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STEREO

THE GERMANY CONNECTION

ISSUE #15 2018



EXCLUSIVE: BALLFINGER M063
TAPE WITH THE MIDAS TOUCH

**REVIEWS: BRYSTON 4B3 +++ CABASSE BALTIC/SANTORIN 38
+++ OCTAVE V110SE +++ DYNAUDIO SPECIAL FORTY AND MORE!**



MP 8

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So, everyone's on the vinyl revival bandwagon, and the jokes started a while back: "What's next? New open-reel tape recorders?" It got a big laugh, but don't look now – inside this issue of STEREO international we report exclusively on the first newly-made tape recorder of the modern age, from new-to-hi-fi design company Ballfinger.

But why? After all, we remember that, by the middle of the eighties (at the very latest), these massive monsters with their huge rotating reels were pushed out of the home by high quality cassette decks, with the coup de grace of digitization hunting down the last survivors in their last retreat, the professional studio. The tape dinosaurs were gone, effectively extinct – production had ceased and all that remained were the last few specimens, preserved, petted and thus kept alive by their fans.

But as the man said, "Welcome... to Jurassic Park" – and now a new chapter in the great history of tape machines has begun, set in motion by one man's dream. That man is a hitherto largely German designer and engineer Roland Schneider, who runs a company named Ballfinger after a table lamp he once made.

This is no revival from the past, however, nor some slavish recreation of an icon: instead, his rock-steady recorder has been newly developed from scratch, applying some very modern technical solutions to problems with which the engineers of the First Tape Era struggled.

Ahead of the product becoming available there is already huge worldwide interest, as if a quiet yearning had suddenly found its outlet, and the Ballfinger M063 – for so it is named – has what it takes to continue the legend. We've tested it hard, examined it in the laboratory and played first-generation master tape copies on it. We've even compared it to a highly acclaimed studio machine from Studer. And the Ballfinger passed all tests with more than flying colours! And although there is little more than rumour at the moment, I'd be surprised if was alone in the market for long stayed alone. So, TEAC, Revox, Nagra – it's time to hit 'Play'!

Matthias Böde
 editor@stereo-magazine.com

All prices listed in this magazine are German retail prices incl. VAT valid at the time of evaluation.



TIME FOR TAPE

The superb Ballfinger M063 is the first new tape machine for decades. We've been listening in amazement – it's definitely the reel thing!



LIFE BEGINS AT...

Dynaudio's Special Forty speakers are no exercise in badge-engineering: 40 years of design experience makes them truly special



OPTICON PRIME

They may be back-breakingly heavy, but Dali's Opticon 8 speakers are capable of huge involvement – and massive fun



A LEGEND, CUBED

The latest versions of Bryston's BP17 preamp and 4B power amp more than live up to the legendary status of their forebears



BUILT TO ROLL

You can tailor the sound of Octave's V110SE: it comes with three choices of preamp tube, making experimentation simple



NETWORKING OPPORTUNITIES

The latest G2 versions of the Aries 'transport' and Vega DAC take Auralic's network audio capabilities to a new level



AN EYE ON THE BASS

Combine the latest-generation Cabasse Baltic speakers with the Santorin 38 subwoofer, and you have a breathtaking system



NEW VISTAS ON VINYL

Musical Fidelity's Nu-Vista Vinyl isn't just an exceptional phono stage: it can also connect – and memorize settings for – five different cartridges. Turntable fans sign up here...



TOTAL CONTROL

In a Berlin workshop, Korean craftsman Hyun Lee hand-builds phono cartridges to suit customers' needs – and his own!



REEL-TO-REEL, REALLY!

Sensationally, and some 35 years after the last tape machine was designed, a hi-fi newcomer surprises with a completely new reel-to-reel tape recorder. HiFi analog reveals the story behind the Ballfinger M063 – and its numerous refinements.

Tape never really went away, thanks to fans who cared for and maintained their reel-to-reel recorders – often with considerable effort – and kept them running. If you wanted to join them, until now you had to scour the second-hand market, hoping that the used model you bought hadn't been run into the ground in professional use. Now all that's changed – there's a brand-new tape machine on sale, and it doesn't come from the "usual suspects", like Japan's TEAC, or Swiss companies Nagra or Revox.

No, the first 21st century tape recorder comes Düsseldorf-based Ballfinger, and if that name means nothing to you, we're hardly surprised: until now the brand has been completely unknown in the hi-fi

sector. And yet it caused a sensation last February at the „Norddeutsche HiFi-Tage“ in Hamburg with the prototype of its M063 model.

It was designed and created by industrial designer Roland Schneider, a hi-fi enthusiast since his youth who has to date has distinguished himself professionally with the table lamp he launched in 2004, from which his company took its name, and a well-regarded catalogue of watches. Looking for a new challenge about five years ago, Schneider wondered on what should he next test his creative talent.

Furniture? Household appliances? Bicycles? No – a host of designers had already 'been there and done that', and so the self-confessed lover of the forms of older Alfa Romeo's remembered his hi-fi passion. And in particular he recalled his fascination with big „tape recorders“ with their rolling reels, so he set himself the aim of designing the most beautiful tape recorder of all time, perfectly organising all the parts, and matching them in shape and size.

Specially manufactured motors

Originally intended only as a design exercise, the task soon grew: the M063 was initially planned as a single piece combining precise, solid mechanics with modern technology, but Schneider had already built a number of hi-fi devices for himself, and so knew the dangers. „Rational cannot be justified,“ he admits, „You start sometime, and then you can't get out of this thing.“

The result is a tape recorder produced entirely by „Roland Schneider Feinwerktechnik“ with the aid of top-quality vendor parts, the result of a growing desire for series production. „Ultimately, the main difficulty was to create a concept for small to medium quantities that also worked from a business point of view,“ recalls Schneider, who dealt with the practicalities of the project as well as the „beautiful aspects“.



▲ The professionally-oriented display shows the time code with a resolution of up to a hundredth of a second, and it is possible to mark a time and return to it exactly later. The selected tape speed and magnetic flux are also displayed.



▲ Two knobs determine the speed of tape transport (top) and rewinding: if you're in a hurry with the latter, choose „Fast“, while the „Archive“ position, the Ballfinger winds slower, which is gentle on the tape. Channel-separated level control with „master“ controller or calibrated setting can be selected.



◀ HiFi-enthusiast designer Roland Schneider knows the technology inside out, having designed the M063 himself. Numerous hurdles had to be overcome, of which the need for clear belt paths was one of the slightest.

However, the most diverse technical problems had to be mastered. Building the M063 simply by pulling matching parts off the shelf was impossible, as exemplified by the choice of motors case: „The phase shifter types from Papst – which Revox, Grundig or Braun used for direct drive because they impressed with first-class concentricity – no longer exist“, says Schneider, adding that even if they did, they would have offered only low efficiency. “They would have produced more heat than anything else and would therefore no longer be up to date“.

He says that today’s motors are more effective, but can jerk at low speeds and are therefore hardly usable for when accurate belt tension is required. The solution came in the form of specially manufactured motors resembling the so-called „linear types“ used in older direct-drive turntables, in which a Hall sensor records the rotor position and controls the corresponding coils via an operational amplifier. The only difference is that in this case it is not analogous via an output stage with corresponding power loss, but via micro-controller based on high-frequency pulse width modulation (PWM).

This means the M063 puts on a small show when you switch directly from fast spooling to „Play“: the machine almost glides into playback, accompanied by a slight twitch of the compensating sensors after deceleration. This enables tension control by means of load cells with strain gauges (strain gauges), which are used in many areas where weights and forces are involved. These are essentially resistors that change their value under load. The trick? With each switch-on, the system recalibrates itself, which is why wandering values or aging are irrelevant. The tape slides slightly downwards before the M063 pulls it tight - ready to go!



▲ During development Roland Schneider used modern CAD technology (Computer Aided Design), he is not only a designer, he also has high technical competence and understands how to implement it.



▲ Precisely machined parts, arranged in exact arrangement for perfect function. The heads for erasing **1**, recording **2** and playback **3** come from a Revox supplier, as does the pressure roller **4**, but their mechanical environment is pure Ballfinger.

Stable aluminium skeleton

When it comes to the tape heads, Schneider relies on the expensive „Linear“ and „Butterfly“ models from AM Belgium also used by companies including Studer/Revox. He prefers the linear types because

With the front panel removed, the electronics can be folded forward for service-friendly module replacement. Similar access is available from the rear. ▶

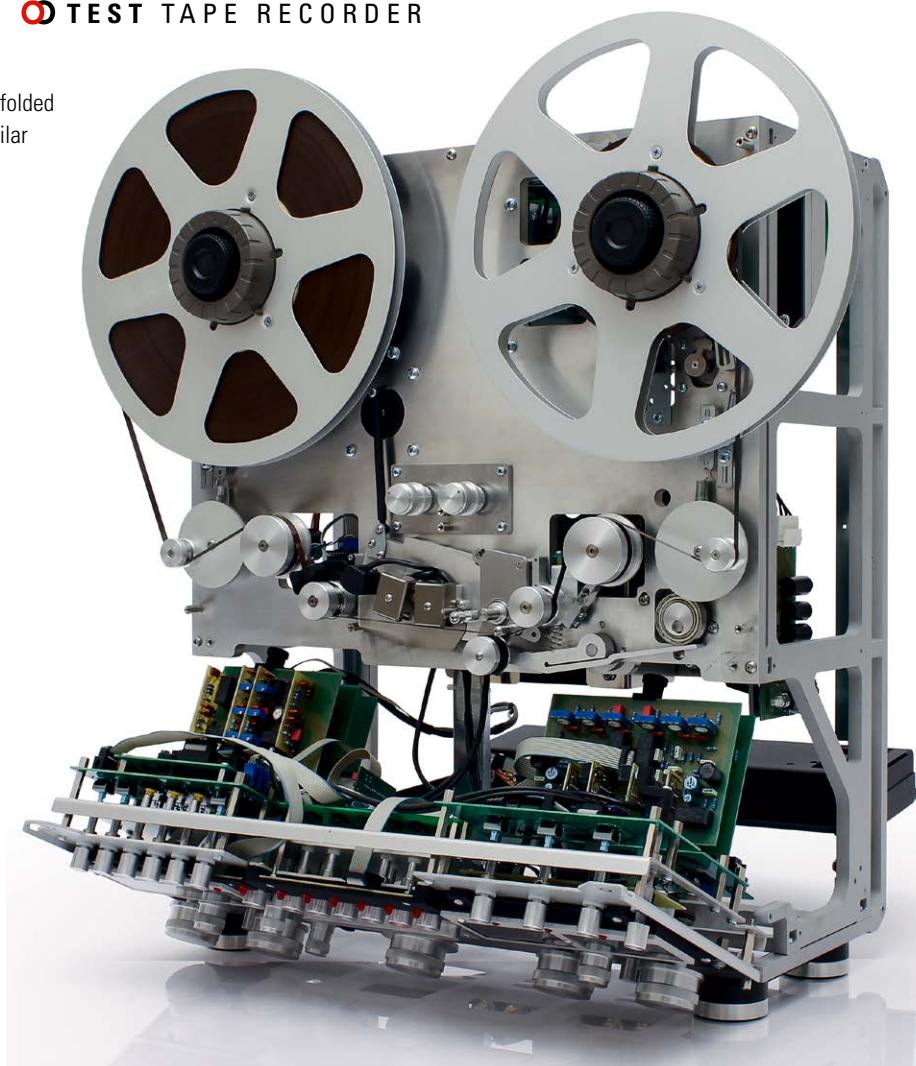
of their simpler handling, but offers the butterfly heads, equalized in the bass range, as an option, as these are preferred by a number of fans for their slightly wider track and thus somewhat lower noise. Life's too short for a 'religious war'!

When we visited Schneider, he had a stripped machine on the table before him, which rendered us speechless: the extremely stable and light aluminium inner skeleton conveys the ultimate claim implemented in this machine more clearly and emphatically than all others explanations. „That's what sets the Ballfinger apart,“ is our first thought, and we understand what Roland Schneider means by the uncompromising approach he emphasizes time and again. This machine seems to have been built for eternity.

„Dressed“, the M063 looks less radical: real wood side panels give it a more dignified appearance, while other designs such as high-gloss black are possible, although we were less enamoured of the thin aluminium sheet on the top and back. High-enders expect more, and Schneider says he'll take another look at that for future production.

But other appearances were convincing: the designer has succeeded in combining

For our extensive listening checks, high-quality two-track master tape copies in 38 cm/s were available from renowned labels such as MPS, Opus3 and STS. A pure pleasure! ▼



a modern look with a classic appearance. He quotes a maxim of Raymond Loewy, who once designed the „Fanta“ ring bottle, that a successful design should not be too progressive, but should also offer the viewer something familiar.

On the Ballfinger you will find much familiarity, in the form of the meters or the numerous pushbuttons and knobs, clearly arranged according to function groups. They are located on the right hand side for recording – channel-separated level control is possible, while the „Master“ controller determines the overall level – while to the left are the output level controls for each channel. At the push of a button, however, the potentiometers are out of the signal path and the machine operates in a precisely preset mode with perfect channel symmetry, allowing the level to be controlled by the device from which it's recording.

A real eye-catcher is naturally the red illuminated display for the time: it's large, goes down to hundredths of a second, and also shows further useful information, such as the selected magnetic flux – 320 or 514 nanoweber, which corresponds to a difference of four decibels – or the tape speed.

