger rear chamber for more effective damping, and the inventive Hexis inner dome seen on Confidence (p118), Core (p142) and more. Together they flatten the frequency response and reduce unwanted resonances for even clearer, smoother treble.

The woofer has been tweaked, too. It's still made of our own Magnesium Silicate Polymer (MSP) material, of course, it's still powered by a lightweight aluminium voice-coil, and it still uses a vented dual-ferrite magnet system – but behind the distinctive black cone lurks a brand-new spider suspension. This one is made from aramid fibres, and retains the structural properties from before (the rolls are of varying width to give even finer control over the cone's excursion). You'd be surprised at the sonic difference such a small change can make…

And because those driver changes provide an inherently flat frequency response, we've been able to simplify the crossover too. It's a thing of beauty. There's no longer any need for extra impedance-correction circuitry – which means an even more direct signal path. And cleaner sound. ▶

Driving change
We've made small but significant improvements to every single driver in the 2016 Contour range

Making a Contour without its signature baffle would be like making a car without wheels. Unthinkable. But there's always room for improvement – and our designers love to stretch their legs.

This ultra-stiff baffle is aluminium, and set into the cabinet and backed by a specially engineered gasket to keep everything stable and free of vibration. Its chamfer is included in the driver's basket – which not only looks great, but also reduces unwanted high-frequency diffraction effects for clearer treble, and provides a solid foundation for the drivers to do their work. A solid foundation means improved high-volume performance at low frequencies, too (although your neighbours might not thank us for that).

Even the internal damping is brand-new – using lessons learned from Evoke (p88) and Confidence.

Contour 30i

Contour 30i (pictured below) steps it up a notch from the 20i. Of course, it still treads the same path – one of honesty, transparency and sheer entertainment – but it puts it all in a bigger package.

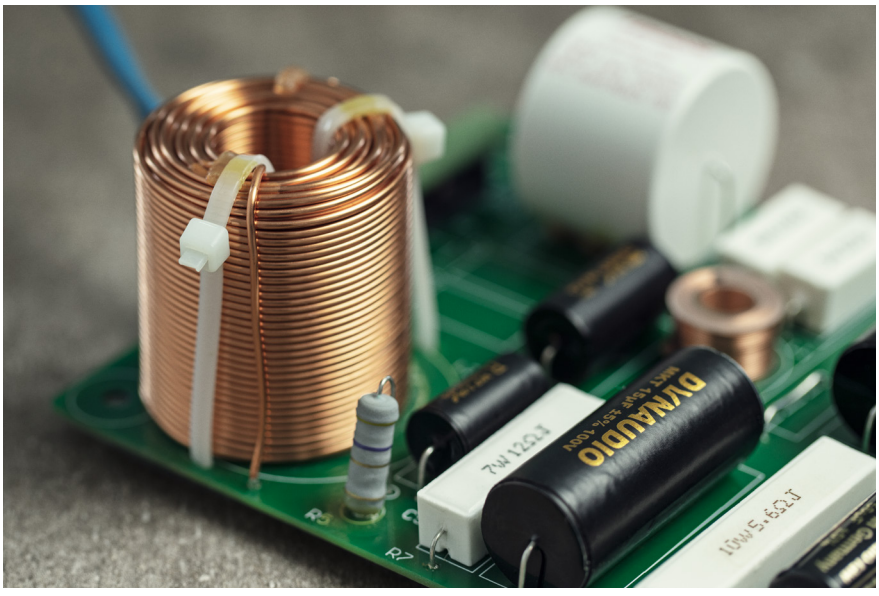
Like the rest of the Contour i family, the 30i has the all-new Esotar 2i tweeter – complete with the Hexis inner dome found throughout our speaker line-up – including the Confidence range and the Core series of professional studio reference monitors.

Esotar 2i also gets a new, larger rear chamber. This, together with Hexis, helps to reduce unwanted resonances and smooth out the frequency response for even clearer, sweeter high-frequencies.

We've endowed Contour 30i with two 18cm MSP drivers, as well as doubling up on the rear ports. Behind the scenes we've tweaked the spider suspension (the springy ring that keeps the woofer in the right place when it's at rest, and controls it in the right way when it's moving). This one is made from aramid fibres, and retains the clever structural properties from before (the rolls are of varying width to give even finer control over the cone's excursion).

Contour 30i continues to use aluminium voice-coils, too. We can make them extremely light – but also bigger than the old-style copper units you'll find elsewhere. The big, powerful magnet means we can complement the winding technique. And that, ultimately, means we have more control over the speaker's sound – especially at high frequencies and high volumes – exactly what you need in a mid/bass driver.

Sure, we experimented with small voice-coils on the latest Contour – the



Under the hood ▶
Just because you can't see the crossovers, that doesn't mean they can't look great

▼ ***Contour 30: movie stars***
If you're looking for hefty home cinema, Contour has you covered

size other companies might use. The measurements said they should work for Contour. But measurements don't always tell the whole story. Our ears said 'go big'. Our ears were right.

And, as with Contour 20i, the flatter frequency response from the improved tweeter and mid/bass drivers means we've been able to simplify the crossover. Not that it wasn't elegant before – but now… well, we'll let you judge. Take a look, above.

The improved crossover no longer needs impedance correction circuitry to optimise its performance – that's all now done in the driver itself, simply down to the physical properties of the materials we use. Fewer components, cleaner signal path, better performance.

While our engineers and designers were hunkered down listening to everything from jazz, to classical, to metal, to electronica, the team in our on-site factory were scouring sustainable sources for high-quality materials and finishes. They make sure all Contours are furniture-grade: perfectly built, perfectly finished and perfectly packaged.

Contour 60i

Contour 60i sounds bigger than you'd think. Yes, we mean that…

If you have a bigger listening room – or if you just like to play it loud – then Contour 60i, with its stellar midrange driver, is your music's new best friend. You can see it standing proud on page 109.

And it isn't just because it's a grown-up, full-size, three-way floorstander. Of course, it's capable of the kind of outright volume that'll flutter your uncle's toupée from across the room – but it sounds big in other ways too. From the soaring soundstage of a top orchestral recording to the caffeinated surround-sound effects in a movie, Contour 60i simply fills the room – without resorting to bass-heavy bombast along the way.

Starting at the top, you'll find the jewel in the crown: the Esotar 2i tweeter. We looked at the older Esotar 2 from the 2016 Contour, took it apart and realised we could give it a boost with some tech from our flagship Confidence range (the Hexis) and also our flagship Core professional reference monitor ▶

Size matters ▶
Big speaker, big performance: Contour 60i is a powerhouse

series (the larger rear chamber). Together these clever mods help to reduce unwanted resonances and smooth out the frequency response for even clearer treble performance.

Contour 60i is the only model in the family to have a dedicated midrange driver. It uses an aluminium voice-coil, and also has a neodymium magnet system – all developed and optimised at the Dynaudio Labs complex in Denmark. It is, in fact, exactly the same midrange driver we used in the 2016 Contour 60. If it ain't broke…

Where the difference lies is in how it's mounted. We've used more tech from Core here, isolating it in a precision-moulded cup containing resonance-defeating ribs. If there's one thing you can never have too much of, it's midrange clarity – and Contour 60i now has even more.

The two woofers are new. Each has a bigger magnet system, a different voice-coil design and a glass-fibres voice-coil former, as first used in the Confidence range and Sub 6 subwoofer (p128). That means even tighter bass, at higher volume. We've chosen copper for these ones over aluminium. Why? Because they're dedicated bass drivers. Copper is heavier and has more inertia, which makes it less sensitive in the higher frequencies. That lets us dig deeper without impinging on the midrange, handled by the super-sprightly driver just above.

The crossover is brand-new, too. You can't change all the drivers without taking a look at the speaker's 'brain', after all. Plus, the effect of that moulded midrange cup and the Nomex woofer spiders let our engineers shift the crossover frequency up. It now works better at slightly higher frequencies (up to around 300Hz). The frequency curve in this area is also flatter, meaning better midrange performance from a simpler design.

The multi-layer curved cabinet and sleek-but-solid aluminium baffle provide your music (which was likely mixed using Dynaudio studio speakers, too) with a robust, defined acoustic foundation. So much so that, if we've done our jobs right, you'll forget they're even there and just ... listen.

Contour 25Ci

The ideal companion to our upright Contours. The Contour 25Ci seamlessly integrates for an awesome surround-sound performance.

It's been said that sound accounts for as much as 80 per cent of the movie-going experience. And we can't argue with that (musicals, especially, don't have quite the same impact with the volume set to zero).

That's why we created the Contour 25Ci centre-channel. Mix and match it with a combination of Contour 20i, 30i and 60i for a seamlessly integrated multichannel system – a system on which you know you'll be able to enjoy stereo music as much as you will a teeth-rattling blockbuster.

Why? Because it's essentially a Contour 30i turned on its side, with the tweeter moved to the middle. The super-detailed Esotar2i soft-dome unit – which now includes the resonance-defeating Hexis inner dome and a larger rear chamber – is flanked by a pair of 18cm MSP drivers – all of which use the same high-end lightweight aluminium voice-coils and (in the tweeter) magnetic ferrofluid technology as the rest of the Contour range.

Those mid/bass drivers are exactly the same as you'll find in Contour 20i and 30i – complete with the progressive-roll aramid spider – for total consistency around your system.

Clarity above all

Our loudspeakers are used in music and movie production studios all over the world – so we know how crucial it is to reproduce multichannel sound to its fullest potential.

And if you're investing time in watching a movie (or even a TV show), you want that experience to be as clear, dynamic, assured and powerful as it can be. Most of the speech information comes out of the centre-channel, which is why Contour 25Ci's combination of legendary materials and balanced, neutral sound is so ideal.

And that's why the Contour 25Ci doesn't compromise. All the knowledge, care and enthusiasm that goes into our upright speakers is here, too. The finish is furniture-grade; the materials top-quality.

If you want a companion or an upgrade for your existing Dynaudio system, this is it.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/contouri*


DYNAUDIO

This is true wireless hi-fi: the features you want, the finish you expect, and the audio performance you deserve. Focus is packed with future-proof software and wireless connectivity, plus award-winning acoustic technology from our flagship hi-fi and pro studio ranges. It isn't just a new family of loudspeakers – it's a refreshing new way to listen to all the music you love.

Higher-fi

Streaming is placed front and centre. With Spotify Connect, Tidal Connect, Apple AirPlay 2, Google Chromecast, Roon, Bluetooth and local network capabilities on board, Focus can play literally anything stored in digital form, from anywhere you can access it – online or on a networked hard-drive at home. Hundreds of millions of tracks, all accessible at the touch of a finger on your phone or tablet.

In fact, if it's been released as *any* recording, Focus will play it… Anything stored on a networked hard-drive. Digital sources via coaxial or optical inputs. Analogue sources via line-in. Want to hook up your turntable or your ancient 8-track machine and make the most of your vintage collection? Do it.

It's a system designed for living rooms, not sterile listening caves. It's built for those who want to share amazing sound with their loved ones (invite them over and get them connected… but good luck getting them to leave again). That's why we've also built-in WiSA streaming. Focus can connect wirelessly to your TV (and therefore anything else connected to it) and take the place of a hulking AV receiver/cable tangle/equipment stand/dust-magnet combination. The only downside? Your cat won't be able to warm itself on your amplifier any more…

In fact, the only thing the speakers need is a network connection (wired or wireless) and one mains socket each. It's never been this easy to listen to music in such high quality.

Tinkered and tailored

Focus is a high-end active system. Each individual drive-unit has its own custom amplifier (the same type we use in our flagship professional studio speakers). Each amplifier is matched in performance for its woofer, midrange driver or tweeter. It means we can dial-in every speaker to a stunning degree of accuracy, so you can dial-in your ears and experience the kind of detail that grabs you by the lapels and makes you drop everything else.

Thanks to sophisticated DSP (digital signal processing) based on the same type you'll find in our high-end professional studio monitors (see p130), Focus speakers can optimise their performance for their position in your room. Just tell them where they are – near to a wall, in a corner or in free space – and they'll do the rest. And if you want to dig deeper down the calibration rabbit-hole, there's optional Dirac Live optimisation for performance tailored to your specific room. You can do this yourself with an external microphone, or you could ask your Dirac-certified dealer to do it for you when they deliver your speakers.

Intelligent tuning

If you like to play loud but are worried about sonic break-up or, worse, physical driver break-up, then don't worry: an automatic failsafe system ensures the speakers aren't damaged when cranked to neighbour-bothering levels. There's a bespoke sliding high-pass filter on-board that reduces woofer excursion as the volume rises. Clever.

They'll even auto-compensate their EQ when you apply or remove their magnetic grilles. Our designers actually wrote some special code to make the new signature 'Y' shaped LED flash blue to let you know it's recalibrating. (If you leave our team alone for a while, they're sure to improve on perfection.)

And – of course – all Focus speakers use Dynaudio's legendary soft-dome tweeters, proprietary MSP (Magnesium Silicate Polymer) woofers, and beautifully finished furniture-grade wooden cabinets. They've been designed, tuned, measured, tested and constructed with all the care and fanatical attention to detail we pour into all our high-end speakers. Just as you'd expect them to be.

Up top is a 28mm Cerotar soft-dome tweeter. It uses techniques and materials developed during the creation of our acclaimed Confidence, Special Forty and Core ranges – including the Hexis inner dome (which sits just under the ▶

Focus 30, blonde wood
Contemporary design, contemporary features. The ideal streaming system

Outside the box ▶
Isn't it nice to have something other than amps and sources between your speakers?

diaphragm and modifies the behaviour of the air behind the playing surface to smooth the frequency response and reduce unwanted resonances). The optimised magnet system uses a strontium carbonate Ferrite+ ceramic design to increase tweeter sensitivity – which brings incredible detail and a sweet, natural treble response. That means an extremely low level of listener fatigue… which means you can listen for longer. Always a good thing.

The mid/bass units (and woofers on the bigger speakers) have new surrounds and improved magnet systems. They create an extended throw length, which extends the frequency response at lower frequencies while hanging on to that stellar midrange performance. And because the cabinets don't have ports – they're totally sealed – we've been able to extend that bass down to trouser-flapping depths.

Down to the wire

As with the Evoke family (see p88), we've used either copper or aluminium in the voice-coils, depending on what the driver is being used for. Tweeters and midrange drivers get aluminium. That means it's light enough that it won't stop the driver moving quickly and accurately, while still providing a punch. Woofers get copper. A woofer needs weight anyway, so why not combine that with extra power?

You'll hear it as low-down heft – and we're talking subwoofer-level performance. But if you add an external subwoofer to any of the speakers, you're in for even more of a bass-based treat. They all have trigger outputs too, so a compatible sub will switch on when the speakers power up. It's especially convenient if you're hooked up to a TV via WiSA: the audio from the TV will turn on the speakers, which then turn on the subwoofer.

App-y family

Everything is set up from the simple, intuitive Dynaudio *Set-up and Control* app. It's free, and it's available for iOS and Android devices. Configure your speakers, tell them where they're positioned for the DSP to do its thing, connect them to your network, assign favourite presets and more – all from one place. Then you can use either the stylish Bluetooth remote control or your mobile device to control your music. Just pick your Focus speakers from within your streaming app and off you go.

These speakers are digital – and digital means they can be updated. We'll send out periodic firmware updates, which download automatically to your speaker. That means we can enable new

features, improve little things as we refine them and much more. You can upgrade your system without even touching it.

Material facts

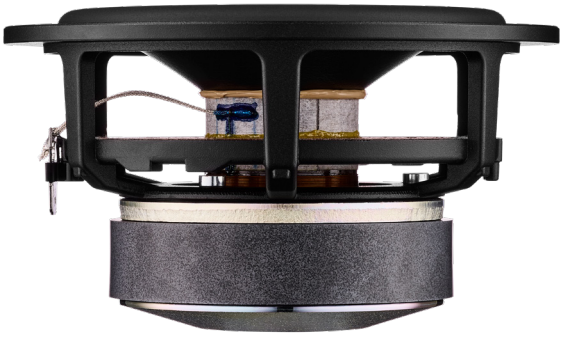
And – of course – Focus wouldn't be a Dynaudio speaker if it didn't look stunning. We've chosen two classic natural finishes, Walnut Wood and Blonde Wood, to complement any interior. They're tactile finishes, too – ones that give you a proper connection to the material. Or if you fancy something a little more stark, you could go for the Black or White High Gloss – both equally sumptuously finished in many layers of thick, mirror-like lacquer.

The speakers' shape is deliberate, too: many modern streaming systems are self-consciously quirky, as if they need to wear their tech on their sleeve. Focus is designed to fit in with modern lifestyles and tastes, which is why we've gently tapered the cabinets to stop them looking too bulky. But they still have that authoritative air of an object that looks right at home surrounded by designer furniture and discerning tastes.

Wireless, limitless

We know many of you want true high-end sound without stacks of rectangles between your hi-fi speakers – and without buying something that looks like an alien spaceship. Now you can. Focus is authentic, premium Danish hi-fi without the fuss. It's your complete streaming sound system. ▶

Speakers' corner ►
Left to right: Cerotar tweeter, Focus 30 woofer, Focus 50 midrange, Focus 50 woofer



Focus 10

You know what they say about good things and small packages… well. get ready for some raised eyebrows. Though it might be small, Focus 10 has brawn with its brains. With a total of 390W of class-D Pascal amplification under the hood (110W for the tweeter and 280W for the woofer), Focus 10 is primed and ready to fill even a midsize room with high-quality sound. In fact, we'd say they pack more punch than a speaker of their size has any right to.

The 14cm Esotec+ mid/bass driver is the best we've ever created in this size chassis. We created it using experience gained while developing the new Contour series – so to say it has pedigree is something of an understatement. And, of course, our signature 28mm soft-dome tweeter (a Cerotar unit) speaks for itself when it comes to clarity and detail.

Focus 10 is true Danish high-end hi-fi, made wireless. If your raised eyebrows had eyebrows, they'd be raised as well. It's time to listen to something new…

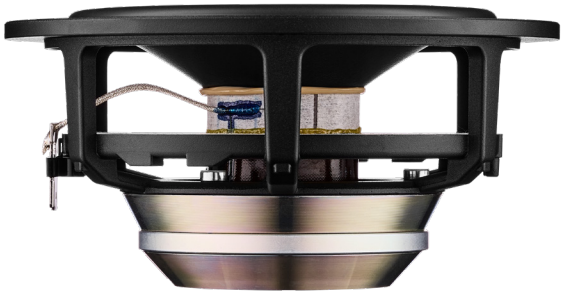
Focus 30

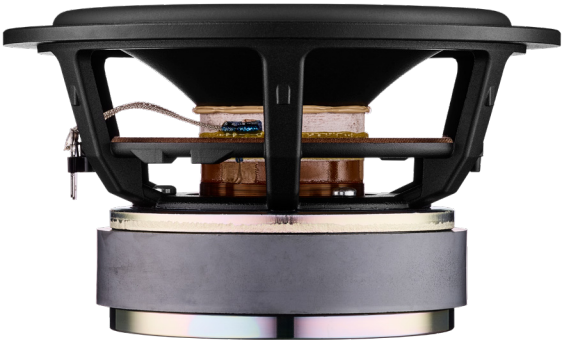
Hi-fi quality with consumer convenience… the perfect combination. Focus 30 is a compact floor-stander for medium to larger rooms.

Its drivers are classic Dynaudio: a Cerotar soft-dome tweeter with the ingenious resonance-defeating, frequency-smoothing, fatigue-busting Hexis device – plus twin 14cm MSP Esotec+ mid/bass units. What could be more familiar?

There are three amps in each speaker – each tailored to the driver it's paired with. It means we can zero in on that particular driver's strengths, bringing them out without needing to compromise for other frequencies. The tweeter has a 110W amp, and each mid/bass driver has its own 280W powerhouse.

We've used high-quality class-D amps from our partners at Pascal in Copenhagen. We know each other well: our flagship pro speaker series, Core (p142) – used in many of the world's





◀ ***Meet the family***
Left to right: Focus 30, Walnut Wood, Focus 50, White High Gloss, Focus 50, Black High Gloss, Focus 10, Blonde Wood

top studios – also uses Pascal amps. We think you'll agree that being able to draw a sonic line directly from the artist to your living room is something rather special.

Focus 30 isn't a copycat wireless system. It's a true game-changer. It's time to listen to something new…

Focus 50

The pinnacle of wireless hi-fi. Focus 50, for larger rooms, has all the convenience of a consumer speaker system with all the heavyweight credentials of our most prestigious hi-fi speakers.

Each speaker has three class-D amps on board: one 110W unit for the 28mm soft-dome Cerotar tweeter, a 280W amp for the midrange driver, and one 280W amp for the twin Esotec+ bass drivers (which work in parallel). The Focus 50s – and your ears – are in good hands.

Focus 50 is the only speaker in the family to have a midrange driver. It's derived from the one in the award-winning Contour 60i: a 15cm unit with a powerful neodymium magnet, a glass-fibre voice-coil former and a light aluminium voice-coil. All so it can deliver those critical frequencies with balletic poise.

Handling the bottom end is a pair of 18cm Esotec+ woofers. Unlike other Focus models, there's a copper voice-coil sitting inside the Ferrite+ magnet. That's because, as a pure bass driver, this driver doesn't need to reproduce agile midrange tones – and can extract more punch from the powerful magnet.

Focus 50 is the ultimate premium wireless hi-fi system. True audiophile quality with all the benefits of modern digital streaming technology. Listen brave…

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/focus*


DYNAUDIO

DYNAUDIO Confidence

This is performance

This is Confidence

Meet Dynaudio's flagship speaker family. Confidence is the culmination of more than 40 years of expertise, research, acoustic science and love of music.

It's the finest loudspeaker we've ever created…

Nothing compares to the satisfaction of knowing – for a fact – that something is as good as it gets. Sit back in your chair and listen, secure in the certainty that every detail of the speakers in front of you is dedicated to revealing every detail of the music they're playing. Close your eyes and be delighted.

Confidence means pure performance.

It's the best speaker range we've ever produced, and it's packed with science specifically developed to honour art. Innovative drivers – including the mighty Esotar3 tweeter – combine with a precision-formed baffle, innovative cabinet design and optimised crossover to create the most advanced passive speaker in our history.

Intensive analysis in our Jupiter measuring facility has resulted in the next-generation of Dynaudio's DDC sound-beaming technology – including the new DDC Lens waveguide system. The Esotar3 tweeter in the DDC Lens works in tandem with the new NeoTec woofers, the radical Horizon midrange driver surround and the innovative Compex baffle to ensure music goes exactly where you want it: your ears.

But you won't focus on the tech – you'll be lost in the music. Experience the art of listening on a Confidence system. It's a masterclass in audio.

Confidence 20

We don't think a speaker's size should dictate how good it sounds… so we don't let it.

The compact Confidence 20 takes the performance, the passion and the power of the range's larger speakers, and puts it on a stand.

We've spent years looking at how we could improve on the previous range of Confidence speakers. And, after almost countless hours in design labs, our state-of-the-art Jupiter measuring facility, modelling and simulation suites – and, of course, listening rooms – we've done it.

Like the rest of the range, Confidence 20 features our best-ever soft-dome tweeter, the 28mm Esotar3, plus a new 18cm NeoTec MSP woofer and an innovative down-firing bass port. Its drivers feature cutting-edge developments in air-handling technology (including a much larger rear chamber and optimised venting in the tweeter, plus the new resonance-stabilising Hexis inner dome); ultra-precise diaphragm thickness; powerful neodymium magnets; and the Compex front baffle.

The Esotar3 takes over 40 years of Dynaudio expertise, plus plenty of new learnings from the development of the award-winning Esotar Forty unit – and rolls it all into the finest tweeter we've ever created. A powerful neodymium magnet system, innovations in air-pressure handling, the new resonance-busting Hexis inner dome… it all combines to increase detail, clarity and sensitivity.

The new 18cm NeoTec MSP woofer also has neodymium under the hood, and uses glass-fibre in its voice-coil former for optimum stiffness. The voice-coil itself is aluminium, which provides the right combination of weight and energy-transfer for tighter, more powerful and more controlled bass along with clear midrange frequencies (this woofer must be able to handle them both with equal precision). And the entire motor has been designed to reduce turbulent airflow by using an innovative new venting system that's been machined directly into the magnet.

We're guessing you want to know how it sounds… and the answer is, simply, "like your favourite artist". Nothing more, nothing less.

Confidence 30

Next-generation DDC sound-beaming technology leads the way in the smallest of the Confidence floor-standers.

The tricky thing about producing the best is that at some point you have to beat it. The good thing is that when you're working with the team that created the original, the job becomes easier – and more fun. ▶

So, when the Confidence 30 three-way floor-stander rolled out of Dynaudio Labs in Skanderborg, there was much rejoicing. It tips an affectionate nod to Confidence models past while taking their innovations and their performance to the next level.

Like the rest of the range, Confidence 30 features the Esotar3 tweeter. We started its development when we created the award-winning Esotar Forty anniversary tweeter, and took the advances we made in airflow optimisation, neodymium magnet design and resonance control – and took things up a notch or three (witness the Hexis inner dome, for example).

Also on board are two all-new 18cm NeoTec MSP woofers (which, too, feature powerful neodymium magnet systems and some intensely clever airflow tech); the new, ultra-stable, ultra-rigid Compex composite front baffle; a completely new 15cm midrange driver with the new airflow-correcting Horizon Surround; the new down-firing bass port… and the next generation of the DDC (Dynaudio Directivity Control) sound-beaming technology, including the brilliant DDC Lens around the tweeter.

All of Confidence 30's key acoustic components work in perfect harmony as part of the DDC platform to vastly reduce floor and ceiling reflections while maintaining an accurate horizontal image. It means you can place the speakers in a larger space without needing room treatment, special rugs or custom ceilings or… well, anything. It just works.

And it means you hear only the music you love.

Confidence 50

The Confidence 50 stands shoulder-to-shoulder in height with Confidence C4 – the previous flagship of the range. It's a three-way design with twin woofers and twin midrange drivers. It's stunningly constructed. Stunningly finished. And a stunning performer. It uses DDC (Dynaudio Directivity Control) technology to form a sound 'beam' that avoids reflections from floors and ceilings. And it features an Esotar3 tweeter and MSP woofers.

◀ ***Confidence is no-nonsense***
The towering Confidence 60 is packed with technology to make your music sound as close as possible to how it was in the studio

But it takes all of this – every single component – to a new level.

It all centres on the new DDC Lens – the stunning waveguide around the brand-new Esotar3 tweeter. The DDC Lens has been simulated and topology-optimised to vertically focus the tweeter, midrange drivers and woofers on the listening position. That results in dramatically reduced reflections from floors and ceilings – which means you hear exactly what the driver system, and not the room, is doing.

The 28mm Esotar3 soft-dome tweeter takes decades of Dynaudio expertise, plus everything we gained when we created the Esotar Forty high-frequency driver, and results in the finest tweeter we've ever developed. A powerful neodymium magnet system, innovations in air-pressure manipulation, the new resonance-busting Hexis inner dome… it all combines to increase detail, clarity and sensitivity.

The new 18cm NeoTec MSP woofers also have neodymium magnets under the hood, and use glass-fibre in their voice-coil formers for optimum stiffness. The Danish-made voice-coils themselves are copper – which has more inertia and less sensitivity at higher frequencies for tighter, more powerful and more controlled bass in this specific driver design.

And the entire woofer motor has been engineered to harness air-pressure ▶

variations using a venting system that's been machined right into the magnet.

The Confidence 50's new MSP midrange drivers are a big departure from our previous designs.

They use a radical surround design – we've called it the Horizon – that follows the cone's shape to the very edge of the driver. This reduces its first resonant mode to effectively increase the playing surface and improve performance. The surrounds also sit flush with the baffle to reduce diffraction from the diaphragm and tweeter.

Behind, the basket has a new lightweight organic design – one that's come from extensive simulation sessions. It reduces turbulent airflow, maintains its stability and rigidity and reduces weight simultaneously without sacrificing performance.

Everything is held securely in place in the ultra-rigid, super-damped and acoustically inert Compex composite baffle. It echoes the design of previous Confidences – but brings the look up to date in aesthetics and acoustic principles. That's because it forms an integral part of the DDC Lens system, while providing optimised coupling of the drivers.