Our model offered three – 9.5, 19 and 38 centimetres per second, or 33/4, 71/2 and 15ips –, but there will probably also be versions with only two speeds: the



BALLFINGER M063 LAB-CHECK



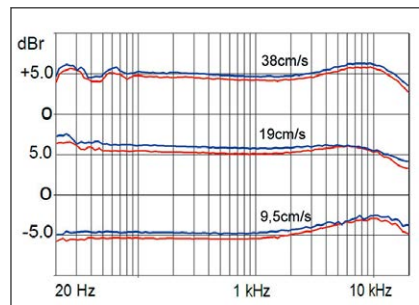
No matter how committed a project may be, in our laboratory they must show their colours and prove their technical substance. Our lab manager and tape specialist Uli Apel (right) first tested the Ballfinger with precisely manufactured measuring tapes, which proved it to be

first-class in build and adjustment: from the track position of the playback head to speed accuracy, level or playback frequency response, the M063 excelled with top values. In addition, it delivered convincingly high signal-to-noise ratios: even „unweighted“, it delivered 60, 56 and 52 decibels at 38, 19 and 9.5 cm/sec, which is three decibels above the studio standard.

Another important test is the recording/playback frequency response, in which the tape recorder is fed a constant level sinewave sweep from the measuring apparatus. The Ballfinger delivered, with curves extending far beyond the magic 20 kilohertz mark (bottom right) even at a slow 9.5 cm/sec. Depending on the setting of the premagnetization, which determines the operating point of the band in the high frequency range, the diagrams became extremely smooth,

with a minimal elevation in the upper layers: a graduation line in the diagram represents only five decibels, corresponding to common practice.

Roland Schneider, who was as suspicious as he was satisfied with the measurement procedure, pointed out that the electronic cards used in the machine on test were prototypes. His „Magneton 063“, he says, will perform even better in series production, but we have to say even these „pre-production“ results demand respect.



extremely slow 4.75cm/s (17/8 ips) and high speed 76cm/s (the pro-standard 30ips). All of which indicates that this machine is much more variable platform than fixed product, and in the future customers will be able to create their own individual specification via an online configurator on the Ballfinger website (see

box), with the prices varying with their wishes and requirements. Ah yes, prices – we’ll come to those soon...

Fascination of mechanics

Our version came with linear heads and directly driven capstan shaft, and was wired via a connection panel with RCA

and XLR sockets for input and output. We commented that more space for thick, rigid cables would be desirable, and Schneider is bearing this in mind.

Apart from such little things, using the Ballfinger was a lot of fun. From tensioning the 26.5cm reels to looping through the leader, I was to come back to this experience. Fascinatingly, if you press the „Edit“ button, the recording head block moves up to the tape when the reels are stationary, and can be moved either very carefully or also faster forwards and backwards using the large central knob while one listens over the loudspeakers, so a certain place on the tape can be accessed very precisely. This can also be done by moving one of the two reels by hand, whereupon the other moves in parallel to maintain tape tension.

The „Pitch“ wheel can fine-tune the tempo over a wide range if you wish to change the pitch, or compensate for deviations in external recording machine, while a real plus is the high-quality headphone amplifier with its 6.3-millimeter jack, which will also drive high-impedance headphones convincingly in terms of quality and volume.

All necessary potentiometers for set-up are located inside the M063, the intention being that once the machine is calibrated for the tape with which is to be used, it’s not necessary to readjust the bias. Although the electronics within – housed on cards that could be folded out when



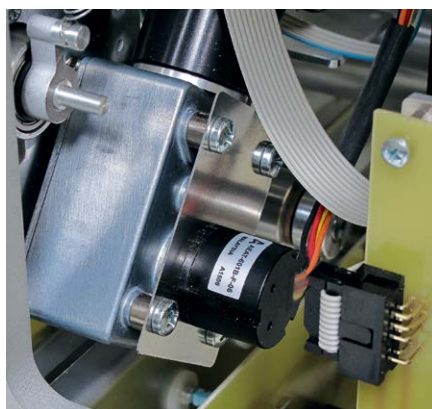
◀ Ballfinger is planning a professional version of the machine for spring 2019, on which the drive control will move to the bottom left. All operating and display elements of the M063PR are modular, so the drive system should remain unchanged.

the front panel was removed – were still in the prototype stage, as well as passing the M063 through our laboratory (see box) we also connected it to our reference system in the listening room. The modern „magnetophone“ first revealed its high-end level in the course of our test recordings: at least at 38 and 19 cm/sec, when switching between the input signal and that monitored off-tape hardly any differences were audible. Even at „creep speed“ of 9.5 cm/sec. these were pleasingly low.

Recordings on the M063 only sounded a little more compact, with slightly less presence, than the original input signal, which should also be a matter of adjustment, and the lack of noise, especially at higher speeds, was in a class of its own. And what noise there is was hardly noticeable, being more in the midband than the higher frequency range.

Master tape copies in top form

That proved very important when we loaded pre-recorded master tape copies from top labels, running almost without exception at 38cm/s, onto the Ballfinger. With Cindy Peters' Opus3 version of „House of the Rising Sun“, the average level of the highly dynamic title is low, so we'd turned the system up a lot, and while some noise remained clearly in the background, the solid percussion popped out of the speakers in fine style. Almost more important was that the machine set up a large soundstage, let the saxophone breathe deeply and with an almost erotic timbre and presented the sometimes restrained, sometimes upfront singer homogeneously and extremely



▲ This small motor guides the pressure roller onto, or away from, the capstan shaft: Roland Schneider worked for a long time to get this working smoothly.

naturally. That sleek nobility enthusiasts attribute to tape machines? The Ballfinger has it all.

Ella Fitzgerald's „Useless Landscape“, from the „Sunshine of Your Love“ album from the archive of the legendary MPS label, is already tonally velvety dark – the M063 reproduced exactly as it was, with no lack of definition, and the music crept comfortably under the skin. A 19cm/s tape copy of the 1976 Proprius „classic“ „Jazz at the Pawnshop“ proved that the Ballfinger was able to bring out all of its potential: the lively recording sounded completely relaxed and resolved, however extraordinarily complex and multi-faceted the music became. It also gave an authentic impression of the now-much-heard premises of the Stockholm Jazz Club in which the event had been captured.

Tracks from Madeline Bell's „Blessed with Your Love“ (STS), as well as from our own band productions drawn at

different speeds from exclusive high bit files, were pure pleasure, making even the performance of our professional Studer A80 sound a little narrower. The A80 and did not offer the flair of the newcomer, whose electronics are obviously first-class, and this was only with a prototype version. Roland Schneider is now engaged on the final touches, and says the machine should be completed by the time of the publication of this issue.

Is this „the revenge of the analogue“, as a current book title evokes it? Well, after the turntable comeback, it now seems that tape machines, thought by most to be long dead, are now rolling again. And how!

Matthias Böde



▲ Roland Schneider wants his early table lamp, the original Ballfinger product, to be understood as a „metaphysical reference to the design of the 1960s“.



▲ Roland Schneider has also designed an integrated amplifier (right) and a turntable with a straight, tangential arm and an ingenious guide system.

VERSIONS AND PRICES

Roland Schneider has decided to sell his M063 directly, to keep prices under control and react flexibly to customer wishes. With the help of an online „configurator“, similar to those used on car manufacturers' websites, buyers will put together and order their machine individually online, each one receiving what is essentially a unique machine.

The entry point will be a simplified model without level meter and output amplifier for less than €10,000, while a “fully loaded” version with optional butterfly heads, direct drive instead of belt drive of the capstan shaft, a custom range of speeds and a whole series of other features and selection points, the price rises to around €23,000. The configurator should be available in the Spring at www.ballfinger.de



O, CANADA!

Bryston amplifiers are living legends, combining high-end sound with famous robustness, all backed up with a 20-year guarantee. Now they come in a different shape...

Yes, I admit it: I've always been particularly enthusiastic about powerful amplifiers: even when using high efficiency speakers for numerous listening experiments and even public "World of HiFi" demonstrations, I appreciate that when power reserves are available, amplifiers sound best when working in their 'comfort zone'. That's never a problem with the products of Canadian brand Bryston, because they excel at supplying great sound, solid build and „audiophile punch“ in the professional and HiFi sector alike. „Quality with bang,“ as I like to call it.

The ideal amplifier is straightforward: the old idea of "a straight wire with gain" that amplifies without taking away or

adding anything. And Bryston has been synonymous with this in the industry for four decades, which why – although this isn't my first encounter with the company's amps – I really pushed myself forward to tackle this, my first formal test. After all, I'd already found the classic 3B and 4B amplifiers (see box) more than interesting, and even desirable, while the 14B SST, the holder of the STEREO performance record, was sensational.

Honorable Family

So here they are: the latest reincarnation of the 4B and the

matching, second largest Bryston preamp, the BP17, both in the „Cubed“ – or "3" version.

And things have changed: not only do the BP173 and 4B3 look completely different – due to the changed living ambience of the company's rather well-off clientele – but the internal design is also more exhibition-worthy than pragmatic. It is clear that the engineers' entire intention is to achieve the best possible:

the components, housing and workmanship are indeed of the finest quality. The preamplifier is fully balanced and completely built using in production-friendly SMD technology, leading to extremely short signal paths. The slots on the main circuitboard – for options



◀ The metal-cased handset is a system remote control - and an extra-cost option.

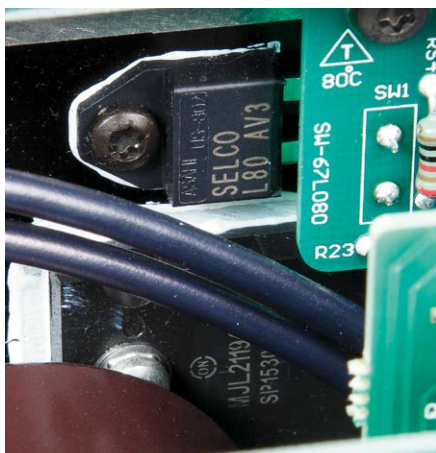
including an €1800 DAC module and a €1050 Phono board – are noticeably vacant in the sample we have, this basic version crossing the counter for €4,490. However, the add-ons can of course be retrofitted, making the preamp both future-proof and budget-friendly. That obviously-intended long lifecycle and a 20-year guarantee speak for themselves: this is a preamp built for the long haul, only to be changed when something else makes sense and you are convinced of it. Even then, you're likely to get a decent return at trade-in time – that extensive warranty works wonders when looking for a 'second user'.

As a classic Class AB design, the Briston power amplifier has an internal layout dominated by two huge toroidal core transformers stacked one on top of the other. Okay, so according to an unwritten law, the quality of an amplifier is determined by its power supply, so you can be pretty sure of no worries here, and so it proves: the 4B3 claims 300 watts into 8ohms, or 500W into 4ohms, and it can even mobilize more than 600W for short term pulses in the short term. Per channel, of course: the load resistances are already slowly glowing. The gain factor can be switched between 23 and 29 dB and the design allows mono bridged operation, at which point the 4B3 is capable of 900W into 8ohms, thus fits nicely into the old Rolls-Royce power description of "adequate"! The innovations of the „Cubed“ generations lie in a particularly sophisticated feedback concept of the input stage and further improved



▲ Two stacked and solidly clamped toroidal core transformers contribute to the hefty weight of the 4B3.

A fully symmetrical design with numerous options for expansion distinguishes the modern amplifier team. ▼



▲ Thermally controlled, bipolar high-performance transistors adorn the heat sinks.



suppression of RF, common-mode and negative power supply influences. The amplifier, like all the Cubed models, is available with a choice of faceplates, in black or silver and in three designs: 17in (43.2cm) or 19in (48.25cm) wide, with the 19in version also available with rack-mount 'ears' integrated.

Modular high-tech preamplifier

The fully-balanced Class A preamplifier is the result of more than two years of meticulous development based on the original BP-17 and combines Bryston's best analog technology. A new, patented input buffer is used throughout the "Cubed" series, as well as a new symmetrical volume control with extreme precision/channel balance. The development team, led by CEO and co-owner Chris Russell, honoured the late co-developer Dr. Ioan Alexandru Salomie by naming the input circuits „Salomie“ after him – and although the optional DAC module was not fitted to the test sample, Bryston has nevertheless attached importance to the strict current and mass separation of the analog and digital parts in the design of the preamp and its preparedness for the extra modules.