The bass port is underneath. And because it fires downwards, we've been able to design it to perform exactly as we want it to without having to worry about putting a big hole in that beautiful finish.

Confidence 60

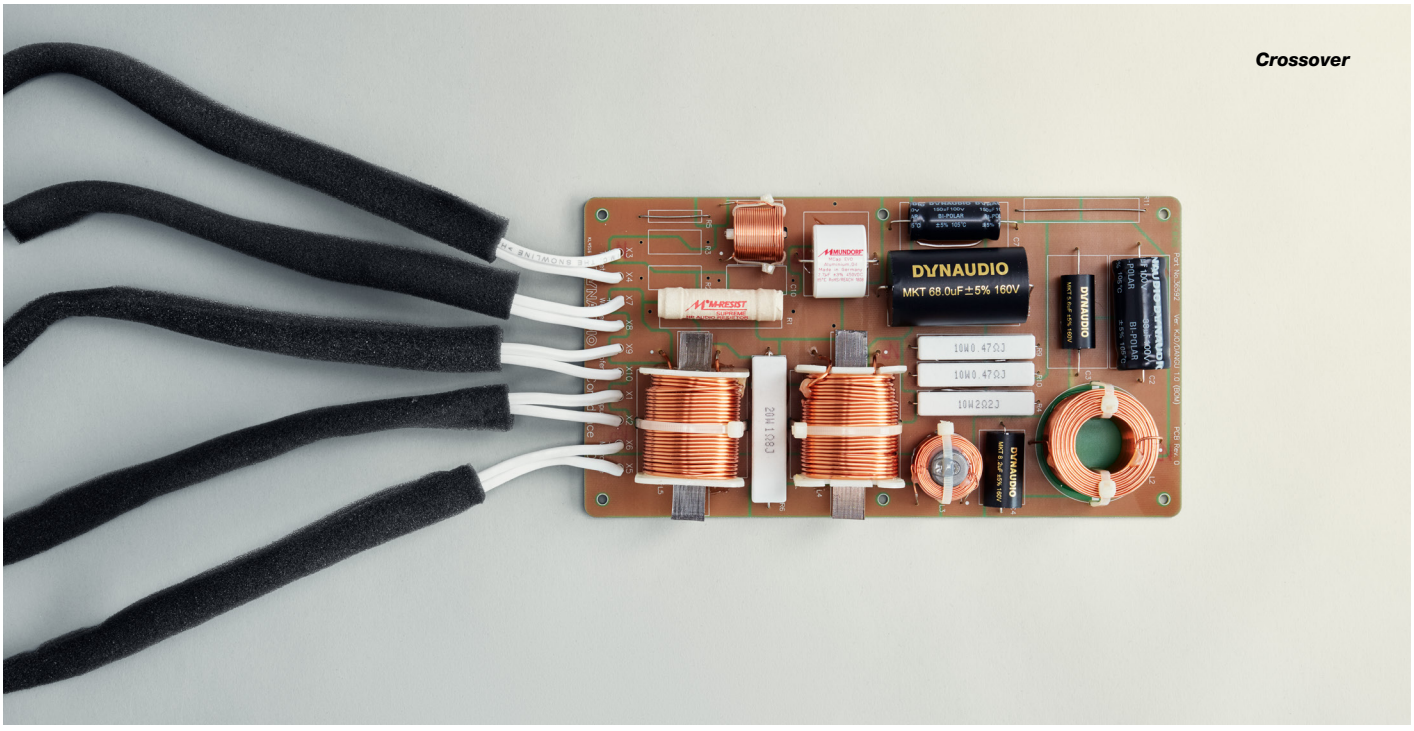
Ultimate performance. Ultimate quality. Ultimate innovation. Meet the flagship model of Dynaudio's most advanced speaker range.

Sometimes size *does* matter. The Confidence 60, the flagship of the family, towers above the outgoing Confidence C4 model. It's unashamedly big; it's unselfconscious hi-fi royalty. And it sounds like nothing else you've heard. Have a seat.

While your ears are captivated by the Confidence 60's astonishing power, scale and detail, your eyes will probably be drawn to the single Esotar3 28mm soft-dome tweeter in the middle. Then the twin 14cm MSP midrange drivers with Horizon surrounds. And, finally to the two 24cm MSP NeoTec woofers.

The drivers are all new to this range. And they're all part of the next generation of our new DDC sound-shaping platform. As it does in Confidence 30 and Confidence 50, it focuses the sound waves radiating from the speakers into a tight vertical 'beam' ▶

▼ ***Hi-fi royalty***
The Confidence family puts sound above everything else

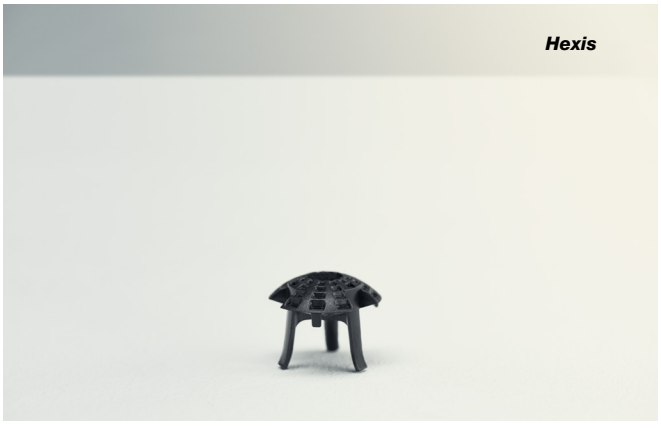


Crossover

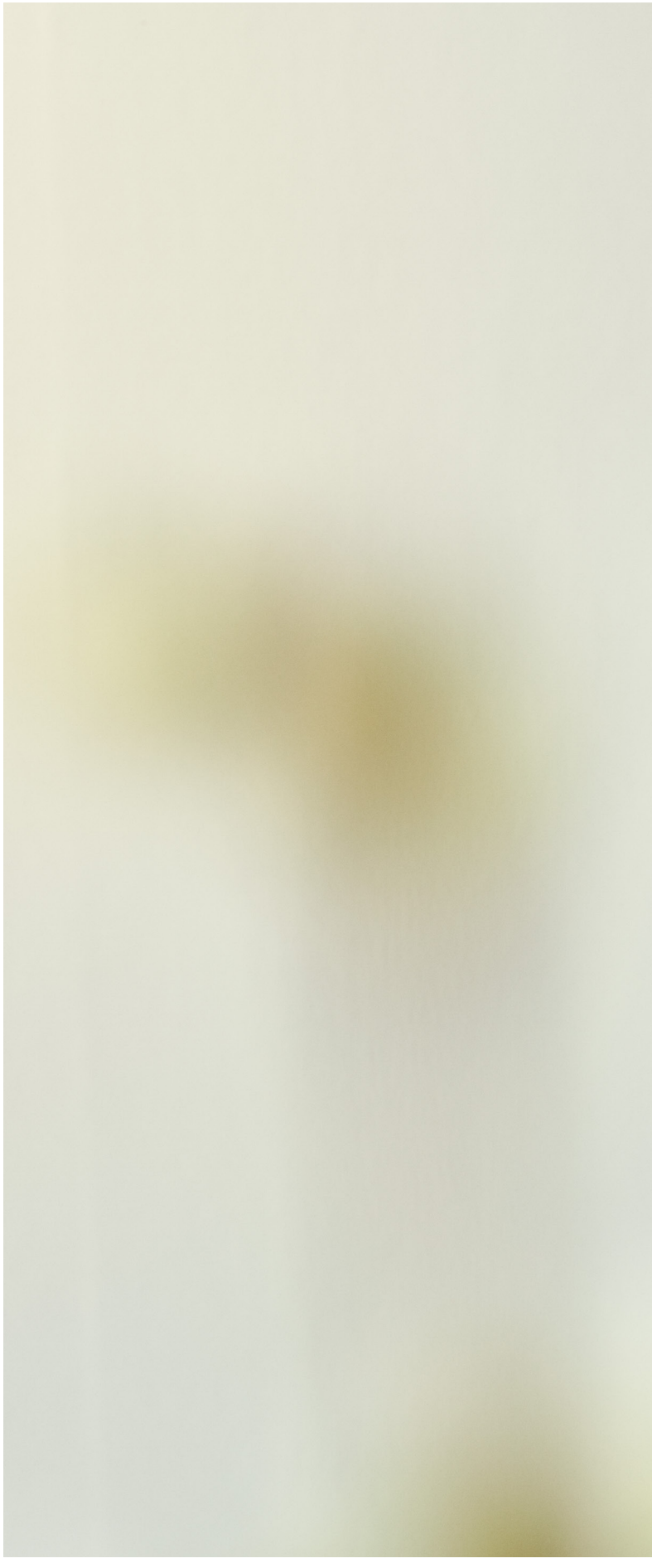
DDC lens

Woofer

Midrange



Hexis



Made in Denmark ►
Each Confidence cabinet goes through a loving finishing process (and a brutal quality-control one)

that avoids reflections from floors and ceilings while maintaining a wide horizontal image. That means a bigger sweet-spot on the couch, a happier audience, and the knowledge that you're only hearing what the drivers are producing – and not what the room itself is bringing to the party.

Everything serves the sound

The star of the show, the DDC Lens, is integrated into the precision Compex composite baffle. This ingenious part (the result of hundreds of hours of simulations, prototyping and listening tests) works in conjunction with the baffle shape, the tweeter and the midrange drivers (notice their brand-new Horizon surround, also part of the system) and the woofers to focus sound waves where they need to go: you. In fact, everything in the Confidence 60 is designed precisely for that purpose. Even the gasket that optimally couples the baffle from the cabinet, and the screws that hold everything in place.

The Esotar3 28mm soft-dome tweeter is based on the award-winning Esotar Forty unit, adds a raft of new technology and combines it in an object of astonishing precision and performance. A powerful neodymium magnet system, innovations in air-pressure management, the Hexis inner dome… all of it works to increase detail, clarity and sensitivity.

The new 24cm NeoTec MSP woofers also have neodymium magnets under the hood, and use three layers of glass-fibre in their voice-coil formers for optimum stiffness. The voice-coils are copper (which provides extra moving mass for increased efficiency at low frequencies). And the entire motor has been designed to reduce turbulence using thanks to the magnet's precision-machined venting system.

Confidence 60's bespoke midrange drivers also use the new Horizon surround, which follow the cones to the edge of the drivers. The Horizon reduces the first resonant mode, increases the playing surface and, because it sits flush with the baffle, reduces diffractions from the diaphragm and tweeter. Like the Confidence 50's unit, their baskets have a new organic design (the product of many hours of testing in Dynaudio Labs).

And – of course – it's all finished in our trademark Danish-designed furniture-grade cabinetry. Perfect performance, perfect quality. What more could you ask for?

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/confidence*

Give your films and music **that extra push**

A great subwoofer won't thunder bass at you. It will enhance your music and films… and make the hairs on the back of your neck stand up

Sub 3 (white) and Sub 6 (black)
Set-up tip: put your subwoofer on your sofa, then walk around the room until you find out where it sounds best. That's where you should put it if possible

Dynaudio subwoofers are about much more than shaking the pictures off your walls and rattling the fillings out of your neighbours' teeth (although they can probably give it a good try if you want).

They're all about giving your films and music that extra push; the extra punch that really makes the hairs on the back of your neck stand up. They're about that final polish on the performance.

Listen to an orchestra at full throttle and it's really loud. It's pure, and musical, and dynamic, and lifting. And there's also a lot of bass. The same goes for live gigs. Or a blockbuster film in a good cinema.

If you want to give your films and music that little bit extra, a Dynaudio subwoofer is the way.

The compact 300W Sub 3 is designed to deliver size-defying weight, authority, punch and power for those critical thunderous movie moments, but remain supple, precise and musical enough to bring something extra to stereo music on your hi-fi. Its Contour-level components and construction, along with a double-thickness front baffle and brand-new 24cm driver, make it the ideal companion subwoofer for any stereo or multichannel system. It can connect to any AV receiver or stereo preamp, and you can fine-tune the satellite speakers' crossover point to ensure seamless integration with the rest of your equipment.

Sub 6 uses advanced intelligent DSP technology that tailors its performance to speakers from Evoke and upwards in our range. Our engineers painstakingly modelled the acoustic characteristics of our most popular high-end hi-fi speakers and created custom performance maps for each one for the subwoofer – so now, two-way set-ups can instantly become three-way systems. Sub 6's punch is delivered by two of our brand-new MSP+ Hybrid Drive units, which combine our own Magnesium Silicate Polymer material with optimised aluminium and paper construction for two kinds of resonance damping. It's all powered by a high-quality 500W amplifier.