The slots for optional Phono-MM, MC or MM/MC (left) as well as DAC (right) are visible under the hood of the preamplifier. Of course, the investment can also be split in time, i.e. retrofitted. ▼

HISTORY

Based in Peterborough, Ontario, Canada, and founded in 1962, Bryston originally focused on medical technology, but since the mid-1970s has dedicated itself in to the production of electronics for professionals and audiophile purposes, and in particular amplifiers. The reliability of the brand is ensured by subjecting each manufactured device to a 100-hour trial and inspection before it is passed for shipment – which is one reason for the unusual 20-year warranty. Bryston's key product was, is and will probably remain the 4B stereo power amplifier, which has been improved, further developed and lovingly maintained for generations. While we see the latest generation 4B3 in the above test, the original version from mid 1976 can be found on the right of the photo, spanning over 40 years... Time has not stood

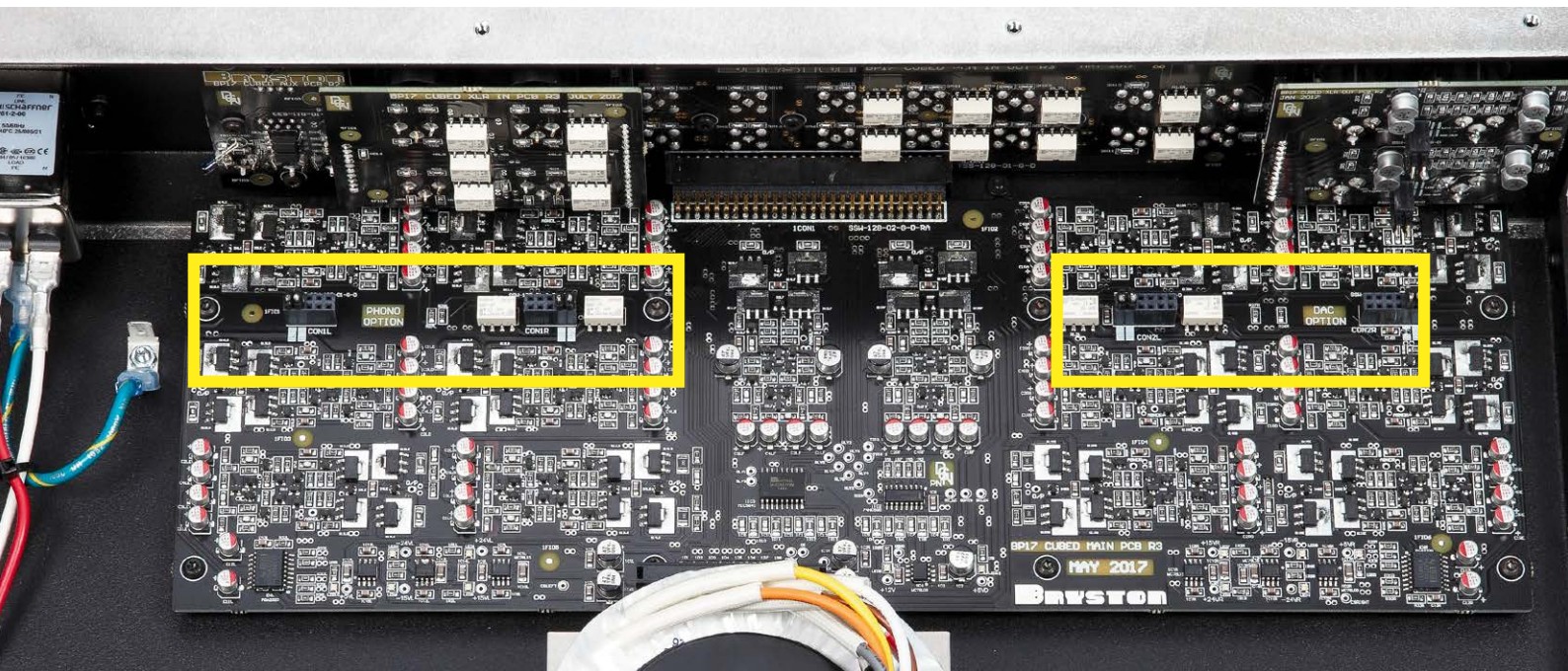
still, and technical progress has led to higher performance, greater broadband capability, faster signal processing, better distortion and noise characteristics and thus higher dynamics and better sound, even though the older Brystons remain good, extremely robust amplifiers. As we all know, even better successors will not change that. Rather, the new generation of devices will take the successful Bryston saga to a new level.



Earlier Bryston components – especially the 4B – had the reputation of offering great sound in an indestructible, straightforward form, being about as uncomplicated and practical as a hammer. They had a certain lumberjack charm of captivating simplicity – and as an academic who knows how to cut down a tree because he has already done it, I can say this without disrespect –, but that achievement was the result of complex art. This is only partially the case with the current, modern and elaborately designed generation – something one notices, for example, in the switching on ritual of the power amplifier,

which is far from simple and sometimes only succeeds even after you're used to it.

Both our measuring laboratory and the photo studio needed editorial support to get the extremely powerful power amplifier into operation, even though both deal with amplifiers every day. The problems was down to the built-in circuitbreaker, which – contrary to expectations – is not a normal main switch and should always remain switched on; to a 20 second delay for the next attempt; and to the self-diagnosis sequence, which checks both the mains voltage and the amplifier stages before it is switched on and also requires



the front switch to be operated. By contrast the preamplifier has no „hard“ mains switch at all.

All this is far from self-explanatory, but is actually only problematic once and quickly becomes a matter of course for the owner, and getting it wrong isn't a problem, as the protection of the devices is perfect. What's more, unlike many other amplifiers, the Brystons reached us with a marked and even matching mains phase, which speaks for a well thought-out and very constant production organisation.

In the STEREO listening room, the Brystons unleashed a kind of unbelievable elemental force, whose pronounced rhythm, texture and subtlety amaze on closer inspection. The bass is the first thing you notice, eliciting deep and crisp impulses of rare quality, and while the rest of the spectrum may be a little less spectacular, it plays its part in creating a performance of enormous clarity, solidity and accuracy. These are the all-round amplifiers of which the discerning listener dreams, and yet still in the realm of affordability.

The new Bryston amplifiers – for me the superstar of the ensemble is the power amplifier that comes close to the top references – are uncompromisingly modern in their classic design, but still synonymous with reliability and long life expectancy. With their natural tonal quality, their grippingly dynamic character and their consistently incorruptible, effect-free neutrality and tranquillity, they rank among the absolute upper echelons of international amplifier construction.

This also means that they project the emotions of a recording into the listening room, neither overstating nor restraining anything. They literally leave nothing out, their meticulous attention to detail is astonishingly good, and it's all accompanied by stirring rhythms of the kind only possible with fast amplifier capable of potent bass.

They are solid as a rock, but able to release unimaginably enormous explosive force when required, and for me they combine professional and audiophile qualities in a unique way, and should definitely be heard when thinking about purchasing top-quality amps. The legend surrounding this brand is absolutely true and justified, and its product is superb.

Tom Frantzen

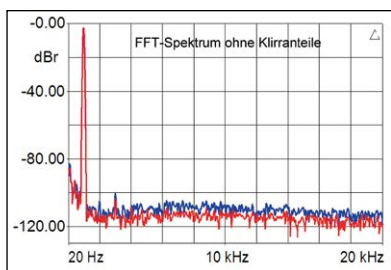
BRYSTON BP17³



from €4490
 (remote control €490, DAC module €1800, Phono MM €1050)
 Dimensions: 43 x11 x35 cm (WxHxD)
 Warranty: 20 years
 Contact: Avitech
 Phone: +1 705 742 5325
 www.bryston.com

An outstandingly neutral, solid and expandable, fully symmetrical preamp, the BP173 could just as well originate from studio technology, yet is more than audiophile with a strong rhythmic touch. Listen!

MEASUREMENT RESULTS



Maximum output voltage (1% THD)	15.6 V
Gain factor from high level input	12 dB
Distortion factor at 0.03/0.3/1 V	0.04 %/0.006 %/0.002 %
Intermod. at 0.03/0.3/1 V	0.07 %/0.004 %/0.001 %
Signal to noise ratio at 0.3/ 0.03 V	89.3 dB(A)/69.6 dB (A)
Input sensitivity for 1 V out of	268 mV
Overload resistance	inf. V
Upper cut-off frequency	>80 kHz
Volume control, synchronisation error	at -60 dB 0.1 dB
Stereo channel separation at 10kHz	92.7 dB
Standby power consumption	<2 W
Power consumption idle	31

LAB COMMENTS: Outstanding low noise and distortion, all transfer functions are superb. The 69 dB common mode rejection is remarkably high, which not only reveals true symmetry, but also meets studio standards.



FEATURES

Two balanced inputs/outputs each, five RCA high level inputs, tap loop, headphone jack, remote control, phono/DAC optional (modules)

STEREO - TEST

SOUND QUALITY 88%

PREIS/LEISTUNG



EXCELLENT

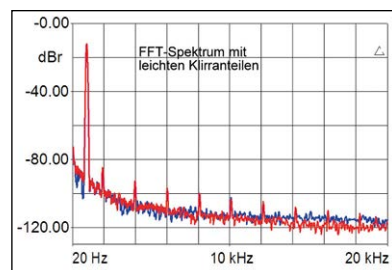
BRYSTON 4B³



around €6550
 Dimensions: 43 x15 x42 cm (WxHxD)
 Warranty: 20 years
 Contact: Avitech
 Phone: +1 705 742 5325
 www.bryston.com

Latest version of the legendary double mono amplifier from Canada. A real powerhouse of enormous robustness and power (around 300/500 watts output power per channel), it sounds incredibly powerful, fast and lively. Top class, listen to it.

MEASUREMENT RESULTS



Continuous power (8 Ohm / 40hm)	311 W/499 W
Pulse power 4 Ohm (1kHz)	624 W
THD at 50mW/5W/1dB Pmax	0.05 %/0.01 %/0.01 %
Intermod. 50mW/5W/1dB Pmax	0.004 %/0.005 %/0.01 %
Signal to noise ratio at 50mW/ 5W	61.2 dB/81.2 dB
Attenuation at 4 Ohm (63Hz/1kHz/14kHz)	142/100/60
Upper cut-off frequency (-3dB/40hm)	>80 kHz
Power Consumption Stby/idle	<2 W/58 W(221 volts)
weight:	28,5 kg

LAB COMMENTS: Very high power and pulse reserves with very low distortion and good channel separation as well as adequate damping factor. Fast (broadband) switching. Astonishingly low idling consumption for performance.



FEATURES

Balanced and unbalanced inputs, switchable gain 23/29 dB, remote trigger switching, connection for one pair of speakers, bridgeable for mono operation (900 watts into 8ohms), sophisticated protection circuitry concept, 19-inch rack handles optional

STEREO - TEST

SOUND QUALITY 95%

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TUBE MAGIC



The Octave remote control is made of metal and handles only volume adjustment.

In Octave V110 SE, all the tubes – both output and preamp – can be changed, and you can even alter the sound with an unusual damping factor adjustment

Who said integrated amplifiers were all about simplicity? That's far from the case with the new Octave V110 SE, which has some special technical features.

Some thing, though, don't change – typical for this manufacturer, we have before us a push-pull pentode output circuit with a very high power rating (2 x 110 watts), and the amp is extensively protected against incorrect operation, such as shorting of the loudspeaker outputs and even failure of the output tubes. It's even possible to operate the amp without tubes,

with only a partial complement or without a load on the end of the output (for testing purposes), all without problems. This protection and reliability is something to which Octave attaches great importance.

The V110 SE was designed for use with the KT 120 output tube, but allows the use of other power tubes such as KT 150, KT 88 and 6550 via rear-panel switching for the use of the more powerful KT 120/150 (high) and weaker types (low, 2 x 70 watts).

Brand new on the V110 SE – it's not found on the original V110 – is the

damping factor tuning. This concept works with the so-called „Octave Dynamic Technologies“, which covers revised power supplies, new output transformers and a driver stage that also monitors those KT 120/150 tubes, allows the amplifier to deliver almost twice the power of conventional push-pull designs. The idea of the damping factor tuning is to achieve the best possible adaptation to the loudspeaker to be driven.

For this purpose, a circuit was specially developed which, depending on the input tube used, influences the attenuation

factor in three stages without any further changes having to be made. Only the different amplification factor of the tube controls the necessary settings and thus the damping factor due to the enormous broadband feedback circuit. That the damping factor of an output stage can be varied simply by replacing the preamplifier tube and thus influence the control of the connected loudspeaker and its bass reproduction may astound some readers, but if you look at the amp as a complete system, with over-all negative feedback, it looks quite different.

The replacement of the characteristic preamplifier tube changes an essential link in the voltage amplifier of this circuit chain. The V110 SE is equipped as standard with three ECC81/12AT7 preamp tubes, providing medium attenuation, but one tube – on the right when the amplifier is viewed from the front – can be replaced with an ECC82/12AU7 for lower attenuation and an ECC83/12AX7 for higher attenuation. Both tubes are included for this purpose.

Audible impact

In the listening room, Octave once again proved that modern circuit design with correspondingly up-to-date, superior components and power supply can combine the desirable strong character of the tubes in use with the control and tightness familiar from semiconductors.

In principle, most tube amplifiers have „only“ single-digit damping factors, but the V110 SE’s damping factor adjustment, depending on the tube configuration, can vary this between 3 and 10 (measured at 1 kilohertz into 4 ohms). At 8 ohms, these values must be approximately doubled, as is confirmed by our measurement results.

But what does that actually do? It is well known that the frequency-dependent damping factor as the ratio of the output/internal resistance of the amplifier to the input resistance/impedance of the loudspeaker dampens the oscillation (but to a lesser extent also the excursion) of the drive units, thus delivers a degree of control.

A rather low damping factor “loosens the grip” a bit, and may be recommended for the operation of high efficiency horn or full-range loudspeakers that would like to be let off the chain; a high one, meanwhile, can “rein in” for more critical electro/magnetostatic speakers in the mid-high frequencies or simply speakers that generally require more control.

Octave says that modern loudspeakers with large mid-range drivers benefit most from an average value as an ideal compromise, but the scope is there to experiment.

The optional „Super Black Box“ increases the capacitance of the power supply tenfold, bringing more breath, power and control to the sound. ▶

Top facilities

Thanks to its preouts, the preamplifier section of the V110 SE can also be used alone or for operating subwoofers or for biamping, and the output stage can be used for home cinema purposes an input bypassing the preamp and volume control stages.

A fabulous universal MM/MC phono input is available as an option, and this isn’t the only reason why the user manual is an outstanding example of how such an important document can be executed in a customer-friendly manner. The bias setting (negative grid bias) for the individual power tubes is also optimally explained, and there are also explanatory and instructive tips everywhere on how best to handle tube amplifiers, how they work and what to look for.

This attention to detail is also apparent in the soft-start circuit with inrush current limitation, which also ensures a very



◀ The V110 SE is attractive due to its wide range of connections, with Phono available as an option. As is usual with Octave, there are no taps for different impedances.

Classic tube technology meets the latest circuit topology. ▶



gentle start-up and thus a long service life for the tubes.

The Octave proved to be a fantastic all-rounder in the listening room, as expected, and with the optional Super Black Box, which dramatically (tenfold) increases the screening capacity of the power supply, it was even more so in all respects. The effect of the rather fast tube changes - only one tube was replaced, mind you - was immediately comprehensible even on easygoing speakers such as B&W 802 D3 or DALI Epicon 6, but more often than not was a matter of taste. Most of the time the standard equipment was the best.

ODT circuit noticeable

In broader terms, the damping control adjustment can even be used as a tone control of sorts, altering the character of the sound delivered. It gave voices such as that of Cara Dillon a touch more freedom and provided the aforementioned high-class dynamic speakers with a colorful and detached sound image as well as fascinating graduation and illumination of chiseled bass, for example Mangione's „Children of Sanchez“. This also applied to the interaction with the T+A TALIS S300 and even smaller loudspeakers such as the B&W 705 S2, which benefited from the standard fitment and settings, meaning these are perfectly suited for most loudspeakers. For more difficult loads such as the Quad ESL, however, we

would certainly prefer the even tighter sound provided by the higher damping factor, as predicted by Octave.

This revelation of the function of the preamplifier tube is therefore not only interesting, but actually of tonal relevance, and makes it clear that the tube amplifier itself is still far from perfected - as is often claimed - and can still hold surprises. Octave boss Andreas Hofmann, who more than 30 years ago specialized in tube amplifiers on the basis of his family's transformer production is firmly convinced that such sound results were almost impossible a decade or two ago.

However, it must also be said that a modern Octave amplifier, with its highly developed monitoring and control processes, its enormous bandwidth or the „no impedance power supply“, for example, is technically far away from what many people consider a classic tube amp design. Here simplicity isn't all; instead, the strengths of the tube are worked out and perfected in the high-tech circuit technology.

Musically, the V110 SE is extremely close to its big brother V80 SE, meaning that this Octave, especially with the retrofittable Super Black Box, belongs not just to the handful of the best-sounding tube amplifiers I have ever heard, but also to the even larger group of the greatest integrated amplifiers.

Tom Frantzen

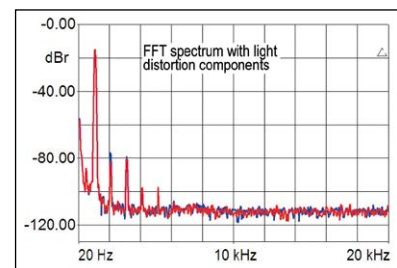
OCTAVE V110 SE



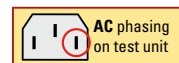
from €6990
 (Phono MC €450, MM on request,
 Super Black Box €2500)
 Dimensions: 44 x16 x42 cm (WxHxD)
 Warranty: 3 years
 Contact: Octave
 Phone: +49 7248 3278, www.octave.de

The most powerful, and second-best, integrated amplifier in the Octave range makes music with tube-typical emotional color and luminosity, plus the precision and control normally attributed to semiconductors. It allows the adjustment of the damping factor by simple preamp tube replacement, optional retrofitting with an MM/MC phono stage, and swapping of the output tubes.

MEASUREMENT RESULTS



Continuous power (8 Ω / 4 Ω)	63 W/97 W
Pulse power 4 Ω (1kHz)	112 W
THD at 50mW/5W/1dB Pmax	0.03 %/0.07 %/0.2 %
Intermod. 50mW/5W/1dB Pmax	0.04 %/0.05 %/0.1 %
Signal to noise ratio at 50mW/ 5W	67.9 dB/87.4 dB
Attenuation at 4 Ω (63Hz/1kHz/14kHz)	3/6/10
Upper cut-off frequency (-3dB/4Ω)	65 kHz
Crosstalk Line 1 > Line 2	64 dB
Synchronization error Volume at	-60dB 0.3 dB
Power Consumption Stby/idle	<2 W/155 W



LABORATORY COMMENT:

Very high performance and top-notch laboratory values throughout. In particular the distortion and noise values are remarkably good for a tube amplifier!

FEATURES

Remote volume control, bias adjustment, selection of damping factor, various output tubes accommodated, optional MM/MC phono stage, plus offboard power supplies increasing capacitance by 4x (Black Box) or 10x (Super black Box)

STEREO - TEST

SOUND QUALITY 93%

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OUTSTANDING

With the Special Forty, built to mark its 40th anniversary, Dynaudio wants to create a benchmark in the compact speaker segment, one of its traditional areas of strength. STEREO explains why the little one is both very Dynaudio and also something very special.



It's no coincidence that Dynaudio is celebrating its 40th birthday with a compact loudspeaker, as in so doing its designers are remaining true to their tradition and thus to themselves – and truth is important to the Danes, as they've made a point of stating in past marketing material. The tradition? Well, for its 25th anniversary the company launched the Special 25, a design so successful that a special edition of it was unveiled in 2010.

But there's more to it than that: Dynaudio may make first-class speakers of practically every size and price range come, but it has a special strength in the compact speaker segment – not by coincidence, but due to decades of commitment in this area. From the legendary Contour 1.3 to the brilliant Crafft or Confidence 3, which was blessed with tremendous potential but can be expanded almost at will, it has produced a whole range of models with high sound and corresponding cult potential. In fact it seems that every time Dynaudio wants to show what it can do, it builds a new compact speaker, and in so doing further challenge the supposed limitations of the genre.

„Special“ drivers

And nowhere is that more true than in the Special Forty, even if at first glance everything seems familiar: even without a badge, anyone halfway acquainted with Dynaudio will recognize what brand they in front of them. The „typical“ proportions are one clue, but the in-house drivers guarantee recognition.

The bass driver, with its polymer cone and large voice-coil dustcap, which has been in use since time immemorial, is just as stylish as the tweeter dome in the large-surface mounting plate, finished in a matt gloss coating. Yet while these drivers are “very Dynaudio”, much work has been undertaken to optimize them for this Special speaker – and that has made them very Special drive-units indeed.

For example, the company's top 17cm woofer, the 17W75 MSP, which is also used in the €6,000 Confidence C1, has here been treated not only to even stronger neodymium magnets, for increased control over the voice coil, but also to extremely resilient „Nomex“ fibers from Dupont woven into a coarse-meshed centering spider. The open mesh makes this very air-permeable, minimizing

Dynaudio prefers single-wiring, and the Special Forty is no exception. Note also the large reflex opening for the woofer. ▶

back-pressure behind the cone that can limit dynamics. This version of the woofer, designated Special Forty, is exclusive to the speaker of the same name.

This is also the case with the Esotar Forty tweeter, which as the name suggests is a development of the company's famous Esotar2. However, for use in the anniversary speaker, it also received the more powerful „neodymium engine“ and an



◀ In addition to its large voice coil, the 17cm woofer has a coarse-meshed – and therefore breathable – centering spider.



optimized sound conduction for the rear-radiated signal components, along with measures to equalize the pressure in front of and behind the 28mm soft dome. That done, by the way is coated with a material the company calls DSR – it stands for “Dynaudio Secret Recipe”!

All these measures come together to ensure that this tweeter can reproduce frequencies all the way down to down to 900Hz, while the woofer goes all the way up to 4kHz. The drivers are separated at around 2000 Hertz with a phase-stable

filter of the first order, which corresponds to a smooth edge steepness of six decibels per octave: the 3kHz overlap, plus the fact the two drivers are designed with similar characteristics in phase response, tonality, sound dispersion and on- and off-axis performance, enables the use of a very simple crossover system.

Due to the use of a large bass reflex port on the back of the cabinets, which come finished in Finnish red or grey birch veneer, the Special Forty is not for use on shelving or a sideboard. Instead it thrives when set up with some breathing space, for example on the new Stand 20 (see box). For our listening sessions, audiophile league integrated amplifiers were used in particular, but one should not reach too deep: as with all Dynaudios, the Special Forty grows especially with as the amplification improves, as well as offering pleasure seemingly beyond its compact dimensions.

In fact the speaker first picked up plaudits in a workshop during the „West German HiFi Days“, when compared to an old pair of structurally very similar

TEST-COMPONENTS

TURNTABLE: Perpetuum Ebner PE800
CD PLAYERS: Rega Apollo CDP
MULTIPLAYER: T+A MP 1000 E
INTEGRATED AMPLIFIERS: Exposure 3010S2, Rega Brio Amp, Symphonic Line RG14 Edition
LOUDSPEAKERS: B&W 705S2, Dynaudio Contour 20
CABLE: HMS Concertato, In-Acoustic LS1602, Silent Wire LS16

SUPPORTING THE SPECIAL FORTY: THE NEW STAND 20

The Special Forty can be used on any high-quality stands, but Dynaudio's new Stand 20 seems to be made for it. Available in white, silver or black and costing just under €530 a pair, the 61cm-tall design comes in three parts even inexperienced users can put together in no time at all. The carrier tube is screwed onto the solid base plate, and then the top plate attached – done! Rubber pads support the speaker, while spikes (below right) ensure a firm footing. It is important to tighten the spikes with the locking nuts once everything is leveled up, so that nothing wobbles.

For easy filling of Stand 20 with quartz sand, for example, narrow-cut plastic bags are included, which ensure that nothing trickles out afterwards. Filling the stands enhances their stability and, thanks to effective resonance

damping, improves the sound, making them an even more reliable support for the compact speakers.



Contour 1.3SE speakers, Dynaudio's compact hit from 1998. The Special Forty sounded more complex, detailed and harmonious, and detached the performance better from the cabinets. That's the sound of progress!

The ability of this compact speaker to offer more bass than expected was something we explored extensively: when placed correctly, the Special Forty has a profound – but, thanks to its small volume, ultra-fast, sinewy and controlled – low-frequency range, which is more captivating in temperament than overwhelming in its fullness.

Vivid, and in 3D

The Special Forty could just be the definitive „compact speaker“, so exemplary is the unity of the sound, with the parts of

the image fitting together like pieces of a puzzle. At the risk of resorting to HiFi cliché, it's like looking through a wide-open window into the recording studio or a live location, so vividly and three-dimensionally does this new model outline the body of the sound.

A particular strength is the midrange reproduction, which is central to the natural character, whether with the sonorous timbre of Paul O'Brian in „Silvia's River“ or the bell-like organ of Rebecca Pidgeon in „Kalerka“. The Dynaudio is fleet-footed and delivers an emphatic spread of sound, as well as mustering infectious liveliness and flirty fine dynamics with, for example, Oio's dazzling guitar strings on „Iduzka“.

The Special Forty even challenges Dynaudio's Contour 20 (around €4500/pr, test in STEREO 9/17), and while the pricier speaker appeared more mature and significant, it couldn't quite offer the tingling and rousing wit of the new arrival. The Special Forty is new milestone in Dynaudio's remarkable compact loudspeaker history, so I have to convey congratulations on the anniversary – and for this design!

Matthias Boede



◀ When the magnet is removed, the optimized air-pressure handling behind the tweeter dome tweeter can be seen.

DYNAUDIO SPECIAL FORTY



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(high-gloss birch veneers in red or grey)

Dimensions: 20 x36 x31 cm (WxHxD)

Warranty: 2 years (8 years on registr.)

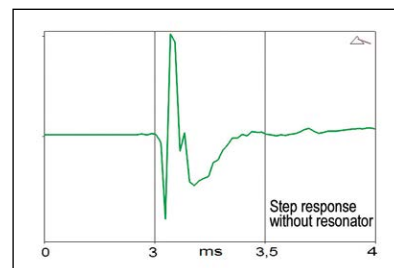
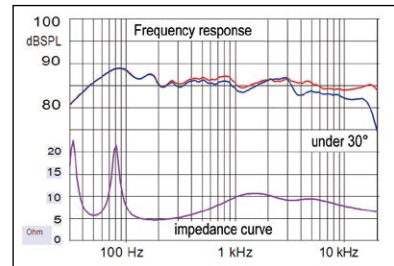
Contact: Dynaudio Germany

Phone: +49 4108/41800

www.dynaudio.de

The Special Forty consistently follows Dynaudio's tradition of exquisite compact speakers, for which only the best is good enough. This applies above all to the ultra-refined drivers, which provide top sound in perfect harmony..

MEASUREMENT RESULTS



DC resistance	4 Ohm
Minimum impedance	4.5 Ohm at 180 Hz
Maximum impedance	22.5 Ohm at 33 Hz
Sound pressure level	(2.83 V/m) 85.7 dB SPL
Power for 94 dB SPL	14 W
Lower cut-off frequency (-3dB SPL)	44 Hz
Distortion factor at 63/3k/10k Hz	0.3/0.1/0.1 %

LABORATORY COMMENT: A very linear frequency response, especially on the axis, with a subtle hump around 80Hz, underlines Dynaudio's knowhow in precision and tuning. Off-axis response drops only slightly, but nevertheless the Special Forty should be angled towards the listening position. Overall good-natured impedance response, barely below the 50hm mark; first-class step response.