Bass instincts

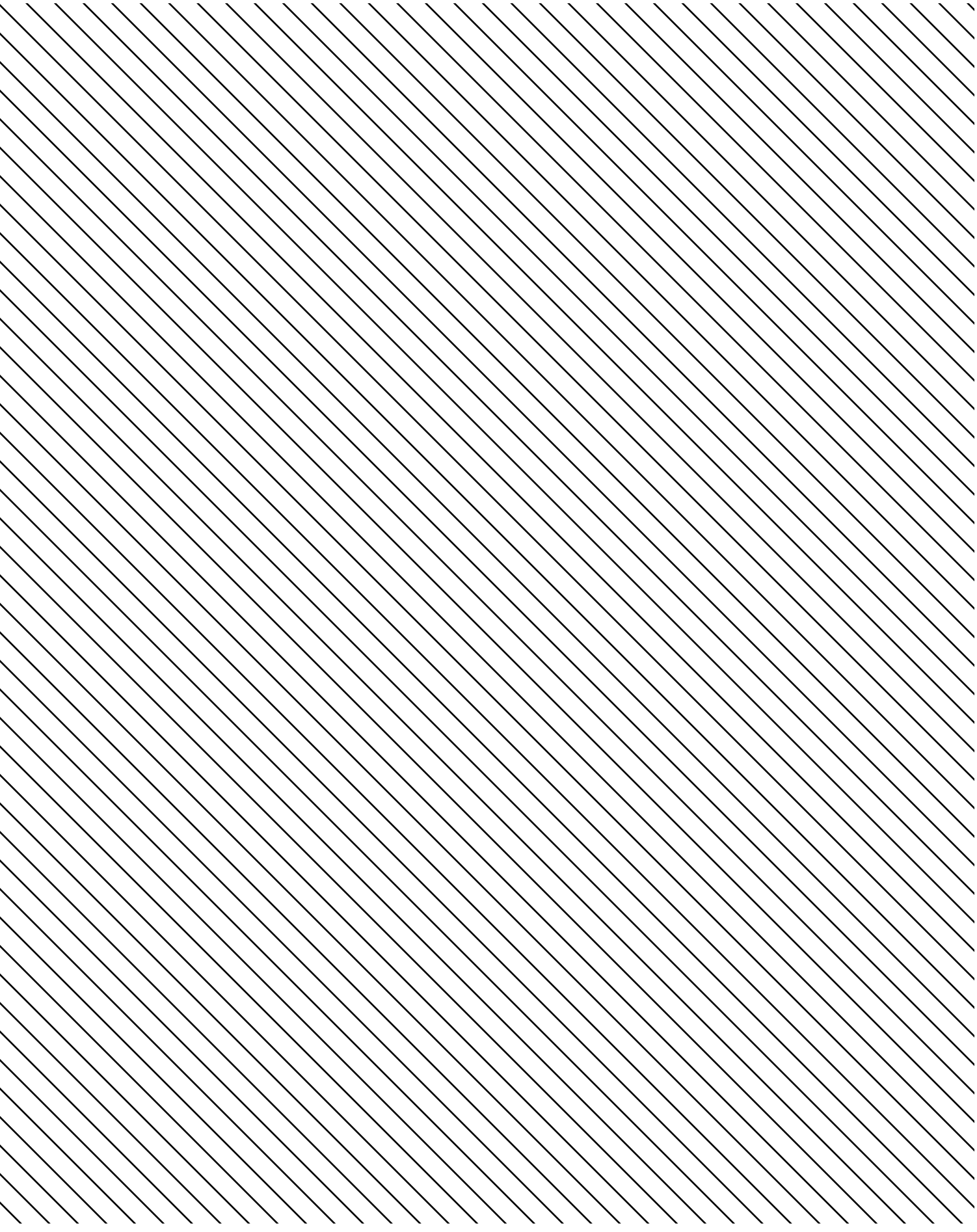
A sub's job is to blend in. It should contribute without taking charge, and you shouldn't hear it during dialogue.

Bass is less directional than treble or midrange. That means it's easier to experiment with your subwoofer's (or even subwoofers', if you're using more than one) position to find the best solution for your room.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/subwoofer*

PRO AUDIO



AS SMOOTH AS A GREAT MIX **AS ROUGH AS A BAD ONE**

What if you could use the same technology in your own studio as the major players use in theirs? You can…


DYNAUDIO

LYD 48

Who said personal monitors needed to be black? Not our designers…

Why should the big-name studios have all the fun? LYD uses all the knowhow we've gained through supplying some of the world's most legendary recording spaces with full-on reference monitor systems – and fits it into a pair of compact nearfield speakers.

And it isn't a poor cousin of our larger systems, either. LYD is a complete redefinition of our own products – we went back to the drawing board to find out exactly how much further we could take those concepts.

As it turns out, the answer was 'quite a lot'.

Active nearfield studio monitors need to present the unvarnished truth: no colouration, no distortion, no flattery of the material. You need to be able to hear exactly what each thread of the music is doing – so, when it comes to mixing and mastering, you know you can deliver what the artist wants.

LYD combines decades of experience in producing no-compromise reference systems for major studios all over the world, with expertise in home and car audio, digital processing technology and materials science. And that combination means you'll hear nothing but the truth.

Looks that thrill

But we don't believe personal monitors need to look like standard black boxes. You've taken pride in building your studio; you want artists to feel invited, inspired, immersed in the music. So we've applied the same creativity to LYD as we do with our home hi-fi speakers – and we're glad the people in the design department insisted on it, because… well, aren't they cool.

LYD is designed to be a monitor anyone can use without a manual. Just getting started in your engineering or producing career? That's daunting enough as it is without needing to decipher another complicated set of switches and dials on the back of your speakers. Seasoned pro? Then why should you have to learn a new set of controls? You shouldn't.

Just tweak the wall-position or Sound Balance tilt-filter (for a brighter or darker sound) and you're done. Best of all, you don't have to crank them to hear them at their best – which is hard to do if you're in a smaller or home studio. LYD is designed to sound the same however loud you turn up the music.

Now it's time to create… ▶

▲ ***Serious about sound***
Joe and the Juice uses LYD for its in-shop music system

LYD 5

LYD 5, with its low-volume precision, is the ideal complement for any small studio set-up. It uses the same lightweight aluminium voice-coils in its handmade 5in MSP drive-units as our high-end hi-fi speakers, and pairs them with cutting-edge Class-D amplification as well as a 24-bit/96kHz signal path with advanced DSP.

LYD 7

This monitor uses sophisticated DSP to extend or curtail its low-frequency response by 10Hz, while Position and Sound Balance controls let you fine-tune for total neutrality in your environment. Its larger 7in woofer helps extend bass, while the low-mass aluminium voice-coil, vented ferrite magnet and MSP driver take care of precision.

LYD 8

With its 8in MSP woofer and state-of-the-art DSP, LYD 8 provides the kind of performance, precision and bass heft that dreams (and maybe hits) are made of. Like the rest of the range, these nearfield monitors let you tune them for their position, have handmade drivers, and contain advanced Class-D amps.

LYD 48

This three-way near-to-midfield monitor reaches eyebrow-raising levels of accuracy thanks to a refined soft-dome tweeter and Dynaudio's proprietary MSP midrange driver and woofer. Each driver is fuelled by a powerful, state-of-the-art Class-D amplifier and a full 24-bit/96kHz signal path. And, like the rest of the LYD range, it lets you fine-tune low frequency response, position and sound-balance using cutting-edge DSP.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: dynaud.io/lyd


DYNAUDIO BM
SOME THINGS
NEVER GO
OUT OF STYLE
Consistent, reliable, enduring… and trusted by some of the world's most influential studios. The BM series has been on the front-lines of music and broadcast since 1996


DYNAUDIO

You're facing an uphill struggle when you try to build trust in the professional audio business. The people who use high-end monitors every day need to rely on them for their work – and their studio's reputation. And that hard-won trust is difficult to keep, too. The BM series has been trusted by studio pros for the past 26 years (and counting).

The range is made in Denmark using time-honoured materials and techniques for total consistency across the entire line. And that doesn't just mean between pairs – it means between *multiple* pairs. So if you're building a stereo suite, a full multichannel or immersive mix-room or even spreading them across a fleet of OB vehicles, you know you'll get the same accurate, uncoloured performance whichever way you point your ears.

Sure, it might not have all the bells, whistles and industry-wowing digital signal processing of our LYD (p132) and Core (p142) ranges, but the phrase 'if it ain't broke, don't fix it' could've been invented for the venerable BM.

It stands for 'broadcast monitor'. That should give you a clue about the pressure it's under. The BM range has helped its users through all-night sessions, got them out of on-the-spot jams and endured impossible deadlines in countless studios all over the world – including the BBC, the Danish Broadcasting company and many more.

Now *that's* pedigree.

BM15A

The BM15A is a relatively large two-way analogue active system comprising a large extended-excursion 10in (240mm) woofer, a unique version of the 28mm Dynaudio Esotec soft-dome tweeter and an electronic phase-aligned crossover, which feeds the built-in dual high-performance MOSFET amplifiers.

The Esotec high-frequency driver has a dynamic headroom of 1000W, and the bass driver is world-renowned for its 4in (100mm) aluminium alloy voice-coil.

The hand-built cabinet is front-ported for powerful and extended low frequency response, and the elegant matte design has radius edges on the front baffle to reduce boundary effects and improve the overall performance.

Whether you're working in music, broadcast, post-production – or all three – the BM15A will provide you with years of authentic and reliable reproduction.

BM6A

The BM6A is a medium-size nearfield analogue active monitor that uses an electronic fourth-order phase-aligned crossover with a crossover point at 2.2kHz. It feeds two high-performance discrete MOSFET amplifiers rated at 100W each.

◀ ***They've still got it***
The BM5 MkIII series is still packing a punch in studios across the world

◀ ***Heavy-hitters***
The BM15A series is perfect for medium-to-large studios

Its size makes it ideal for small-to-midsize control rooms, broadcast trucks and production facilities.

The low-frequency section is driven by an LF equalizer offering a choice between extended, critical damped response or more conventional higher Qt response for more volume but lower bass output. And if you do decide to crank it, the electronics have your back thanks to a protection circuit that helps to prevent accidental damage to the drivers while still providing maximum transient response.

Like the BM15A, the BM6A's cabinet has radiused edges to counter unwanted boundary effects and keep things as accurate as you need them to be.

BM5 MkIII

The compact BM5 mkIII is the next generation of the tremendously successful gen-two model.

It's tailor-made for nearfield monitoring thanks to its killer combination of sonic precision, wide frequency response and high SPL. And if you're an engineer who likes to tweak, its active DSP will put a smile on your face: high-, medium- and low-frequency trim selectors, a high-pass frequency selector and digital power amps give you the flexibility and control you need in your room.

It offers increased SPL, broader frequency response and better power handling compared to the previous model, while its ultra-high dynamic range and hand-crafted drivers deliver performance superior to many larger, more expensive monitors.

The BM5 MkIII's large-diameter voice-coil surrounds the magnet behind the 7in (180mm) MSP main driver for superior linearity, while the aluminium voice coil former and wire are low-mass – so transient response is quick and accurate. Essential when you're listening for fine detail into the night.

Into the mix

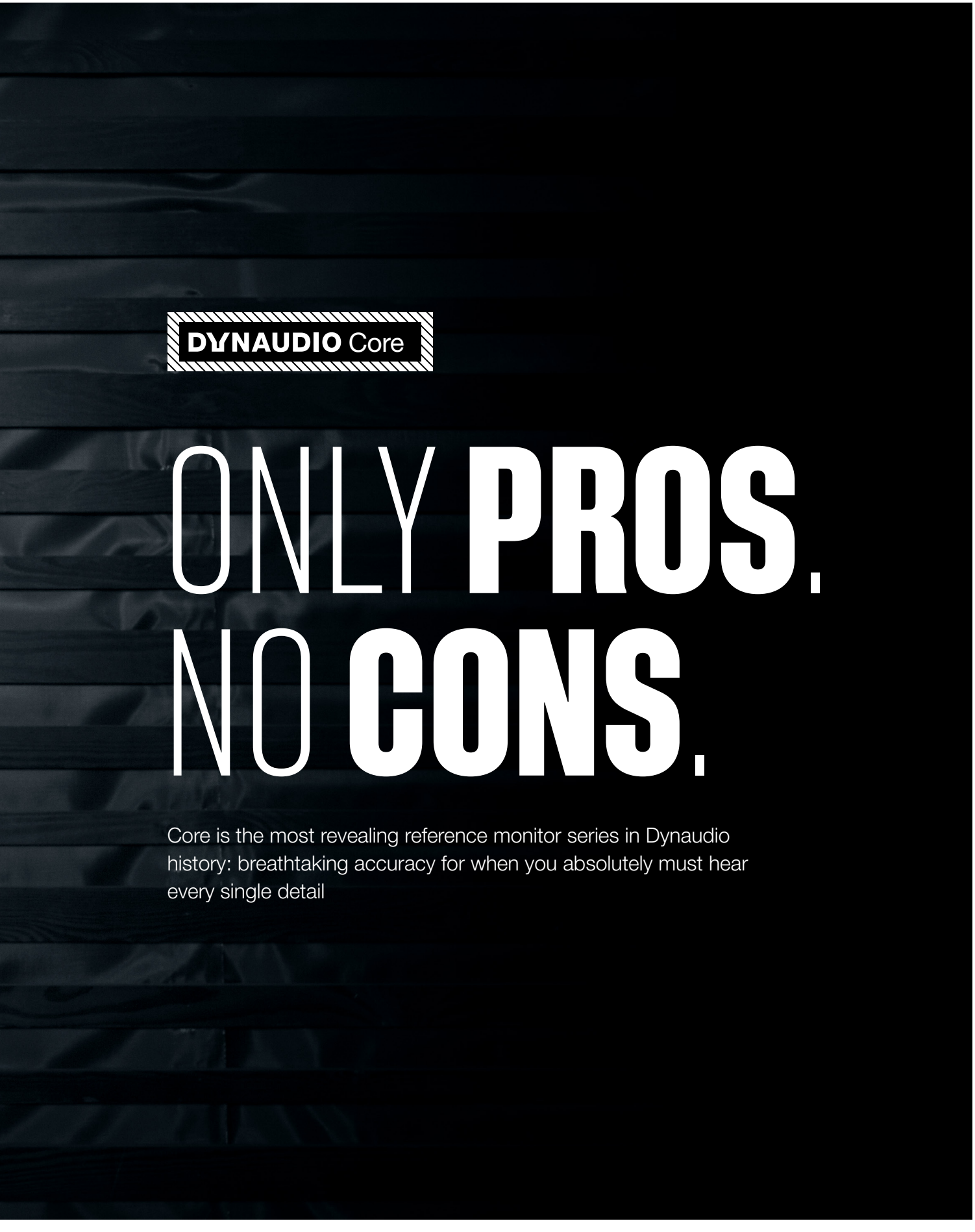
No worries about accuracy here: the 6.5in (170mm) woofer is made from Dynaudio's very own MSP (Magnesium Silicate Polymer) material – giving it precisely the right combination of lightness, stiffness and damping to play low frequencies at high levels without unwanted distortion.

The precision 28mm soft-dome tweeter, meanwhile, has been specifically optimised for clean, uncoloured high-frequency performance. And it's performance that won't wear out your ears even after long stints at the desk.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/bm*


DYNAUDIO


DYNAUDIO Core
ONLY PROS.
NO CONS.
Core is the most revealing reference monitor series in Dynaudio history: breathtaking accuracy for when you absolutely must hear every single detail

Every great studio has a great reference system at its heart. Producers, engineers and musicians rely on reference monitors to reproduce exactly what was recorded – warts and all – so they can listen to, tweak and perfect their work. The new Core series meets the toughest demands that career professionals can place on their monitors to help them create the most compelling audio productions. They give you everything you need to hear.