STEREO - TEST

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G, BUT THEY'RE GOOD!



Sparkling, lively and dynamic: Auralic's new G2 'streaming bridge' and DAC components score with excellent sound – and technically they bring a breath of fresh air into any system.

Complex functionality combined with manageable complexity – those are the decisive components of a successful network player. And in case you think that means we're overlooking the sound in that consideration, it's only because that's a given: we expect as much from high-end devices, especially those from Auralic, which has never disappointed us in that respect. With the innovative "Aries", the Chinese company launched the first real "streaming bridge" a few years ago – effectively a network player without D/A converter. And in doing that, Auralic flew in the face of the then-current trend: at the time it seemed that even carrots from the health food store had S/PDIF inputs. Well, almost...

Aries G2 vs Aries

The fact that two components are shown in our lead photo may already reveal that the new Aries G2 has retained this same two-box concept. Like the original Aries, it's designed as a pure "transporter",

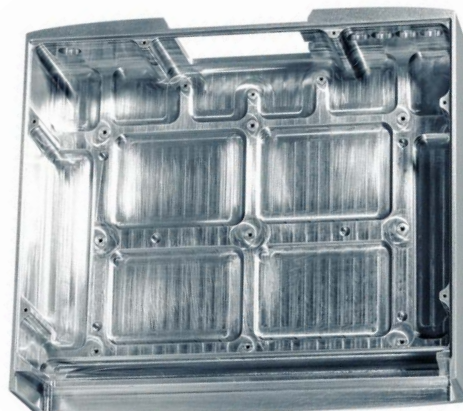
which is why we're testing it with the Vega G2 D/A converter, which is also new. However, while the G2 suffix might be interpreted as "Generation 2", that's not the case: the original Aries (at around €1750 with Femto-Clock) isn't being discarded, but the new model ranks in a different league with a price of almost €4,200.

But there's a further reason to consider the new Aries and Vega models "en bloc": Auralic has come up with a number of exclusive technologies for its G2 series, including the ultra-fast Lightning Link. This interface uses HDMI connections, but is audio only, transmitting potentially enormous bandwidths (in the gigabit regions) between connected devices. And Lightning is more than just a replacement for the S/PDIF interface: since HDMI is designed to work bi-directionally, the devices communicate in a master/slave network in which the DAC plays the leading role. Its high-precision dual clocks – one of which is reserved for the asynchronous USB connection – control the Aries

G2's digital operations, resulting in extremely low-jitter synchronous data transfer between the two.

Master of time

Compared to the original Aries and Vega, the new models have significantly increased data-processing performance:



▲ The housings of the new Auralics are milled from solid aluminum blocks.

what the company calls its Tesla G1 platform uses a quad-core Cortex-A9 processor running at 1GHz, with 1GB DDR3 RAM and 4GB of storage, as is designed for automatic update downloads for future performance enhancements. That the system memory is more than doubled, as data-caching – or buffering – plays a decisive role in the Vega G2.

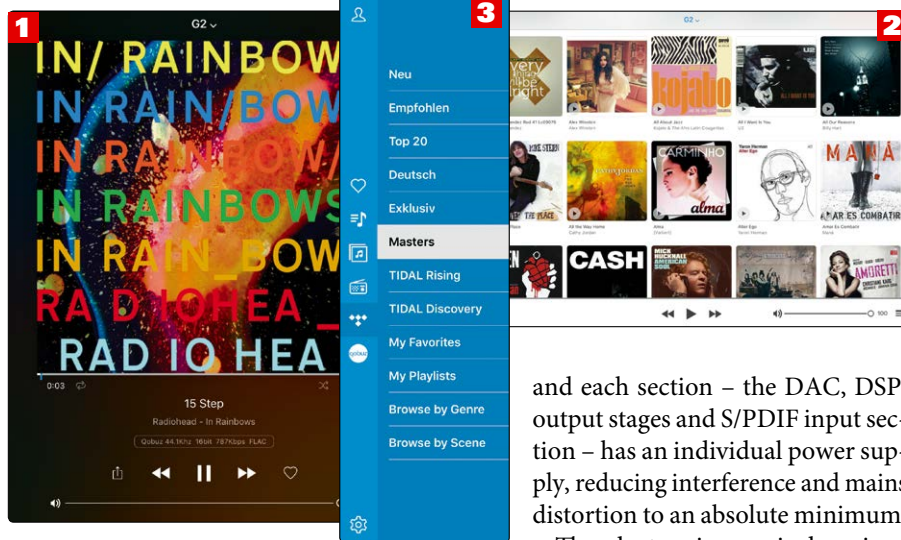
Incoming signals – including those from the analog input and its associated A/D converter – are stored in a digital buffer, then clocked out to the converter chip, thus filtering out digital signal distortion and jitter components from the source or from the home network. This process requires a signal delay of about 100 milliseconds – not a problem when listening to music, the already strictly two-channel Vega G2 fails when it comes as means of listening to TV sound, for example, where synchronization with video is required.

The converter chip is no off-the-shelf IC, but rather a modified version of the respected Sabre DAC, manufactured by ESS in small quantities for Auralic. It handles all relevant sound formats up to DSD 512, along with DXD and MQA, and offers a choice of four digital filters, each of which brings its own character to the music.

After conversion, the analog output passes through a complex level control system: while Auralic is an advocate of digital virtues, it recognizes that, due to the mandatory bit reduction during digital volume control, even the highest



▲ The relays/resistor groups of the Vega G2's passive level control, and the Class A output stages, are accommodated on interchangeable boards.



▲ 1 During playback, Lightning DS displays the resolution and bit rate of the music file. 2 Above you see the neat album overview of the remote app. 3 Tidal users can be pleased that the app has a direct link to hundreds of available MQA albums ("Masters") that immediately appear in the navigation column.

resolution digital attenuator doesn't come close to a good analog one. The Auralic solution was a passive network of resistors and relays, each arranged in groups of eight on sub-boards, and with the two channels handled separately, under the control of a digital encoder which also 'drives' input selection and accesses the units menus. You can hear the calming clicking and switching of the relays deep inside the device as you turn the front-panel knob, and it's worth noting that the relays are so designed that they draw no power when they are not in use, so once a level adjustment has been made, they switch off and are silent.

Directly downstream of this relay/resistor network is a pair of Class A output stages, also shielded to minimize interference, which the manufacturer designates "ORFEO". By the way, the idea of separate boards for each channel is primarily for maintenance purposes: for optimum channel uniformity, resistors, relays and output stage components are selected within narrow tolerances, so should something go awry at some point due to ageing, an entire channel can be replaced with a new matched set. That kind of forward thinking for ease of repair is rarely found in devices so highly integrated devices.

The developers also used galvanic decoupling between all relevant modules,

and each section – the DAC, DSP, output stages and S/PDIF input section – has an individual power supply, reducing interference and mains distortion to an absolute minimum.

The electronics are in housings larger and more massive than anything previously seen from Auralic: milled from solid aluminum, the 'Unity Chassis' enclosure rests on specially-developed sprung-loaded feet, and is fronted with colorful and razor-sharp liquid crystal displays at the front, showing information such as the selected input and level (Vega G2) or the cover of the album currently being played back (Aries G2).

Built-in redundancy?

After connecting up Aries or Vega, you first have to decide which server you want to use, via Auralic's own "Lightning DS" iOS app, of which more in a moment. Any UPnP or DLNA compliant NAS or computer in the home network can be used, and thanks to RAAT (Room Advanced Audio Transport) support, the music can also be controlled and supplied with data from Roon (see page 18). Finally, Auralic's own Lightning OS server can be activated, which indexes any external data sources and displays titles according to advanced sorting criteria such as sound format and quality (kilohertz/bit rate).

In a way, using both G2 components is a bit redundant, since the Vega also has streaming onboard – although this is a slimmed-down implement, for example missing wireless networking. In addition, the Aries G2 can be turned into a full-fledged music server via an optional internal hard drive or a USB drive plugged into it – another attractive trick the Vega does without.

An (almost) perfect app

The screens on the two units are pretty to look at, but you don't really need them: all control is provided by Auralic's

‘Lightning DS’ app, which has always been one of the most powerful and fluid network music remote solutions. However since the product range is now quite extensive, the manufacturer has had to change the logic of that app a little bit: previously, all component and playback requirements could be reached directly, but now there is a link in the device settings to “further options. This leads to a firmware-dependent subpage with device-specific menu items such as the digital filters or the active output – somewhat more long-winded, but unavoidable in view of the expanded portfolio.

In this submenu, the Aries G2 allows deep interventions in re-sampling in order to adapt its high-bit audio capabilities to any lower-resolution DAC you may choose to use with it, and you can also disable its built-in digital volume control. However, when used with the Vega G2, the DAC takes full control of such matters via the Lightning connection and forbids the Aries to level anything.

The remote app also benefits from the increased RAM of the two G2 models, making control even smoother and more fluid than with previous Auralic designs. This is particularly noticeable when using the supported web streaming services from Qobuz, Tidal or Spotify: Lightning DS imports your personal favorites and playlists into the device running the app, loading them into memory at startup, a trick the somewhat lame web apps of rivals can’t match. You can also create Tidal or Qobuz favorites and playlists directly from the remote app.

However, the super remote app has to take a little criticism: Auralic could be a little bolder in supporting and displaying ID metatags, which at the moment are limited to the usual performer/album/genre trio. After all, Lightning DS is already able to display the signal’s data rate in the playback view, even during web streaming via Qobuz and co.

New life for music

In the listening room, we were instantly struck by the same transparent, dynamic and extremely musical nature we had enjoyed from previous Auralic devices such as the Altair. However, the G2 team takes these traits further, breathing new life into the music and projecting a large, three-dimensional – but never overstated – soundstage into the room. Above all this is a wealth of detail, which draws out even the subtlest nuances of performances like Adele’s “Lovesong”: we especially liked the way the sound is always silky-fine and balanced despite its incredible resolution and bandwidth. Despite its attention to detail, the G2 combination invites you to enjoy hours of relaxed music.

As expected, the performance combination seemed a bit more confident and relaxed than the Vega G2’s internal network player, so if you want to tickle out the last ounce of emotion and fine delineation of detail, you should definitely consider the two-box solution. However, even on its own the DAC, which once again proves Auralic’s intuition for innovative technology, can rival such as Esoteric’s K-07X. *Carsten Barnbeck*



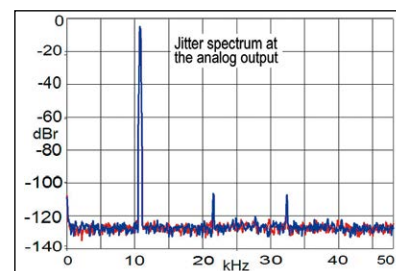
▲ As a special feature, the Vega G2 (shown above) offers an analog input in addition to its Lightning connection (“L-Link”), meaning it can also function as a preamplifier.

AURALIC VEGA G2

Price: around € 6300
 Warranty: 2 years
 Dimensions: 34 x 8 x 32 cm (WxHxD)
 Contact: AudioNEXT
 Phone: +86-(0)10/57325784
 www.auralic.com

Conclusion: Exclusive high-bit DAC with integrated preamplifier, complex network player and velvety-fine Class A output stage. In combination with the Aries G2 network transport it sounds relaxed, dynamic and sophisticated.

MEASUREMENT RESULTS



Signal to noise ratio digital zero	123.8 dB
quantization signal-to-noise ratio	
16 bit 24 bit	96.7 123.6 dB
Distortion factor -60 dBFS -9 dBFS	1.0 0.003 %
Converter linearity down to -90 dB	0.1 dB
power input	
Standby Idle	<2 15 Watt

LAB COMMENTS: Excellent readings throughout. Especially the noise values are convincing.

FEATURES

Concept: High bit converter with bidirectional Lightning interface (Auralic only), integral output level control, preamp input and UPnP/DLNA network player. Direct access to Qobuz, Tidal and Spotify, plus web radio, Bluetooth and Airplay
Connections: USB (computer), AES/EBU (XLR), coax and Toslink input, LAN, 2x HDMI („Lightning-Link“), one analog input and one RCA and one XLR tap each (regulated)
Formats: Converts signals up to 32-bit/384kHz, supports AIFF, WAV, FLAC, ALAC, MQA, DSD (DFF/DSF), APE, AAC, MP3, OGG and WMA
Accessories: One USB, HDMI and power cable each, brief instructions, system remote control, remote app „Lightning DS“.

STEREO-TEST

SOUND QUALITY	96%
PRICE/PERFORMANCE	
★ ★ ★ ★ ☆	
EXCELLENT	

40 YEARS EXCELLENCE



Loving music

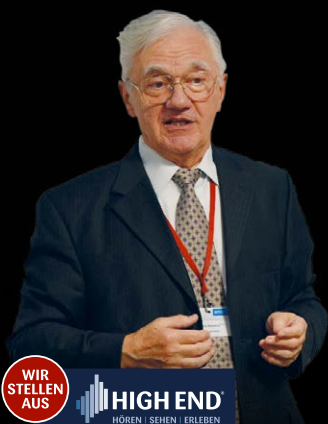
The best active concept

At our High End booth, Hall 2, E04/F07:

Analog Workshop with Wally Malewicz daily at 2 p.m.



Turntable: concept active wood
Tonearm: concept
Cartridge: concept MC



Wally Malewicz

Theoretical discussion and practical demonstration of cartridge/tonearm, turntable optimum alignment – Analog Workshop, daily at 2 p.m. at our booth: Hall 2, E04/F07



10. – 13.05.2018
Hall 2, E04 / F07



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Find our dealers on:
<http://clearaudio.de/de/dealer/dealer.php>
Or scan our QR code.



aufsess.com



Clearaudio electronic GmbH

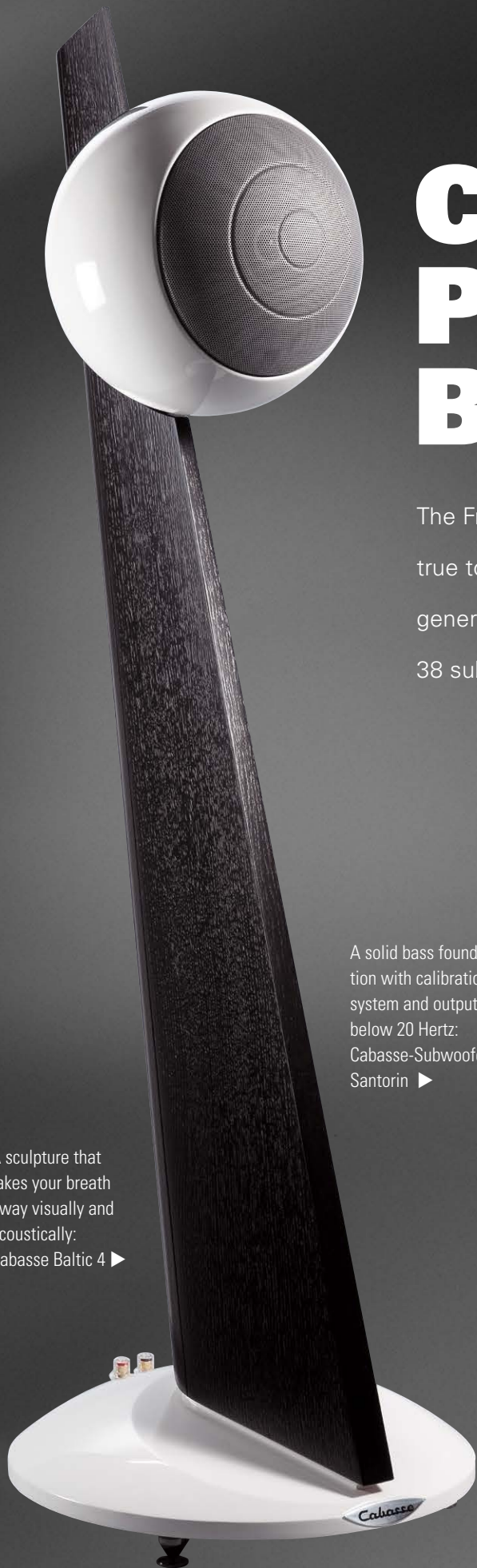
Spardorfer Straße 150 | D-91054 Erlangen | Fon: +49.9131.40 300 100 | Fax: +49.9131.40 300 119 | info@clearaudio.de | www.clearaudio.de
Made in Germany | Only available from authorized Clearaudio dealers. www.analogshop.de

CABASSE – PLUS MORE BASS

The French speaker manufacturer has long remained true to its faith in coaxial drive-units: add to the latest generation of the Baltic speaker its massive Santorin 38 subwoofer, and you have a breathtaking system

A sculpture that takes your breath away visually and acoustically:
Cabasse Baltic 4 ▶

A solid bass foundation with calibration system and output below 20 Hertz:
Cabasse-Subwoofer Santorin ▶





▲ What looks like a magic eye is actually an ingeniously nested tri-coaxial driver system.

The manufacturer in question was French company Cabasse, and the effect it was seeking to achieve is these days more consistently implemented in the form of a coaxial arrangement, with the treble driver in the centre of the axis of a midrange or mid/bass unit. It's on this technology that Cabasse concentrates, the coaxial or concentric form being quite common in nature, and asserted by some as the dominant form of higher order – after all, even the most irregularly-shaped object thrown into water produces completely uniform concentric waves.

As early as the early 1990s, Cabasse, a loudspeaker manufacturer founded in 1950, developed the basic driver technology to make acoustic use of these concentric rings. This was a paradigm shift from its already innovative, but more classically designed, drivers, and became a way of thinking to which the company's own headquarters and production facilities in Plouzané have remained true to this day. This makes the appearance of the larger models virtually unmistakable.

... because there is really no horn effect where really large lifting work occurs, due to the geometry. ▼

Acoustic triumvirate

The Cabasse portfolio is still managed by the founding family within the AwoX Group, and here we have the fourth generation of its Baltic speaker, using a new ultra-light aramid diaphragm, chosen for its stability and self-damping properties, in a special honeycomb structure for the core tri-coaxial – or is that triaxial? – driver. The drivers for the upper and lower midband are compressed to form a homogeneous whole, while the embedded tweeter reaches above 25 kilohertz.

Three drivers in one – and the „horn problem“ is partly solved at the same time. ▼

Unlike the L'Océan and La Sphère systems in the six-digit price range, which work with fourfold coax drivers and corresponding volumes, the smaller (but no less sculptural) Baltic 4 uses a somewhat smaller main driver system, with the separate subwoofer only covering the two lowest octaves of around 20-80Hz.

Breton Colossus

The Santorin 38 uses an earthquake-generating long-stroke driver with a 38cm Nomex honeycomb membrane – actually the same one found in the company's L'Océan flagship speaker –, meaning that it doesn't just cover that range down to 20Hz, but is actually flat down to 17Hz. Add to that an amplifier capable of a kilo-



Basket and drive of the Tri Coaxial chassis have been ingeniously designed. ▼



watt of instantaneous power, a gross volume of 187 liters and a whopping 53kg of mass, and you have a bass master that's always noticeable, even when it is not switched on. Beside the very pretty Baltic columns with their superbly styled spherical enclosures, one wonders whether the Santorin might not have been better realized in a rounder form.

Nevertheless, the sub contains the finest DSP technology for acoustic integration into the room via microphone and automatic or individual measurement and for custom adaptation to the Baltic. All we have to do is set the 65Hz crossover frequency recommended by the manufacturer, connected the system via the loudspeaker terminals on the amplifier and the „satellites“ output on the subwoofer. Then the supplied,



◀ Massive bracing, a clever decoupling system and a powerful engine with DSP ensure "bang".

reproduced with incredible three-dimensionality, and the same applies to the piano of Tori Amos on „Winter“, which is extremely credibly projected. Meanwhile even drummer Charly Antolini in full flight can't overtax this system in terms of timing and maximum level. For several decades it has been a sign for me when my eyes twitched involuntarily with bass impulses, because this only happened with speakers of excellent synchronicity and speed. With the Cabasse system, it happens!

I honestly don't have the space to do justice to the Santorin subwoofer, which proved somewhat overwhelming at times, but with the Cabasse Baltic 4 speakers it was love at first sight – and sound.

Tom Frantzen

high-quality microphone is placed for three short measurements at the listening position, once at a height of about 1.50 m at the top left and once in the knee position at the bottom right, and the Baltic/Santorin system is ready to work together seamlessly. Frequency response, location/delay and room characteristics in the bass are taken into account: while the whole thing sounded appealing with intuitive adjustment even before the measurement, after the set-up routine even the quietest boom effect or the smallest asynchronicity was now dispelled. Impressive...

Stunning performance

Apart from the fact that this subwoofer, equipped with all manual possibilities, four configuration memories and a clever decoupling, is one of the best I have ever heard in terms of cellar spirit, namely slack-free precision and enormous power down to the lowest 16-Hertz organ whistle, also prevails in the higher tones.

To honor the Cabasse family's past fame as violin-makers, after over 60 hours of break-in time we started the listening test with Vivaldi's „Four Seasons“ – albeit with Anne-Sophie Mutter's Italian Stradivari shining rather than a French instrument. Despite all the clarity and extreme solidity of the soundstage image, the Baltic 4 proved to be gentle-tempered, and with wide dispersion to ensure a pleasing result over a generous area when angled in slightly towards the main listening position.

The music sparkles effortlessly from the Baltic 4 'satellites', the violin being

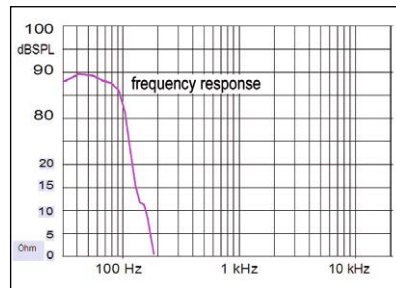
CABASSE SANTORIN 38

€7000

Dimensions: 51x62 x61 cm (WxHxD)
 Warranty: 5 years (upon registration)
 Contact: Audio Trade
 Phone: +33 298/058888
 www.cabasse.com

One of the most powerful and best subwoofers STEREO knows, its advanced design dramatically simplifying integration into a sub-sat or multi-channel system, including room bass correction. The bass has exceptional extension – below 20 Hertz – at almost full level, the maximum volume is enormous, yet the sound is effortless, agile and yet powerful. Unfortunately, the Santorin is very large, but the subwoofer worked absolutely superbly in a 20m² room.

MEASUREMENT RESULTS

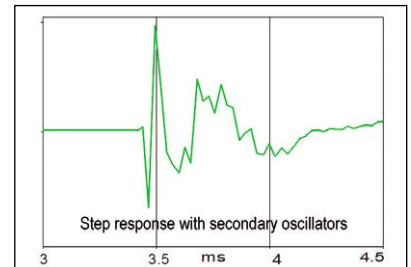
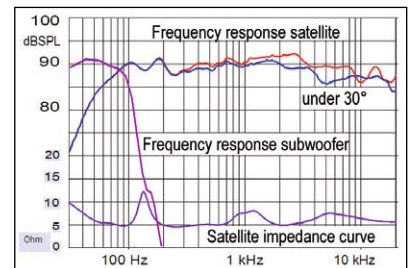


CABASSE BALTIC 4/SANTORIN

From €11,000/pr
 (freestanding version, also available from €8000 as wall-mounted and compact version),
WITHOUT subwoofer
 Dimensions: 40x130x49 cm (WxHxD)
 Warranty: 5 years (upon registration)

Used with the subwoofer as a complete €18,000 system, the Baltic 4 breathtaking. A high-precision, effortlessly solid and finely etched sound of superb musicality combines with abyssal depth, pitch-black and impressively controlled. Pure high-end, pure music.

MEASUREMENT RESULTS



minimum impedance	4 Ω at 260 Hertz
maximum impedance	12.5 Ω at 140 Hertz
Sound pressure level (2.83 V/1m)	92 dB SPL
Power for 94 dB (1m)	3.6 W
low cut-off frequency (-3 dB)	20 Hertz
Distortion factor at 63 / 3k / 10k Hz	1.0 0.3 0.1 %

LABORATORY COMMENTARY

The measured values apply to the satellites (Baltic 4), but since the frequency response of the satellites is only up to 74 Hertz, we specify the lower cut-off frequency with subwoofer (20 Hertz) here. Thanks to calibration, the set fits together almost seamlessly and delivers a balanced and quite linear sound. The loudspeakers, which have a very high efficiency of almost 92 dB, should be angled to the listening position. The step response corresponds approximately to that of a three-/four-way speaker.

STEREO-TEST

SOUND QUALITY **100%**

PRICE/PERFORMANCE

★★★★☆
VERY GOOD

COAXIAL DRIVER TECHNOLOGY

In search of the 'single point source' ideal.

In loudspeaker construction, all designers agree on the ideal of the 'point source': if it was possible to build a single and unambiguous centre of sound generation without time, phase and spatial offset over the frequency, significant acoustic imaging errors wouldn't occur, and the sound would be entirely coherent.

Coaxial drivers imitate this ideal, strive for it and – in many respects – achieve it, using a construction in which two (or sometimes more) individual driver elements, responsible for different frequency bands, are concentrically integrated. Doing this allows the sound generation centers can be congruent, allowing this construction to claim enormous spatial-temporal coherence, and thus imaging quality and precision.

A further advantage can be seen in the smaller space required when multiple

drivers are combined into the space usually occupied by a single bass driver: for that reason, coaxial drivers are often to be seen in 'custom installation' speakers designed for use in walls or ceilings, and are also common in in-car systems. However, the designer of a 'coax' needs also to be aware of the problems of such a design, in that when the outer bass or mid/bass driver moves back and forth around a central tweeter, it naturally acts as a constantly changing and thus discoloring horn affecting the high frequency output.

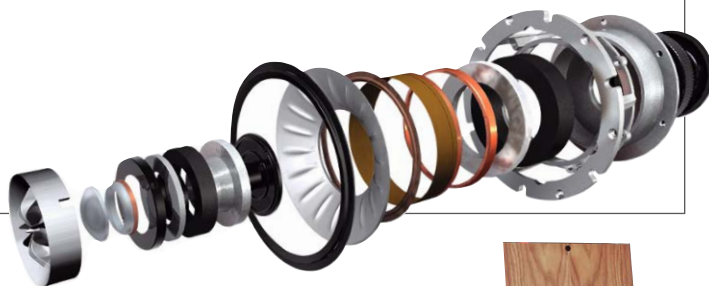


THE BEST KNOWN: KEF UNI-Q

KEF's „Uni-Q“ driver was born in 1988 in the C35 loudspeaker, meaning it's just on 30 years old – and over that time it's become a mainstay of the company's speaker thinking, from its little KHT satellite speakers for home theatre all the way up to its Blade and Muon flagships.