If it sounds great, it *is* great

Our engineers and designers took the legendary Dynaudio AIR-series speakers found in the best studios worldwide, then evolved them, enhanced them, simplified them and perfected them. Each Core model has been engineered and built in Denmark to perform flawlessly in this high-stress environment, faithfully reproducing your sound as you create it.

Trust is critical in this business. Whether you're recording a power-trio or an orchestra, mixing a solo voiceover or video-game soundtrack, or mastering a full immersive audio project, you need to trust your monitors. Core monitors deliver the truth to your ears without compromise. If it sounds great, it is great. If there are problems in the mix, you won't be lied to.

Witness Core's all-new Esotar Pro tweeter, which incorporates the resonance-defeating, frequency-response-smoothing Hexis inner dome. And check out the low-frequency drive-units: copper voice-coils, glass-fibre formers and ceramic magnets enhance the 'BI' (force factor) needed for punchy, deep, and accurate bass – whether you're monitoring at low-level or the band is standing behind you and are demanding you crank it.

Active, digital and awesome

Dynaudio has been at the forefront of digital processing in monitor systems since we introduced the AIR series in 2002. Core builds on that legendary design with the latest in DSP and AES3 digital connectivity, giving you all the refinements that come from the AIR experience found in so many studios. And more: Core also features analogue and digital inputs with simplified (yet more usable) DSP settings.

Using the analogue inputs, all audio is processed at 192kHz for the crossover and tuning, yielding the most accurate reproduction possible. Class-D amplification from Pascal provides the power and punch, delivering the finest details along with the deep, visceral bass that our reference monitors are famous for. AES digital inputs are provided for the most direct signal path available, with external word clock to synchronise with your studio's infrastructure.

Core 7

Core 7 is designed for maximum flexibility and performance where its compact size is desirable. This includes recording studios, edit suites, broadcast trucks, mobile facilities, broadcast and theatrical dub stages, immersive audio mixing rooms and custom installations. And because its size doesn't diminish its performance either in frequency response or output SPL, it plays seamlessly with Core 59 monitors in calibrated systems.

This no-compromise two-way design features two class-D amplifiers (one 500W amp for the mid/woofer and a 150W unit for the tweeter), plus the best of modern DSP technology and bass response that's flat down to 40Hz.

Positioning is critical when installing a monitor system. That's why each Core 7 has two DSP filter switches to address its position and boundary locations. For example, if you place the monitors on the meter bridge of a large-format mixing console, set them to 'Desk'. This will help compensate for the first reflection created by the mixing surface. If you put them into a purpose-built wall, setting the Position 1 filter to 'Soffit' compensates for the increased bass.

Boundary effects created by placing a monitor close to walls or a ceiling can be compensated for by adjusting the Position 2 filter between 'Wall' or 'Corner'. These filters help compensate ▶

Core 59

Want the tweeter lower down? Unscrew and rotate the Orbit baffle, then turn it (or even the whole speaker) upside down. It's as simple as that

◀ ***The best desk job ever***
Got your Cores on a meter bridge? There's a DSP setting for that

for the reflections created by the boundary walls, especially in the lower frequencies. There's also a low-frequency 80Hz Linkwitz-Riley high-pass for pairing with a subwoofer.

Users can alter the overall presentation with the Sound Balance filter – a different design to typical shelving-EQ tweeter and woofer adjustments found on most active monitors. Instead of simply fine-tuning the tweeter level up or down, Core 7 uses a full-spectrum filter that tilts depending on the desired tonal response. It maintains the proper phase response between the drivers while providing a balance that meets your tastes.

Built to perform

We've made sure Core 7's cabinet is as stiff and inert as we could make it – hence the 32mm thick baffle, which contributes to its excellent linearity across the spectrum. And since every application is unique, we've put indentations for the Core 7's specially designed feet on all four sides to make positioning as straightforward as possible.

Working in a multichannel environment? No problem. There are custom K&M brackets available for mounting Core 7 in orientations suitable for surround sound, immersive audio and other custom configurations.

And, of course, each driver unit is handmade in Denmark. Since we control the whole process, we can ensure extreme consistency. You can use Core monitors in multiple studios and have them all perform at the same high level.

Core 47 ►
Arrange your system just how you like it: all Core speakers can be used on any of their four sides

Core 47

Studio professionals need to know recordings will sound the same at 10pm as it did at 10am. And they need to know that they don't need to worry about listener fatigue.

Trust is something that's earned. Core 47 is ready to earn yours by giving you the most accurate reproduction that the latest tech and more than 40 years of expertise can provide. And when we say 'accurate', we mean it: all Core monitors are calibrated to within a reference of 0.2dB at our factory in Denmark. You can install 100 and they'll all perform identically.

Core 47 is the mid-size model of our flagship professional reference monitor series. Our engineers codenamed it 'Bulldog'. You'll know why when you fire it up.

This compact three-way monitor features an eyebrow-raising 500W + 500W + 150W of Class-D power from Pascal amplification, as well as sophisticated digital signal processing and a flat bass response down to 39Hz at ±3dB, and 35Hz at -6dB with a gentle roll-off. And it reaches all the way up to 31kHz. (Never let it be said monitoring can't give you a real high.)

Driving force

Let's take it from the top. Dynaudio studio monitors have always been famous for their revealing detail. The Esotar Pro tweeter takes the word 'revealing' to a new level. It uses innovative air-management technology (as well as a powerful neodymium magnet) to ensure that what went in, comes out.

The Hexis inner dome sits just behind the tweeter diaphragm and helps to eliminate unwanted internal resonances. The result is the best imaging, transient detail, and effortless high-frequency response. It's the kind of tweeter you can listen to long into the night during marathon mix sessions. Full detail and clarity, but no fatigue.

The 4in midrange driver provides staggering detail. It uses our proprietary MSP material in its one-piece cone for the perfect balance of lightness, stiffness and damping. That, coupled with an aluminium voice-coil and neodymium magnet, means an incredibly fast response and authoritative control. With crossover points at 475Hz and 5.25kHz, Core 47 delivers so much more of the critical vocal range in one driver than typical designs.

Core 47 and Core 7 share the same woofer. However, in a three-way design, this driver can focus on deeper bass. This helps deliver the lower frequencies deliver awesome clarity, while the amplifier's power and gentle roll-off let your ears (and your recordings) take full advantage of all the depth on offer. And, most importantly, all this energy is tonally accurate, letting you equalise bass instruments, kick drums, and sonic booms.

Because each driver is handmade in our factory in Denmark, we can maintain incredibly small tolerances. This consistency means you can use Core monitors in multiple studios and have them all sound and perform at the same high level.

The Dynaudio AIR series was famous for its advanced DSP system. But times have changed, and our acoustic engineers are restless folk… so they've spent the intervening years innovating. That's resulted in some great leaps in DSP sophistication – but also in the way it's applied in everyday use. You wanted something easier to use, and that's exactly what you've got – with even better performance.

Place it where you need it

Core 47 can optimise itself for differing acoustic environments. There are three settings: 'Anechoic', for when the monitors are placed on stands in rooms that have sufficient dampening treatment (such as recording studios and dubbing stages); 'Desk', for when they're on a workstation or meter bridge; and 'Soffit', for when they're mounted as part of an architectural acoustic design. You can also set filters that compensate for walls or corners that trigger unwanted low-frequency effects.

We've marked the speakers 'left' and 'right', but tweeter position depends on your room. Core 47 can be used tweeters-in or tweeters-out, depending on the room and listening position.

Like Core 7, users can also alter the overall presentation. In the 'Dark' setting, the entire frequency response is tilted so that 20kHz is down -1.5dB while 20Hz is up +1.5dB. In the bright setting, the tilt is reversed (+1.5dB at 20kHz and -1.5dB at 20Hz). ►

◀ ***As you like it***
You can adjust the overall balance with a sophisticated tilt filter

The noise-floor and signal resolution of any monitoring system is critical to its performance; you need to be able to control the gain staging between the monitor controller and the speaker system. We've provided a range of 0dBu to +24dBu to match the input sensitivity to the output level. Once optimised, Core 47 processes all analogue signals at 192kHz for the greatest degree of mathematical precision from the advanced DSP processor.

When using the AES digital inputs, there are two settings: one to determine which channel (L or R) of the AES stream is used for that monitor, and a second to determine the maximum output SPL. If you want maximum output SPL, set this to 112dB (124dB peak for a pair half space). If you work mostly at lower levels, choose a lower SPL setting to optimise the bit resolution of the AES input for the best linearity.

When using the AES input, Core 47's DSP operates at the incoming sample rate and either locks to the AES clock or incoming word clock to maintain the most accurate signal possible. That means if you work in 48K, for example, you can send the signal straight to your speakers in 48K. It's as simple as that. Unlike other competitors there is no sample-rate conversion. You give it 192, it does 192.

We've made sure Core 47's cabinet is stiff and inert, so all the vibration energy goes where it's supposed to. That's why we've given it a super-thick 32mm baffle, which contributes to its excellent linearity across the spectrum and means you can place it anywhere for a wide range of uses.

Core 47 is a no-compromise three-way monitor that delivers the best modern DSP-optimised performance and effortless power in a compact enclosure designed for every audio professional. This is what performance sounds like.

Core 59

Say hi to the flagship of our high-end professional reference monitor series: a three-way speaker featuring uncompromising class-D amplification, cutting-edge digital signal processing, an inert 32mm-thick baffle and bass response that's flat down to 39Hz at ±3dB (-6dB at 36Hz).

Core 59 has been made for the highest-demand environments that engineers, mixers, producers, and editors work in – and has been specifically designed to solve many of the monitoring issues that career professionals face every day.

The speaker's 5in midrange driver provides staggering detail. It uses our very own MSP material in its cone for that holy trinity of lightness, stiffness and damping – and, coupled with an aluminium voice-coil, has an incredibly fast response and authoritative control from its neodymium magnet system. With crossover points at 312Hz and 5.1kHz, Core 59 conveys more of the vocal range in one driver than typical systems, ensuring your mix decisions on vocal balances and dialogue subtleties are made with total confidence.

Core 59's 9in bass driver has emerged from over 18 months of intensive study into our own subwoofer driver technology (see p150), which dives all the way down to 36Hz. The outcome of that research is a new copper voice-coil and glass-fibre

Core 59 ▶
You asked for a simpler back panel, you got a simpler back panel

former, pushed by ceramic magnets and a 500W class-D Pascal amplifier. It gives the long-excursion woofer even more grip on the bottom without sacrificing a deep frequency response.

When we revolutionised studio monitoring with the AIR series, we also revolutionised speaker positioning. Literally. AIR's sealed mid/tweeter unit made it possible to use a three-way speaker in multiple orientations without compromising the midrange driver and tweeter's phase response. Core 59's Orbit baffle rotates too, so you can use it in left, right, or centre-channel orientation. You can even position the woofer above the tweeter/midrange assembly for placement in front of a console in an LCR array.

Off the menu

The AIR series was famous for its advanced DSP system – but it's fair to say that its on-screen menu system could have been more intuitive to navigate. It's a good thing, then, that our acoustic engineers don't believe hands are for sitting on: they've constantly been looking for better and more innovative ways of doing things. You asked for something easier to use; we gave you physical switches.

Like Core 7 and Core 47, each Core 59 has two DSP filter switches to address its position and boundary locations, as well as a fourth-order 80Hz Linkwitz-Riley cut-off for subwoofer pairing, and the powerful Sound Balance full-spectrum filter for setting the overall tonal response to your tastes and room. And, again, you can match the analogue input sensitivity to the output level.

Core 59 is ready to be installed in high-SPL immersive audio and other multi-channel environments with both analogue and digital connectivity, DSP-controlled acoustic response, and versatile positioning – and mixed-and-matched with other Core monitors. That means complete tonal consistency.

It really does give you everything you need to hear.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/core*

DYNAUDIO Pro subs

Big bottom

Accurate monitoring means hearing every frequency with equal clarity. A great subwoofer will give you that clarity – reliably, consistently and without overpowering your mix

9S

The 9S subwoofer is designed to complement LYD and other Dynaudio Pro monitors, including the classic BM.

Studio-quality components and construction make the 9S, with its double front baffle and 9in long-throw driver, the ideal subwoofer for your mixing and mastering projects. We made it a priority to make the 9S compact while ensuring total sonic accuracy.

The 9S will expand any studio monitor setup regardless of whether you're working in stereo or surround. Its massive yet tight low-end takes the burden off your monitors – letting them focus on delivering the frequency range above 50-150Hz, depending on how you set the crossover filter. A long-throw driver ensures the movement necessary to reproduce super-low frequencies – down to 22Hz – in great detail. There's a 300W Class-D amp running the show.

18S

Adding 18S to your monitors will open up a new world of performance that lets you mix and master with painstaking accuracy… and deliver pristine tracks that translate beautifully to any playback system.

We've applied advanced DSP modelling that acoustically matches 18S to any Dynaudio Pro Studio Monitor from BM to LYD, turning two-way systems into three- or even four-way set-ups with tailored roll-offs. Its punch is delivered by two MSP+ Hybrid Drive units and a 500W amp.

The 18S has RCA and XLR inputs, and comes with some handy features to help more advanced systems. This includes the ability to set a time delay to ensure the sub and speakers are perfectly in sync: all you need to do is enter the distance from the sub to the speakers and the sub adjusts itself using time and phase delays. There's also a full three-filter parametric EQ to easily defeat accuracy-bothering room modes.

Core Sub

Core Sub is the ideal low-frequency extension for all speakers in the Core studio monitor range.

And when we say 'low', we mean it: it digs down with a flat response to 15Hz with a 6dB roll-off at 13.5Hz. There's no meaningful low frequency that it won't reproduce utterly faithfully.

Combine its hand-crafted cabinet – made at our factory in Denmark – with four of our latest low-frequency drive units and 1000W of Pascal class-D amplification, and you get a subwoofer worthy of supporting the ground-breaking Core speakers.

Core Sub uses the same DSP engine found across the Core range, which means you can customise its response based on where it's placed in the room. Its analogue and AES digital inputs let you calibrate it for any configuration ~from single-channel extension through 2.1-channel bass management and on to a theatrical LFE channel with the headroom to really nail it. Put your Cores in HP and you're ready to go.