That first driver was used a 20cm mid/bass unit with an internal 19mm tweeter, and decoupled magnets were also experimented with. Significant progress was made in 1994 with flat profiles in the Reference series and in 1997 with casting technology, while further improvements included the switch to metal domes in 2001, the ventilation of

the tweeters and the modification of the radiation (wide dispersion) in 2006. These techniques were further perfected in combination with new diaphragm materials/geometries, large voice coils, deeper domes and new wave guides, for example for the top models of the Blade series. With Uni-Q, the tweeter is „congruent“ within the woofer voice coil, which was only made possible with strong magnetic materials. KEF understands that the cone angle of the external driver determines the dispersion of the tweeter as an advantage and works specifically with it.



THE OLDEST: TANNOY DUAL CONCENTRIC

Scottish specialist Tannoy is considered the oldest loudspeaker manufacturer in the world, and a large part in its exquisite reputation in hi-fi as well as in music and studio circles is played by the legendary „Dual Concentric“ driver, with its physically fused treble and mid/bass elements. First presented at a trade fair in 1947, this concept is still being lovingly developed today. For the high frequency range, Tannoy uses a horn system rather than the usual dome tweeter, this horn running through the woofer's voice coil to form a point

source. Due to its greater directivity compared to the tweeters found in other coaxial designs, the horn has the physical advantage of being less sensitive to the modulating membrane movements of the drivers positioned around it, so even a 15-inch Dual Concentric becomes possible. According to the Tannoy developers, the non-identical plane of the two voice coils is compensated for by the pressure chamber behavior and the longer 'throw' of the tweeter, and perfect coherence should be achieved at a listening distance of three meters or more.



These side effects can be countered by flat speaker geometries (as in KEF's Uni-Q), spherical (Cabasse SCS), directional radiation (in Tannoy's Dual Concentric) or even asymmetrical driver arrangements (as in the designs of German speaker manufacturer Geithain).

When it comes to speaker driver design, few ideas are technically as obvious as the coaxial, with its practically precise arrangement of loudspeaker elements on a single plane. And in many cases the result is spectacularly precise, vivid and lively. Yes, the full-range driver, without a crossover, is seen as a competitor to the coaxial driver as a 'point source' sound, but this seemingly simpler solution is actually harder to achieve than a coaxial driver, its multiple elements connected via a conventional crossover.

special models

Even with a tweeter that is only inductively coupled and that works inseparably in the centre of a bass-midrange driver without its own drive, the idea of the coaxial arrangement is fulfilled. Interestingly, Tannoy follows this approach with the ICT transducer in the Di5, which is designed and suitable for robust outdoor use, so perhaps this should be seen as a simplified coaxial driver for cheaper applications. We've heard this design in use, and it works well.



LIVE ACT

The name says it all - and what could be more obvious than to use precise coax drivers for lively, lively reproduction with high sound pressure levels?

MFE GEITHAIN

Especially in the studio sector, the East German specialist relies on asymmetric coaxial drivers.



PIEGA

In addition to aluminum housings, ribbons – and especially coaxial ribbons – are a specialty of the Swiss company.



PROGRESSIVE AUDIO

The Essen-based company uses coaxial drivers in their latest creations to ensure that the sound is reproduced in the right time and in the right space.



ELAC

With Andrew Jones (KEF, TAD) onboard, the development team's love for coax was strengthened to take advantage of the company's legendary JET tweeter.



QUIETER AND STRONGER



In many audiophile circles, it is commonly believed that power conditioners and various other power-line accessories often do more harm than good, robbing the music of its vitality, color, and that oh-so-important, wildly intangible “boogie factor.”

AudioQuest’s **Niagara Low-Z Power Noise-Dissipation Systems** are designed to do the exact opposite. Niagara kills the noise while *honoring* the music, so that the listening experience can be exactly as it should be: compelling, immersive, *fun*.

“The difference was huge. AudioQuest’s Niagara 1000 not only cleaned up the power, it did everything that is the *opposite* of killing the boogie.... It was as if my system had gotten a heart-shot of adrenaline.”

— Herb Reichert,
Stereophile,
April 2017



audioquest®



MIND YOUR BACK!

If you carry the DALI Opticon 8 home, a visit to the chiropractor may follow – this floorstanding design is substantially constructed, to say the least

We were amazed when the top model of the DALI Opticon series arrived for unpacking: the huge packaging wasn't just there to impress, but housed a full-grown, powerful floorstanding loudspeaker clearly developed without reference to any diet sheet. Although it stands less than 1.2m tall, it still weighs a full 35kg – handle with care!

Class by mass

So what makes it so heavy? Well, the very thick-walled cabinet – a full 25mm, with multiple braces on the inside – plays its part, a stable platform with as little resonance as possible being indispensable for a lifelike reproduction. There's a broad consensus on that among the scholars of loudspeaker construction, because a loudspeaker cabinet is not an instrument, is not supposed to vibrate. It should reproduce every instrument and every voice accurately, not add its own influence to them.

Another factor in that mass is the powerful magnets used in the drive units, this three-and-a-half-way speaker offering above-average quality to justify its price of €2600 a pair. The two

long-stroke 20cm bass drivers, each tune with its own reflex port to the rear, are also above average, with a clever cut-out at the rear of the front baffle ensuring the air flow behind the bass drivers circulates unhindered. The fact that DALI has consistently implemented its core technologies here is no surprise: for example SMC – a soft, magnetic granulate – ensures significantly less distortion than classic pole pieces made of iron, as it is electrically non-conductive, while the cone material, a mixture of paper and wood fibers, is derived from the more expensive Epicon models.

Great attention is also paid to the crossover, which according to DALI is optimally tuned for a harmonious and neutral sound. The 16.5cm midrange driver, which operates in a closed cabinet, is responsible for the extremely important frequency range of just under 400Hz to around 2.3kHz; from there upwards the hybrid tweeter module – comprising dome and ribbon – takes over, the ribbon only being used beyond 10,000 Hertz.

The aim of DALI is to ensure the finest resolution, wide horizontal radiation and high power-handling capacity. If that's true, there should be no lack of punch in the lower registers in the listening room, no lack of balanced-sounding midrange and no lack of dynamic abilities, resolution and attention to detail - and all this should still be offered if two or more people want to listen to the sounds of the music sitting next to each other on the sofa.

So where have any savings been made? The answer is quite simple, not exactly a

cause of any great hardship: the enclosure is wrapped in high-quality foil rather than being veneered or lacquered, with only the front baffle getting the black or white gloss finish, while the grilles attach with conventional plug fixings, rather than the neater magnetic technique. If that has you throwing up your hands in horror and dismissing the Opticon 8 from your wishlist, you're missing out – you should know how good these speakers sound...

Heavy, but not sedate

We started very urgently with „Magico“, a masterpiece by Garbarek, Gismonti and Haden, and a ruthless exposé of any failures in timing, but the DALI remained more than brave, simply strolling through the music – albeit with a touch less elegance and agility than mustered by its much more expensive big brother, the Epicon 6.

However, when it came to natural expression, the two were much closer: with ever more wonderful voice of Lyn Stanley, „Makin' Whoopee“ sounded exceptionally real – it was delivered with just the right amount of charm and warmth, without appearing sugary. Voice reproduction, whether male or female vocals or even a whole choir, is a major strength of this loudspeaker, while the airiness with which sound is represented is another revelation: this design may at first seem hefty and even a bit plain, but the lightfooted breeziness of its sound is an entirely different matter.

The Opticon gives away very little to a speaker which after all is three times the price, even when depicting a large soundstage or apparently „disappearing“ behind the performance. Where it didn't quite the level of the Epicon, despite careful alignment, was in the focus of the sound – i.e. precise imaging and accurate sizing of elements in a recording –, this probably first and foremost a result of the housing, which is not quite as massive as that of the pricier speaker. However, the Opticon 8 has no need to admit defeat when lined up against competitors ranging up to a good €3500. While it was noticeable during comparative listening, e.g. with ZZ Top's „La Grange“, that the bass is never thickened, and may almost be considered a little reserved, I can assure you that the fun of rock and pop music is not neglected.

Michael Lang



▲ Paper and wood fiber, SMC magnet technology and clever rear ventilation - the bass drivers of the Opticon 8

DALI OPTICON 8

around €2600
(various finishes available)
Dimensions: 24 x114 x45 cm (WxHxD)
Warranty: 5 years
Contact: DALI
Phone: +45 9672/1155
www.dali-speakers.com

This loudspeaker that convinces in all musically important criteria, with the only visible economies apparent in the enclosure only made on the housing, which has a foil wrap and a black or white front.

MEASUREMENT RESULTS

DC resistance	4 Ω
Minimum impedance	4.8 Ω at 100 Hz
Maximum impedance	12.5 Ω at 53 Hz
Sound pressure level (2.83 V/m)	88.7 dB SPL
Power for 94 dB SPL	5.6 W
Lower cut-off frequency (-3dB SPL)	33 Hz
Distortion factor at 63/3k/10k Hz	0.3/0.3/0.1 %

LABOR-KOMMENTAR: High efficiency, low distortion, smooth frequency response and an undemanding impedance curve, plus a very good step response - the DALI has become our laboratory manager's favorite..

FEATURES

Removable cover, outriggers and height-adjustable spikes, two reflective openings on the back, high-quality and stable bi-wiring terminal.

STEREO - TEST

SOUND QUALITY	77 %
PREIS/LEISTUNG	
OUTSTANDING	



THE VINYL VISTA

Musical Fidelity expands its mini tube series with the breathtaking Nu-Vista Vinyl phono preamplifier.

Antony Michaelson is an extremely experienced developer, and both captain and helmsman of the good ship Musical Fidelity. Before “laying down the keel” of a new product, he not only asks himself what his importers and dealers would like him to ship, but also asks them how many of his new product they are willing to take onboard. This gives him security in his product-planning, an essential element in his goal of being able to offer top quality at a still earthly price – after all, the price of every industrially manufactured product is essentially determined by the costs of development, components and labor divided by the number of units manufactured and sold.

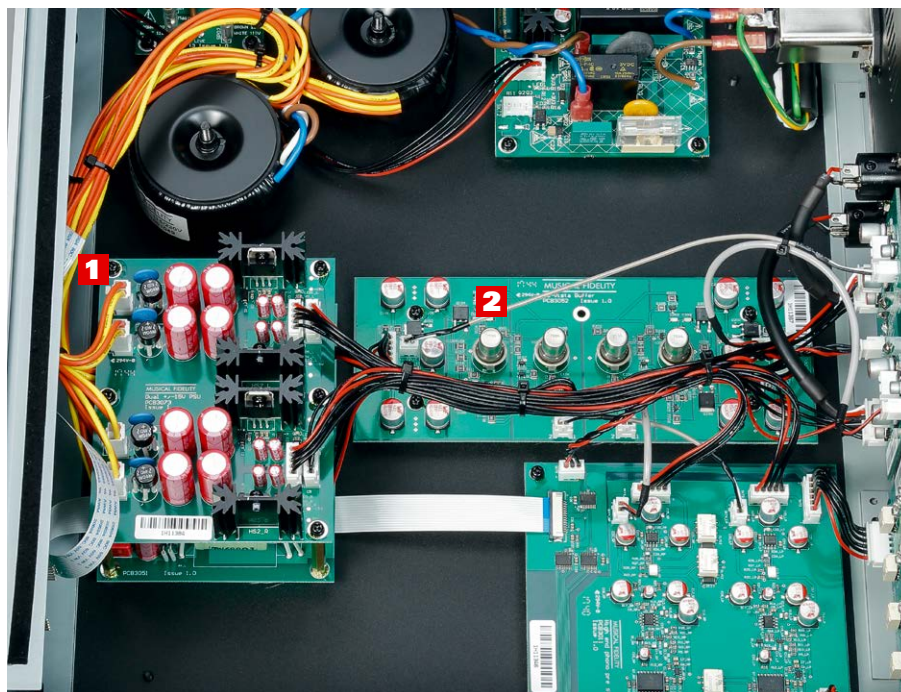
Far from Spartan

While the two integrated amplifiers and CD player of the Nu-Vista series present a minimalist face to the world, with very few controls on their fascias, by contrast the new Nu-Vista Vinyl phono amplifier differs from most of its kind – as well as the rest of its family – with a heady eight

controls on offer. Things are hardly less busy to the rear, with RCA inputs for a total of five cartridges, a grounding socket and outputs in XLR and RCA format. Seldom have we seen a phono preamp offering such flexibility.

Beside the on/off switch to the left,

which also contains the muting function, there is a switch for moving magnet and moving coil cartridges, then an eight-stage 50-400pF capacitance adjustment for moving magnets, and a cryptically-labeled ‘IEC’ button, which activates a subsonic filter in the unlikely event that your



▲ Amazingly well-filled interior of the Nu-Vista Vinyl: **1** The powerful output stage is double-decked on two circuitboards, while **2** the input stage with the NuVistors is also channel-separated. Remarkable are also the two toroidal transformers (l.o.) and the circuitboard for input selection and fine adjustments.

turntable emits low-frequency noise – aka rumble. If you feel that there is a large volume difference between your records and other sources, the output can be boosted by six dB using another front-panel button.