It also means the Core Sub's behaviour and tonality is identical to the monitors – which means you get a complete, tonally integrated system. It's physically integrated, too. The design means you can stack more units and combine them with other Core products. You can even use the VESA mount if you want it up on the wall. And it's mix-and-match. For example: add two Subs per side with a Core 47 in between, regulate the dB and all is aligned physically and sonically. (Although we can't promise your platinum discs will stay in the same place on the wall.)

Each Core Sub delivers 120dB, integrating perfectly with the power on offer from the rest of the Core series. It's versatile when it comes to the rest of your system, too – it's digital and analogue (so you won't have to re-tool your whole studio if you're working in a completely analogue set-up), you can stack up to three together and on the top there are indentations to perfectly align any core monitor.

WTF is MSP+ Hybrid Drive?

Core Sub has four 9in side-firing handmade Dynaudio hybrid woofers – Dynaudio's new MSP+ Hybrid Drive units – which are made primarily from aluminium for stiffness, and are designed specifically for subwoofers. Normal diaphragms just wouldn't be able to handle the (sound) pressure.

To counter ringing from the aluminium, it utilises a dual-action damping system that combines paper dampening on the back of the driver and Dynaudio's own Magnesium Silicate Polymer material in a dampening cap on the front, ensuring the best performance.

This driver is an improved version of the one you find in the highly acclaimed 18s woofer. The quest was simple; make the best bass driver possible.

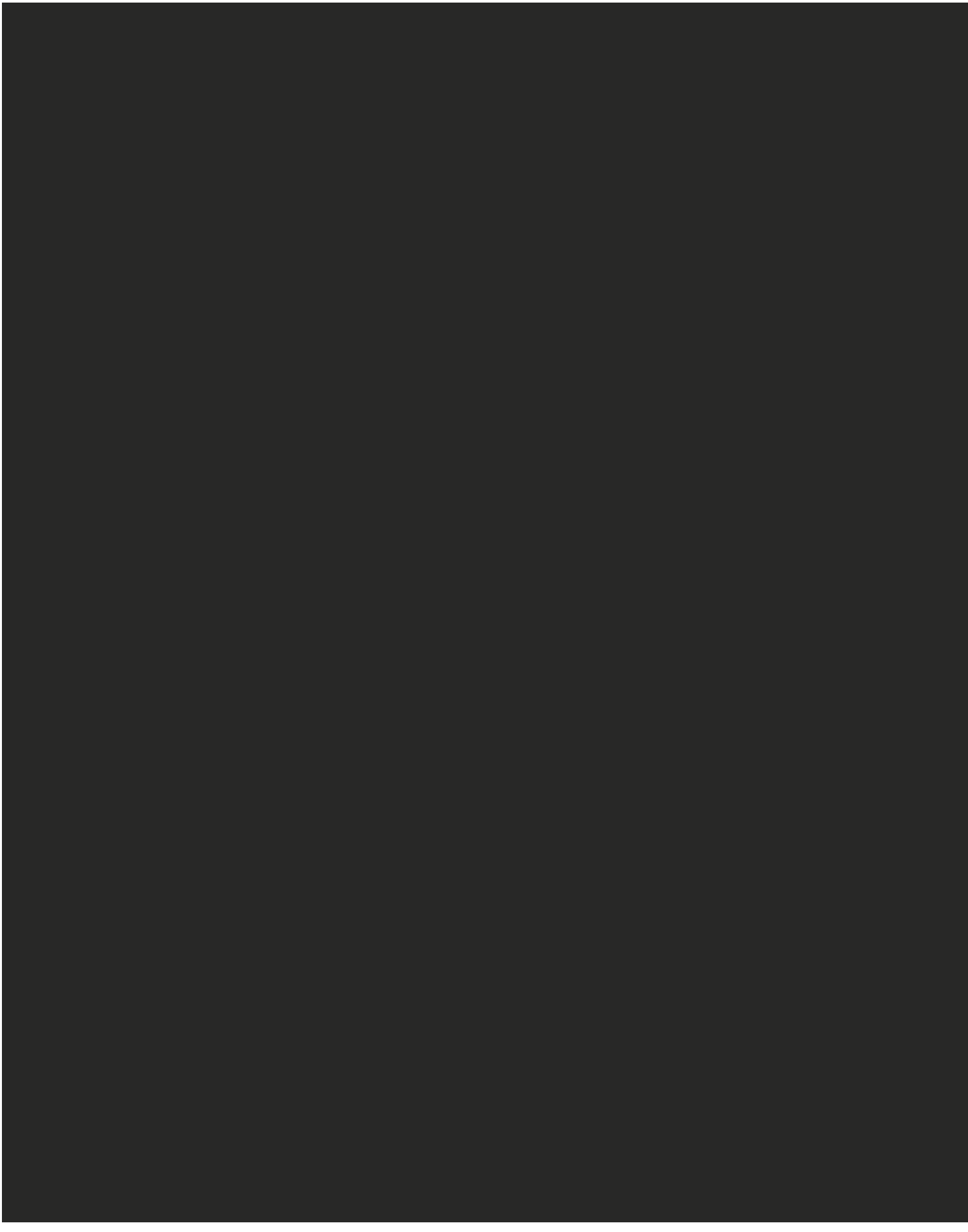
Make no mistake: Core Sub isn't just another boom-box. This is a highly accurate low-frequency delivery system.

Get ready to be moved. Literally.

WANT TO KNOW MORE?

Visit our website for more or to find a dealer and book your next listening session: *dynaud.io/prosub*

Double bass
We call this the Core Master Stack.
We think that says it all, really…



CAR AUDIO

Sound that **drives you**

Ferdinand Porsche built the car he couldn't find. Dynaudio's done it with in-car sound: we bought a Porsche Cayenne, stripped it back and are using it to show what's possible

A year and a half of development, 21 loudspeakers and a range of 121 decibels: the key data for the new Dynaudio Consequence concept sound system clearly shows the claim. We built it to show how we envision top performance and maximum sound quality in a car.

As a prototype, the system was presented in a customised Porsche Cayenne at the Guangzhou motor show in China in 2021. "This vehicle provided us with the perfect platform because it offers enormous potential, both from a quality and existing possibilities perspective," explains Bjarke Pihl Bovbjerg, Head of R&D Automotive. There are 21 speakers arranged in the vehicle. Take a deep breath… two 240mm front woofers, two 240mm rear woofers, a 240mm subwoofer, five 110mm midrange drivers, seven 80mm midrange drivers and four 30mm tweeters together produce 121dB, which is equivalent to the volume of a live rock gig. (Of course, you don't *have* to crank it… but we won't say you shouldn't.)

The speakers have stiff aluminium speaker chassis and custom grilles with just the right aluminium-to-air ratio and the shortest waveguide possible for effortless accuracy. They also have a new extreme-long-throw magnet system for a more linear excursion and a low Q, even at high excursions. (In English, that means it's well-damped for incredible precision.)

The system also offers amplifiers that have never been seen before in a car. Power isn't a problem. At all. In fact, it's pretty close to the voltage you'd find in home or professional amps.

"In terms of components from loudspeakers, amplifiers and mixing, there's nothing comparable on the market. Here we have drawn from the full range," says Bovbjerg. Special attention was also paid to integration. In addition, any technical gimmicks that only artificially simulate a listening experience are dispensed with. "The sound is still pleasant to listen to at high volume, which increases the quality even more at normal volume… and that means you get a really relaxed and comfortable environment."

Another advantage: since many professionals rely on Dynaudio in the recording studio, music can be played in the car using the same technology with which it was recorded – so the system reproduces the sound as it was intended by the sound mixer. "For example, we use our soft dome tweeters instead of hard materials like titanium, ceramics or even diamonds. And we give our system a lot of 'air', which means that the sound experience remains pleasant for hours," Bovbjerg adds.

For those about to commute, we salute you…

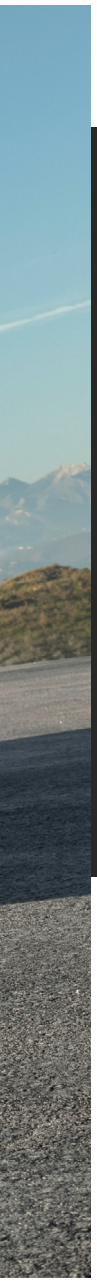
A sustainable future

The Consequence system – named after one of our most legendary hi-fi speakers – represents bleeding-edge technology and the long-term positioning of our company in an e-mobility-shaped future. After all, as e-cars become quieter in the future, the demands on in-car sound systems will change. It's quieter in the cabin, for one thing. And weight matters.

The system's uncompromising quality is also a commitment to sustainability in the sense of high value and durability. We've also paid close attention to the materials used and the value chain during development to ensure that production can be handled more responsibly for the environment.

◀ ***No corners cut***
We've even custom-designed the grilles for acoustic precision

◀ ***Good sound for good driving***
From the sporty e-hybrid R line to the new 20th anniversary edition, Dynaudio has a long history with the VW Touareg



Happy birthday, **happy listening**

The VW Touareg celebrates its 20th anniversary in 2022 – and we're setting the high-end premium standard for SUVs with its Confidence sound system

Since we first started working with Volkswagen back in 2004, we've offered systems for many of its models. The Touareg is the flagship model in the SUV segment. Its flexibility in terms of driving dynamics – whether you're driving to work on the highway, tackling some challenging country lanes at the weekend or heading off-road – has always presented our R&D experts with a special challenge.

After all, the sound system has to function in all situations and deliver premium quality whatever's going on under the wheels. And especially in a car that'll last its owner for so long.

Speakers everywhere

We've installed a total of 14 speakers throughout the vehicle's interior. And we took advantage of all that space to really stretch our acoustic legs when it came to sound development.

Clear highs and rich bass without booming. Classical, EDM or metal. Like the Touareg, the system keeps its composure without any fuss – even when you're pushing its limits.

During its development we thought about everything from interior temperature zones to outside noise and possible vibrations that could have an influence on musical enjoyment during an on- or off-road trip. We even thought about what would happen if you open the door in the rain, and made sure those speakers are especially protected.

The specially designed high-performance three-way system consists of a 20cm MSP woofer, a dedicated midrange speaker and fabric tweeters in the front and in the passenger doors. The rear doors each contain a two-way speaker system with a tweeter and a mid/bass driver. An additional two-way centre speaker is located on the dashboard in the front.

The powerful subwoofer, placed in the trunk, completes a surround system whose penetrating effect is further enhanced by specific speakers in the D-pillars. It has a new enclosed design, and now sits in an optimised position for incredible low-frequency performance. In total, the Dynaudio Confidence system has more than 700 watts of power.

Some clever digital processing means that even though it's well behind the driver and passengers, the sub times perfectly with the interior speakers for a clear, punchy and engaging performance. Exactly what you'd expect from Dynaudio.

Performance enhancements

Four sound settings can be configured via the 15-inch Discover Premium system. 'Soft' is suitable for when the listener has a low quality MP3 file or bad radio perception. It's especially good when it comes to hands-free phone calls or audio books, too. 'Dynamic' is great for pop, rock, electronic music that requires more kick than deep bass, while 'Authentic' simply reproduces the unfiltered original as it was originally tuned.

All this means you'll get a stress-free, organic listening experience – making it possible to enjoy your sounds for many hours and many miles on the road.

From the **Far East** to **Flux Capacitors**

The automotive market in China is one of the most important and fastest-growing in the world. This is where the music of the future plays – and Dynaudio is front and centre

XPeng P7

PERFECTLY MATCHED

Chinese brand XPeng has shown itself to be truly cosmopolitan in its development and composition when it comes to raising its performance to maximum international quality.

The spec sheet reads like a wish-list, fulfilled: a 655Nm electric drive, a CD value of 0.236 (which makes the XPeng P7 the best in the country), and a five-star C-NCAP crash-test rating. The chassis comes from Porsche Engineering. The brakes are from Brembo. And in the cockpit, Dynaudio's Confidence sound system provides 18 specially developed and manufactured speakers for top sound. There's also a new 10in subwoofer and a 6.5in DVC woofer (with MSP and soft domes, of course).

More than 100,000 units of the P7 were sold in summer 2022. And now the new G9 SUV looks like it'll rival that figure. It will have a Dynaudio system with upgraded low-weight, high-performance woofers and subs, plus a powerful new amp. The car will even support Dolby Atmos audio. (If you want to find out more about how that might sound, see our interview with the prolific Greg Penny on page 44.)

VOYAH

GO FREE

VOYAH is a sub-brand of Chinese auto-maker Dongfeng and was only established in 2020. With the VOYAH FREE, the premium manufacturer delivers its first model – which will also be offered in Europe from 2022. The all-electric SUV offers luxury in all areas and just like the VOYAH DREAM van (the fastest MPV in the world), there's a Dynaudio sound system on-board.

BYD

SMART COCKPITS

September 2021 marked the official launch of the 5G Dynaudio Smart Music Cockpit in a BYD, marking the starting point of a long-running collaboration. The tuning for this system in the all-electric HAN model took three months alone. The brand-new flagship model – Tang – an all-wheel-drive, all-electric SUV, will feature the Goertek Dynaudio Hi-Fi Xinxin audio system. A third model, called Seal, will debut soon – also with a Dynaudio system. It's a smaller sedan than HAN, and is intended to be a direct competitor to the Tesla Model 3.

Hongqi

GRAND DESIGNS

Another Chinese manufacturer, Hongqi, fulfils all premium requirements as a luxury automotive brand. It even lured former Rolls-Royce chief designer Giles Taylor away to sit as its vice-president of design and chief creative officer. The brand, founded in 1958, specialises in cars that eat up continent-sized miles with ease – and in perfect comfort.

You'll find Dynaudio systems in its H5, HM9, HS6 and L5 models. And as our popularity in China grows, our Hongqi partnership sees us move towards the global top-three of automotive sound-system suppliers.

Dynaudio x E-Lorean partnership

THROWBACK TO THE FUTURE

Pause for a moment. And already it only seems to make sense to transform a DeLorean DMC-12 into a fully electrified, digital test vehicle for future technology.

German entrepreneur Armin Pohl of Wunderkind Invest says: "I always wanted a DeLorean, mainly for its icon design. It's one of those few cars which are timelessly futuristic. It's downright epic." The only thing that didn't convince the passionate driver was its tech. So he looked for partners to redesign the powertrain, chassis and safety. Pohl also invested in the interior.

Dynaudio is a cooperation partner, working on ingenious intelligent audio for future EVs. (If you can't wait, we recommend falling off a toilet, bumping your head, and inventing time-travel.)

CUSTO
INSTAL

Engineered to entertain: **bespoke audio that's heard... not seen**

They're all but invisible, but you'll know they're there. Dynaudio Custom takes everything we know about speaker design… and tailors it just for you

It shouldn't be hard to get great sound. When we set out to design our custom-install architectural speakers, we knew they had to be simple to understand, neat and easy to install, and flexible enough to work in even the most challenging listening environments.

Most importantly, our range of in-ceiling and in-wall speakers had to sound every bit as good as our acclaimed free-standing hi-fi and pro-audio kit. There was no room for compromise – and we didn't stop until we'd nailed it.

The whole Dynaudio Custom range harnesses the same core technology, expertise and fanatical attention to detail that's made our hi-fi range so celebrated over the past 45 years. It's the same stuff – it's just inside the walls instead of in front of them.

It's a system that works around you, too. Pick between our in-wall or in-ceiling speakers, or even combine the two. The frames can then be pre-installed during renovation and decorating, or retrofitted into existing cavities. You can even paint their magnetic grilles to suit your décor. And then, when it's time, an expert installer comes to fit and fine-tune the speakers themselves – so it's exactly right, first time.

When you hear Dynaudio Custom, you're hearing decades of research, care and pride. And now, it's tailored for you.

STUDIO SERIES

S4-LCR65 system

The S4-LCRMT mid/tweeter and S4-LCR65W woofer modules fit around standard 16in studs without cutting. You can position the tweeter either way up and at a variety of vertical positions in for total focus. And the modules are easily connected using speaker wire, with their frames either joined in a single area or spaced in multiple cut-outs to create a bespoke single channel.

Each uses a passive crossover with a three-position switch, pre-configured to standard LCR configurations that use one or two connected woofer modules. There's also a bypass to enable unlimited active and customised S4-LCR65 system set-ups with external DSP and a dedicated amp channel for every driver.

The S4-LCR65 system has five optional paintable white grilles (four standard-sized and one customisable), and it can also be installed behind acoustically transparent fabric or screens.

S4-C65

You'd never know the S4-C65 was the smallest in-ceiling speaker in the Studio range. The 17cm mid/bass driver takes cues from Dynaudio's high-end speakers – such as positioning its magnet system inside the voice-coil, to keep things sounding as they should… even when it's turned up to 11. ▶

◄ ***Round or square?***
Dynaudio Custom systems can evolve with your needs and tastes. Don't want round grilles in the room? No problem – you can fit a square one onto your round speaker. Changed your mind? Just pop it off (it's magnetic) and fit a circular one

Confined space? ►
The S4-DVC65 dual-voice-coil speaker can reproduce stereo audio from one unit for confined spaces. It also works amazingly well as a dipole surround speaker via a simple switch on the back

This complements the 28mm precision-coated soft-dome tweeter with neodymium magnet, which can pivot to direct sound exactly where it's needed in the room. Once it's in place, it can be re-positioned through 360 degrees. Not just that, but paintable grilles mean you can customise their design.

S4-C80

While it shares lots of what's great about the smaller S4-C65 in its design – including its ability to rotate through 360 degrees to suit your room – the S4-C80 has a larger 20cm mid/bass driver that'll go deeper and louder when it really counts.

The higher frequencies are handled by the same excellent 28mm soft-dome tweeter as its smaller sibling too. It can also be pivoted to tailor the sound perfectly to your room.

This speaker's bigger size requires a little more room in your ceiling, but don't worry. With a choice of round or square paintable grilles, it can stand out or blend in just how you like.

S4-W65

No visible wires, no fuss – just great performance. The S4-W65 is an in-wall speaker with no compromises. It's the smaller of the two in-wall options, and makes the perfect companion for small to medium-sized rooms, offering a 17cm mid/bass driver to support its 28mm precision-coated soft-dome tweeter.

Like our in-ceiling options, the S4-W65 fixes on to a pre-installed frame, which can be fitted either way up for total flexibility. The integrated baffle latch makes mounting the speakers a breeze, and the frames even retrofit into many existing popular-sized cavities (or cut-outs), so you don't have to start from scratch if you don't want to.

Changing your décor? No problem. The Dynaudio Custom Studio range can adapt as your room does: just give the grilles a lick of paint (or swap the ceiling ones for a different shape).

S4-W80

Just add music. Or movies, for that matter. Whatever you're listening to, the S4-W80 in-wall speaker delivers all the accuracy and refinement of the smaller S4-W65, and turns it up a notch.

It offers a bolder, even more authoritative sound that makes easy work of bigger rooms. That's thanks to its larger 20cm mid/bass driver, which – like the rest of the Studio range – is matched to Dynaudio's iconic 28mm soft-dome tweeter for powerful bass and treble that sings.

Getting custom audio into your home shouldn't be hard. The S4-W80's frames can be installed quickly and simply during any building or renovation process. You don't even need tools once you've cut the hole. And if you aren't renovating, they can also be retrofitted into the majority of existing wall cavities.

PERFORMANCE SERIES

The right fit for high-res distributed audio. It's as simple as that.

The Dynaudio Custom Performance series delivers true Dynaudio hi-fi performance, even in the tightest cavities in ceilings and walls.

No more having to choose between deep and shallow versions of in-wall and in-ceiling speakers when specifying your system. No more having to choose between performance and fit. And no more fiddly install processes: just push and screw, or twist and lock into place.

We've developed clever ways of packing everything that makes our speakers legendary – soft-dome tweeters, MSP drivers, large voice-coils and powerful magnets – into a slim form that lets you work around the nasty surprises you find behind the drywall.

And to complete the job, all the low-profile magnetic grilles can be painted to fit with your room's décor.

P4-W65

What do you do if you don't have the space for a full install system… but you want a full install system? You could modify the wall. You could compromise on the speaker you put in the cavity. Or you could go for this slimline in-wall model. The P4-W65 is just 63mm deep, so it will fit into ridiculously tight spaces.

Like all of our other speakers it uses a 28mm coated soft-dome tweeter and a Magnesium Silicate Polymer woofer (a 6.5in version). It's all housed in a one-piece chassis that secures into place with the turn of a few screws.

You can even fine-tune the tweeter's response to -3dB, 0dB or +3dB to really tailor the speaker to the room.

P4-W80

It delivers all the power, finesse and clean detail of the P4-W65, but ramps it all up for bigger spaces. The 8in MSP woofer is complemented by a Dynaudio 28mm coated soft-dome tweeter, and sits in a one-piece frame that's a piece of cake to install. Once done, adjust the tweeter sensitivity (-3dB, 0dB or +3dB are available) to suit the room, fit the grille and it's job done.

P4-LCR50

It's been said that up to 80 per cent of the movie-going experience centres on sound. And most of that sound – dialogue, music and more – comes from the centre-channel. There is no more important speaker in a cinema set-up.

It has a 28mm coated soft-dome tweeter flanked by twin 5in woofers – all tuned and refined by the same expert team (and expert ears) that have created some of our most legendary home, pro and automotive systems.

The paintable grille and extreme ease of installation – plus stellar performance – all make for a solution that will give any movie the delivery it deserves.

P4-C65

Whether you're installing overhead speakers for a Dolby Atmos system in a fancy home-cinema room, or you're specifying a distributed audio system for bedrooms, the kitchen and so on, you need to know your speakers are up to the job. And in these systems, consistency is crucial.

The P4-C65 is slim enough to fit into cavities as little as 72mm deep, so even if you're dealing with varying spaces between rooms, you can ensure that the audio delivery is identical across the whole installation.

The frame fits in place using ingeniously simple doglegs, which simply squeeze onto the drywall material by hand. Then the speaker simply twists and locks into place. You can do it one-handed – a reassuring thought when you're standing on top of a high stepladder. And once the hole's there, you don't even need any tools. ▶

▼ ***LC 'aaaah'***
The P4-LCR50 centre-channel is made for home-cinema installations: there's no more important speaker if you're a film fan

The P4-C65 uses a soft-dome tweeter, along with a 6.5in MSP (Magnesium Silicate Polymer) woofer – materials and technologies you'll find in our high-end home, pro and car systems. The tweeter can also be adjusted to compensate for room character; -3dB, 0dB and +3dB settings are available.

The paintable magnetic grille completes the picture, helping the speaker blend into the room – so it's only heard, not seen.

P4-C80

For larger rooms, or for situations where you want a little more power from your overhead Dolby Atmos or distributed audio system, the P4-C80 – with its 8in woofer – could be your saviour. Especially if you're working in a tight space.

The speaker will fit in cavities right down to 87mm deep, meaning you can keep the system totally consistent between rooms or hallways, even if the ceiling space varies at times.

Fitting is a model of simplicity: put the frame in the hole, squeeze down the doglegs to secure it around the ceiling material, then just twist and lock the speaker into place. You don't need tools, and you don't need an assistant.

The P4-C80 uses the same technologies that have made Dynaudio so legendary in the high-end audio business for decades. The woofer is made from MSP. The tweeter is a soft-dome design – variations of which have appeared in some of our most awe-inspiring speakers. And it's all been tuned by the same people who made those speakers so great.

The final touches are just as easy as the installation itself. Paint the grille to match the room's décor, then let it snap itself into perfect alignment with its built-in magnets.

Your audio is in good hands.

Sub RCC

A new foundation for custom audio: clear, deep, undistorted bass that dives all the way down to 16Hz. Sub RCC installs in walls and ceilings, either into standard 2x4 stud-bays before construction or on the surface using the supplied adapter kit.

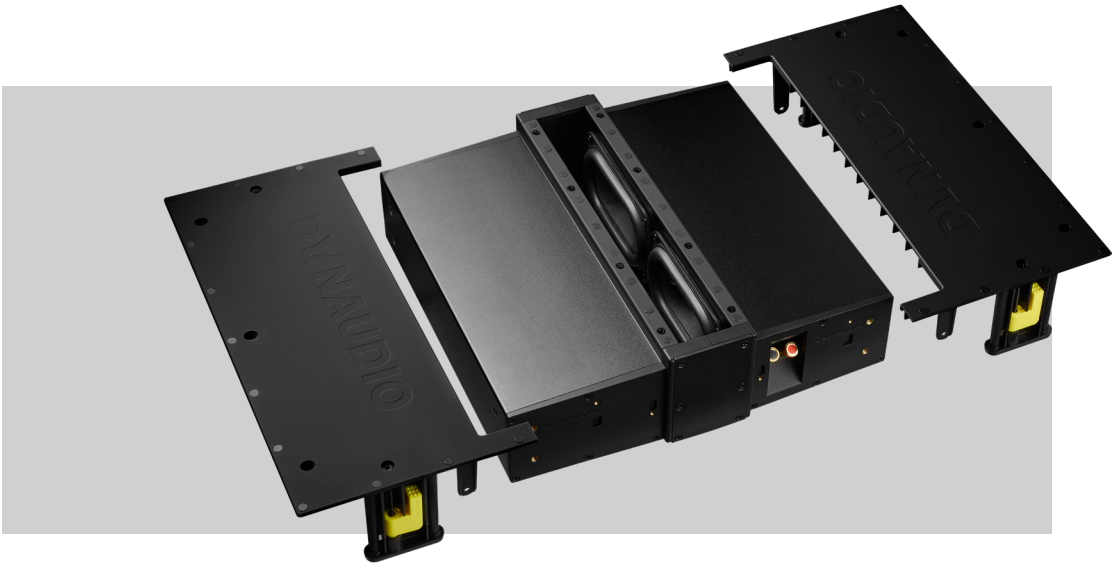
We can hear the question already: "Subwoofers and drywall? But…". Don't worry; you don't need to be concerned about rattles. Sub RCC uses Reactance Cancelling Configuration tech derived from Dynaudio's pro studio subwoofers (p150): two drivers work in opposition to each other to eliminate vibration in the speaker and the wall or ceiling.

The whole assembly is housed in a special aluminium enclosure that has a trick up its sleeve: to keep things simple when it comes to specifying the right sub for surface-mounting or between studs, we've included brackets for both. No more having to second-guess if the project scope might change.

For amplification, we've teamed up with the experts at AudioControl in the US. The resulting RS 500 DSP-controlled unit is precisely matched and tuned out of the box for the Sub RCC with Dynaudio EQs and limiters. Installers can also tweak the unit's graphic EQ if needed. And each amp can power two Sub RCC units for even more flexibility.

Fire-rated back-box

The Dynaudio Fire-rated Back-box is a shallow-depth rear enclosure for use with all our Performance series in ceiling and in wall speakers. It's made of solid metal, and is packed with Morgan Superwool to provide one hour of protection in accordance with building regulations. The back-box will also mount into standard 16in-on-centre studs.



Banish that mounting terror ►
The Sub RCC fits into standard 2x4 stud bays out of the box, and also comes with brackets if you decide to surface-mount it on the wall

OUTDOOR SERIES

Quality doesn't need to stop at the door. Dynaudio Custom Outdoor speakers take our trademark audio quality to new places

Relaxing outside is always better with music. These two-way wall-mounted speakers are IP65-rated for total resistance to dust and protection from everyday water (such as sprinklers, rain and water-balloon fights). They have a UV-resistant finish and they've been subjected to salt-spray testing too – so they'll stand up to regular use whatever the weather throws at them.

The Outdoor range can be used in passive 8ohm mode, or linked in with a 70/100V system with their built-in transformers, if you want to spread them out to a larger area.

OW-6

The Dynaudio Custom Outdoor OW-6 speaker is a two-way model with a 1in tweeter and a 6in mid/woofer driver.

It's IP65-rated for protection against everyday water and dust, and it also has a special UV-resistant finish – so wherever you mount it, you'll have peace of mind that it'll keep playing (and looking the part) whatever the weather.

You can use the OW-6 with a regular hi-fi amplifier in passive 8ohm mode, or you can link it with a 70/100V system thanks to its built-in transformer to ensure volume-level parity across a larger area with more speakers.

The OW-6 comes in black or white finishes and includes an articulated mounting bracket – so it can stay out of sight, but very much in the mind.

OW-8

The Dynaudio Custom Outdoor OW-8 speaker is a two-way model with a 1in tweeter and a 8in mid/woofer driver.

Its IP65 rating was won through extensive testing against water and dust, and we've also applied a special UV-resistant finish to the cabinet – so wherever you mount it, you'll have peace of mind that it'll keep playing whatever the weather.

You can use the OW-8 with a normal amplifier in passive 8ohm mode, or you can hook it up to a 70/100V system thanks to its built-in transformer – which means you'll get volume-level parity across a larger area with more speakers.

The OW-8 includes an articulated mounting bracket and comes in black or white finishes.

Take it outside ►
The Dynaudio Custom Outdoor series is hardy enough to cope with the sort of weather you might find on deck (or decking), but still delivers performance worthy of you and your guests' tastes

Finishes

What do you do when you find high-end furniture-polishing too easy? You come to Skanderborg and see what you're really made of

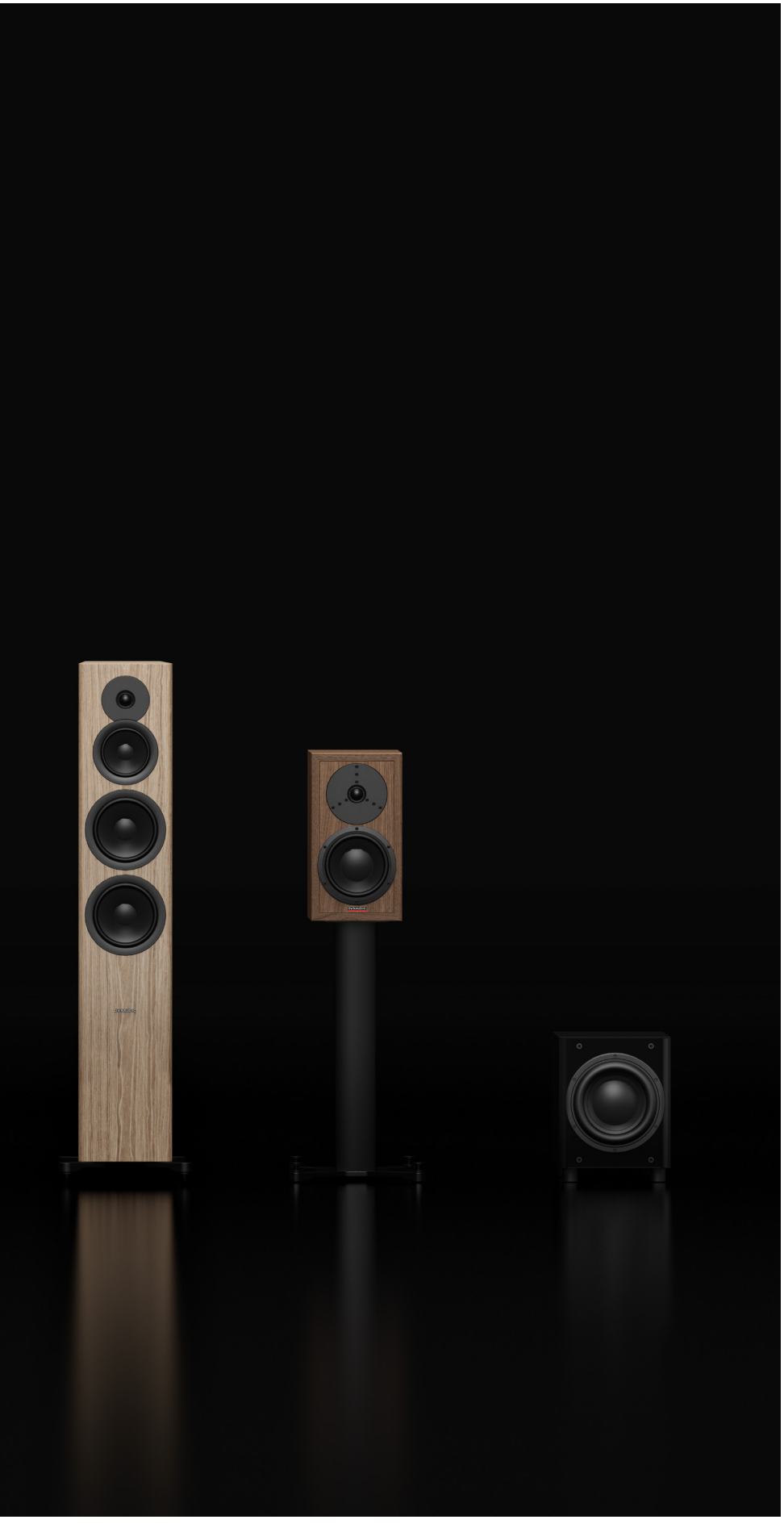
Every speaker that comes out of our factory is painstakingly finished, polished and inspected by experts. Every screw is tightened; every connection checked. Just as it should be.

Many coats of lacquer – all finished within a 50-hour window (and we really mean 50; 51 hours is too long. If we go over time, we have to start all over again) – ensures the kind of finish you'll salivate over for years. We only use materials from sustainable sources. And we never let anything leave us unless it's perfect.

After all, hi-fi speakers should be just as great to look at as they are to listen to.

	Confidence	Contour i	Emit	Evoke	Focus	Sub	Special Forty
Black			●				
Black High Gloss		●		●	●		
Black Satin						●	
Black Vine							●
Blonde Wood	●			●	●		
Ebony Wave							●
Midnight High Gloss	●						
Ruby Wood High Gloss	●						
Smoke High Gloss	●						
Walnut			●				
Walnut Wood		●		●	●		
White			●				
White High Gloss				●	●		
White Satin						●	

Meet the range



Home audio

Confidence
Confidence 20
Confidence 30
Confidence 50
Confidence 60

Contour i
Contour 20i
Contour 25Ci
Contour 30i
Contour 60i

Heritage Special
Limited edition

Focus
Focus 10
Focus 30
Focus 50

Special Forty

Evoke
Evoke 10
Evoke 20
Evoke 25C
Evoke 30
Evoke 50

Emit
Emit 10
Emit 20
Emit 25Ci
Emit 30
Emit 50

Subs
Sub 3
Sub 6

Pro audio

Core
Core 7
Core 47
Core 59
Core Sub

LYD
LYD 5
LYD 7
LYD 8
LYD 48

BM
BM5 mkIII
BM6A
BM15A

Subs
18S
9S

Custom install

Studio series
S4-LCR65W
S4-LCRMT
S4-DVC65
S4-C80
S4-C65
S4-W80
S4-W65

Performance series
P4-W65
P4-W80
P4-LCR50
P4-C65
P4-DVC65
P4-C80

Fire-rated back-box

Subwoofer
Sub RCC

Outdoor Series
OW-6
OW-8

Car aftermarket

Esotec
Esotar 2
Esotan mkII

DYNAUDIO

Made in Denmark

A company like Dynaudio doesn't emerge fully-formed.
It takes a clear philosophy – an enduring one – to guide it

Back in 1977 Dynaudio's co-founder, Wilfried Ehrenholz, decided that the off-the-shelf speakers available at the time weren't telling the whole truth. He and his colleagues started out by putting drivers made by other companies into tweaked cabinets, with crossovers designed and built in-house. But they still weren't right: it wasn't all made in-house. And we all know there's only one way to get something right if no one else can do it…

"Whatever I do, I want to make a perfect thing. I talked to a lot of other engineers at the time, and I could see how limited their understanding of speaker technology was," says Ehrenholz. "So we did everything ourselves."

They began in Skanderborg, Denmark. It's a small town by a lake; you'd like it, it's lovely. And because there isn't a lot to do in Skanderborg, they turned their attention to making the most honest speakers possible. That meant total transparency: simply and faithfully reproducing the music of the original performance.

The drivers available at the time just weren't good enough, so they built their own – but it wasn't just a test-the-water-and-dive-in job. They did their homework. Dynaudio was reaching for the next level; a level its established competitors – some of whom were leviathans of the hi-fi industry – either couldn't get to, or hadn't even realised existed. The goal? To stop picking apart frequencies and just… sit. Listen. Enjoy. "If a musician expresses what's in the music, when you listen to it you aren't analysing it, it's just emotion," Ehrenholz says.

◀ ***Founding father***
Wilfried Ehrenholz decided to do things his own way. It worked out pretty well

Fussy is good

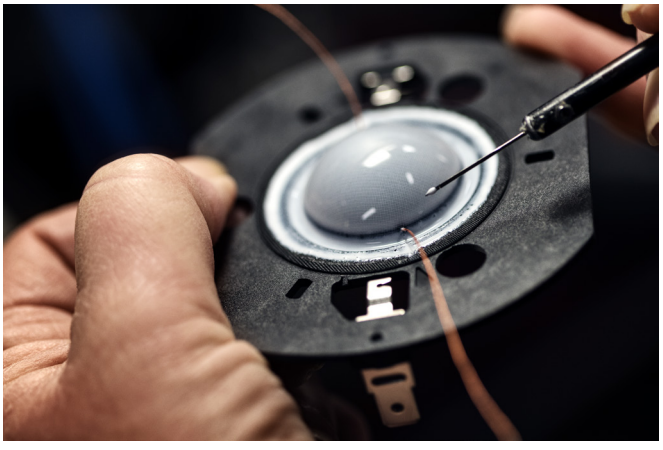
That philosophy – that pursuit of truth through emotion – permeates the entire company. There's always another level to hit. "I'm very proud that we kept all our principles from the beginning; we didn't have to change anything. Most concepts we started are still valid after 40 years, and I think this is very impressive," Ehrenholz continues.

"When I think back, I can't understand how I have been so brave! When we started, I was only 22 years old, no experience, just finished my studies – but I never doubted that we would be successful. We never did anything just for the money. Ever. I thought we might build a company with 30, 40 people or so, but it went better than I thought!"

It's always been this way, ever since we started in one building in 1977, with a handful of employees. Now we have around 300… and they're all fussy. Just as it should be.

Our people are the key to everything: they know exactly how to create quality. They test, and listen, and test, and refine, and listen. They're experts. It means if something isn't right, we can fix it – not just change something else further down the line and hope it solves the problem.

The drivers sit at the heart of it all. We develop and manufacture them ourselves – right down to magnetising the magnets. Winding is an automated process these days



Handmade with love
It takes years of training to be able to produce speakers and components to our standards

(although even the robots we built can't escape the eagle eyes or ears of our quality-control people), but at one point even this was done by expert pairs of hands.

Most of our voice-coils are made from aluminium wire instead of copper. It's lighter, which lets us double the coil diameter for any given weight. (And that, in English, means we have tighter control over the sound.) Others are made from copper when we need extra power (for bass drivers, for example). We're never precious about it; we'll simply use the best material for the job. Which means you get the best performance we can deliver.

In service of sound

You might notice our cones are shallower than those of our competitors. That isn't just because we want to be different. It's to improve our speakers' directivity – so the sound you get off to the side is far closer to what you hear out in front… perfect if you have friends over. They're made from MSP (Magnesium Silicate Polymer): a material we refined and perfected in-house, which delivers exactly the right balance of lightness, stiffness and damping for incredible performance.

There are other, less obvious details, too. Some you won't even see – like the spider. That's the springy piece of material that acts as the voice-coil's suspension. It controls how much the voice-coil moves back and forth, and how much air there is behind the speaker cone. We've improved its symmetry by measuring, simulating and, ultimately, listening.

It all sits in the basket. That's the physical housing for the whole driver motor. It's just as important – so we've spent just as much time refining its design as we have every other part of our speakers. Ventilation is crucial: it's made to reduce turbulence behind the driver, which, again, helps them sound their best.

On a high

Then there's our signature soft-dome tweeters. We've been refining our tweeter designs ever since we started the company: geometry, shape, materials, stiffness… even the coating. We use the right amount, in the right places, at the right density, to control roll-off and keep a steady hand on the treble. Because they aren't made of metal, they have a flatter, more linear frequency response – which means more honest performance.

But, in the end, it all comes down to our people. They're fanatical about what they do, and they're incredibly proud of what they produce. We hope you're proud to own our speakers, too.

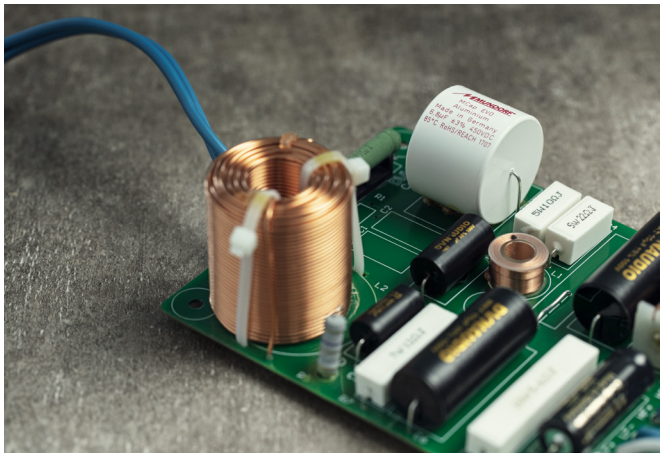
Spotlight: **Contour i**

Contour i is a stunning loudspeaker to look at. It's an iconic design, flawlessly finished. But its beauty isn't just veneer-deep; the Dynaudio Labs team have really excelled themselves on its interior, too. We pointed our lens at the parts you don't usually get to see…

▲ **The Hexis inner dome**
This ingenious device sits behind the Esotar 2i's diaphragm. It smooths out the tweeter's frequency response and reduces unwanted resonances, the kind that colour your music, by guiding the moving air behind the fabric dome. That means you'll hear high frequencies with all the emotion you're meant to

The Esotar 2i tweeter ▲
Sound is simply compression-waves moving through air. Well, we say 'simply'… if you want it to sound right, you have to manage that pressure-change with precision. The Esotar 2i's rear chamber has been tuned and optimised to reduce distortion for the kind of clarity that will make your hair stand on end

▲ **The soft-dome tweeter**
Most people don't look this closely at tweeter diaphragms. But if you do you'll see the precision coating, which gives the fabric its stability. You'll see the hand-placed lead wires, which take the current from the connector to the voice coil. And if you look *really* closely, you'll even see the Hexis behind it



The crossover ▲
A well-designed crossover looks as good as it sounds. Contour i's crossover boards have been designed from the ground up: simplified, tweaked and tested to squeeze every drop of performance out of their hand-picked components. You can actually hear our engineers' pride in their work

DYNAUDIO
Magazine **04**

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