And the Musical Fidelity has even more up its sleeve: for moving coil cartridges, it has an eight-stage resistance adjustment from ten ohms to 47 kilo ohms. And the reason for the large number of sockets on the back – and perhaps the most impressive aspect of the design – can be found with the last button on the front panel: this selects in turn each of the five inputs, and all the set-up values can be memorized individually for each of those, using non-volatile memory that holds the settings even if the unit is switched off.

Nu-Vista - more than just a name

If you are wondering what this “Nu-Vista” thing is all about, it takes its name from a special miniaturized tube type, the Nuvistor, conceived in the 1950s as the successor to the classic tube, or valve, and launched by RCA in 1959. It works without glass and mica, and was able to be assembled automatically under vacuum conditions, but by the time it was launched it was already fighting a rear-guard action against the increasing encroachment of the transistor.

Michaelson considered that a pity, as the technical specifications of this triodic variation on tube design were so good that they could also be found in measuring instruments, oscilloscopes, and studio recorders and microphones. In order for them to be used, however, special bases were required, which he was eventually

able to source – along with sufficient stocks of the tubes – for series production.

Inside the phono stage one notices not only the “Nuvistors”, but also a design driven by the need for flexibility. In addition there’s a high measure of practicality, including a very good signal-to-noise ratio and extreme overmodulation security. The powerful output stage is designed to drive long interconnect runs to the pre-amplifier without any problems and, as expected, there’s a generously dimensioned and channel-separated power supply with two toroidal transformers.

Emotional, yet neutral

Connected to various turntables and amplifiers, mainly the team of Pro-Ject 175 and the fascinating Audionet Watt, the latter with balanced HMS cables, the Nu-Vista was lively and dynamic from the first sound. The timbres of Martin Sasse’s great analogue recording in the Bauer recording studio were just as convincing as the illumination of the stage and the exact separation of grand piano, double bass and drums. The Ortofon cartridge was used with the 100 Ohm setting, while a Clearaudio inserted for comparison worked best with the 200 Ohm resistance setting.

Lou Reed’s classic “New York” album, played using a refreshed Shure Ultra 500 and the 150pF setting, left no doubt that experts in development and tuning were at work here. “Last Great American Whale” almost became a physical threat through the Gauder Vescova Black Edition, while “Porgy & Bess”, with its very complex soundstage images, was handled



▲ Five pairs of RCA inputs plus XLR and RCA outputs. However, the phono stage lacks the copper-plated rear panel of the Nu-Vista amplifiers and CD player.

MUSICAL FIDELITY NU-VISTA VINYL

€4200
 (available in silver and black)
 Dimensions: 49 x13 x40 cm (WxHxD)
 Warranty: 2 years
 Contact: Reichmann Audio Systems
 Phone: +44 20/89002866
 www.musicalfidelity.com

Extremely flexible sound-wise thanks to Nuvista technology, high-quality components and first-class power supply far ahead. Excellent workmanship. XLR outputs six dB lower noise. Our wish for the future? Capacitance and resistance adjustable by remote control.

MEASUREMENT RESULTS

Signal to noise ratio Phono-MM (5 mV)	88.7 dB(A)
Signal to noise ratio Phono-MC (0.5 mV)	72.6 dB(A)
Phono-MM: sensitivity for 1 V out	8.4 mV
Phono-MM: gain factor	42.2 dB
Overload-proof. MM/MC	172 mV/26.3 mV
Phono-MC: sensitivity for 1 V out	1.4 mV
Phono-MC: gain	57.7 dB
Phono-MC: input resistance	adjustable Ω
Output resistance	100 Ω
Maximum output voltage	20.2 volts
Crosstalk (5mV/1kHz/1kΩ)	79.3 dB
Power Consumption Stby/idle	<2 W/19.6 W

LAB COMMENTS

Very good measurement results: excellent overload resistance and channel separation as well as high noise reduction. Very balanced frequency response.

FEATURES

5 x RCA inputs switchable for MM or MC systems with capacitance and resistance adjustment, each with eight stages. Switchable subsonic filter; XLR and RCA output.

STEREO -TEST

SOUND QUALITY 98%

PRICE/PERFORMANCE

★★★★★

OUTSTANDING

by the Musical Fidelity almost as confidently as it was by the Brinkmann Edison, at twice the price. What’s more the Nu-Vista was as quiet as a mouse, yet able to rock out and swing with Albert King’s “Born Under a Bad Sign”.

The conclusion is inescapable: we now have an instant increase in the availability of first-class phono preamps with wide-ranging flexibility – and the new arrival comes at a very moderate price.

Michael Lang



R

Raidho
Acoustics



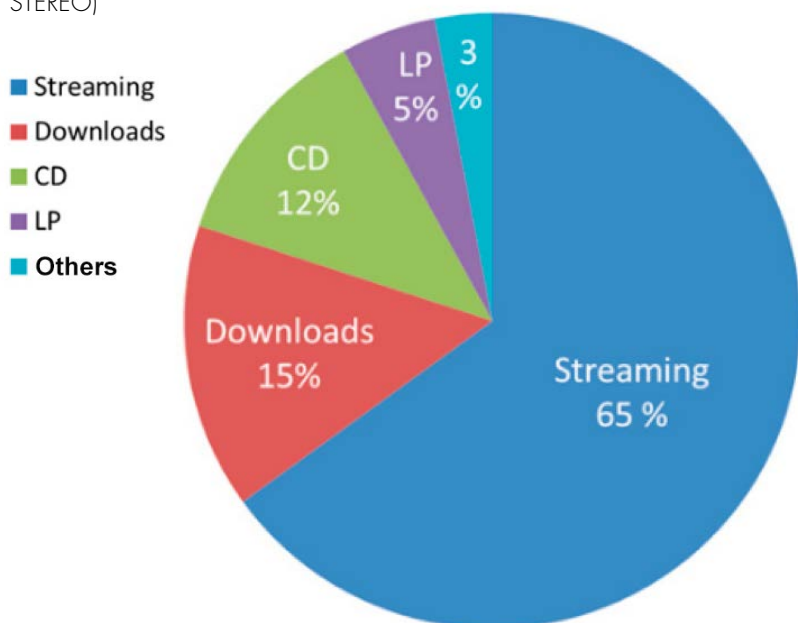
D-1.1

It is an
extreme
performer

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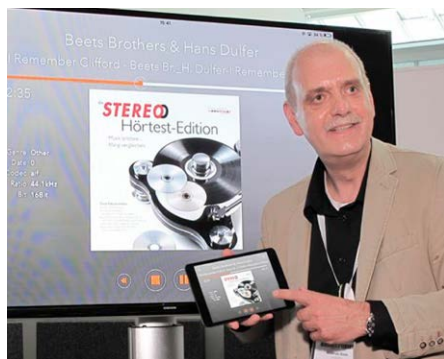
US Music Market: Downloads are down

There's a surprise in the US music industry's 2017 sales figures: we knew that streaming continues to make inroads into actual sales of music, but the big loser is not the physical sound carrier, but downloads. Down over 25% year on year, they now account for just 15 percent to the total revenues of the industry, or only little more than 40% of all music sales. In contrast, CD has held up relatively well with a decline of 7% year on year, and the LP was able to continue its growth (+ 9% on 2016 figures). For the first time since 2011, the industry organization RIAA emphasizes, more revenue was generated by physical music purchases than downloads. However around two-thirds of total revenue is now from streaming, which increased 43% on the previous year, with particularly high growth from services with a limited offering, such as Amazon Prime. But the industry is pleased with total year on year sales growth of 16.5%. (Source: RIAA, graphic: STEREO)



STEREO workshops at the Munich High End show

At the forthcoming High End show in Munich, STEREO editor Matthias Böde will again be offering his popular workshops, on Saturday, May 12th. He starts at 11.00 at Avantgarde Acoustic with the theme „The record as a luxury item – extraordinary sound from super-turntables and horns“, while at 12.00 the Burmester booth will be presenting identical music played in analogue and digitally on a top-level turntable and streamer. At 14.00, Musical Fidelity/Copulare deals with the question of the sensitivity of equipment to their installation, and looking at how racks can affect the sound, while at 15.00 Böde will be at T+A to ask „How much more music and sound does high-resolution deliver?“, with comparisons from MP3 up to 24 bits/192 kilohertz. Finally, at 16.00 he'll present the new „STEREO Phono-Festival



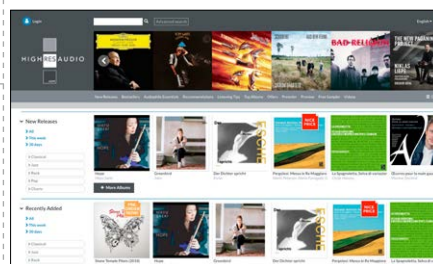
Vol.II" at the MBL stand, giving listeners a virtual listening experience of turntables from all price ranges. The disc will be premiered by MBL a day earlier, also at 16.00, and you can find details of further workshop events at www.highendsociety.de.

Cast iron loudspeakers

Aluminum enclosures are very much 'on trend' in the speaker world right now, but Danish company Jern is thinking heavier, and using cast iron – but then 'jern' does mean 'iron' in Danish! The compact „Jern 14 DS“ (€1150 apiece) has a look reminiscent of matryoshka dolls, but its sealed enclosure is cast in one piece of low-resonance cast iron weighs a whopping 14 kilos. It uses a 19mm soft-dome textile tweeter and a 15 cm midrange driver from Scanspeak, with the company suggesting that for better bass it should be combined with a REL Acoustics subwoofer. Jern offers floor plates and stands for installation, also made of gray cast iron, and the material of choice is no coincidence: Jern is part of Danish cast iron manufacturer Dansk Skalform. With 8 ohm impedance and 88 dB (2.83V/1m) sensitivity, the speakers are available in black, white, red or gray natural cast iron. (Photo: 14 DS, Jern)



Hi-res streaming from Highresaudio



Berlin-based Highresaudio has built a name for itself internationally as a download store for high-resolution music, but now the company is providing its complete repertoire of 35,000 albums in original resolution for streaming, with playlists are compiled by musicians and music journalists. The annual subscription is €200 and, for an additional €50 a year, users can also get 30% off downloads. Content is streamed using the Highresaudio desktop app for Windows or Mac, with apps for iOS and Android in preparation, and the Audirvana player can also access the streaming service, along with network players from manufacturers using the „airable“ platform. The service will be available from April, and can be tested for 7 days for free. (Photo: screenshot highresaudio.de)

ATC launches CDA2 Mk2 CD/DAC preamplifier

A re-engineering of its predecessor in all the key performance areas, ATC's CDA 2 Mk2 CD/DAC preamp has been developed as a partner for ATC's latest P2 power amplifier and active speaker designs. It combines convenient USB access to high-resolution music streaming with an upgraded CD transport and DAC board, dedicated headphone amplification, expanded input choices, and analogue circuits redesigned to deliver an extremely wide and flat frequency response with very low distortion.

Joining the rear panel coaxial and optical digital inputs, the Mk2's new high-resolution USB input is capable of handling PCM data up to 384kHz and also DSD64, DSD128 and DSD256 natively, while excellent jitter rejection ensures that signal integrity is maintained even with poorer quality sources and over long cable runs. Completing the Mk2's wider digital interface, its new TEAC-supplied CD transport delivers faster start and seek times, much lower mechanical noise and improved error correction.

The meticulously re-engineered circuits optimize ATC's implementation of a new premium 32-bit AKM DAC, selected for exceptionally low noise and distortion, while the Mk2's power supply architecture employs no fewer than nine additional high performance voltage regulators, and local power supply decoupling has been improved from the Mk1, yielding further performance gains.



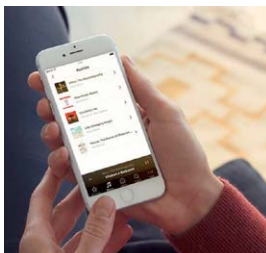
In another refinement, both input and output gain stages have been improved by an arrangement of discrete op amps comprising six common gain blocks: two for left and right input buffering, and four to provide a "true" differential output for the left and right channels, with positive and negative drivers arranged in parallel to ensure that the signal delays and phase shifts are identical on both sides. The output stages are configured as unity gain complementary compound (Sziklai) pairs, biased in class A.

There are twin rear-mounted analogue phono/RCA inputs and an additional aux analogue input via 3.5mm mini jack, which is equipped with high input sensitivity for improved compatibility with phones, tablets and other low output portable devices. Additionally the Mk2 benefits from a revised high performance headphone amplifier capable of driving headphones from 30–600 ohms, delivering exceptional results from the vast array of modern headphone designs, with output via a rear-mounted 6.35mm jack.

The chassis is constructed from a combination of steel and aluminum, using constrained layer damping to control resonances, while the front panel is machined from an extruded section of 13mm/0.5in aluminum alloy with a brushed and anodized silver finish. Supplied with an infrared remote control, the CDA 2 Mk2 is covered by a six-year warranty (2 years CD mechanism). Recommended UK Retail: £2950 (inc. VAT). (Photo: ATC)

Sonos adds Audible 'talking books'

The Sonos multiroom system supports a huge range of services and formats, and now there's another: audiobook provider and Amazon subsidiary Audible. Sonos users will benefit from a free 30-day trial period and two free audiobooks, while existing Audible subscribers who want to listen on Sonos wireless speakers will receive a 20% discount voucher on all Sonos speakers, redeemable at www.sonos.com.



T+A enhances Caruso Blu system via software update



A new software version is available for AT+A's Caruso Blu all-in-one network system: easily installed via a web update, it will be rolled out in several waves, with the Caruso Blu showing after switching when an update is available for that specific unit. The company says the staggered rollout means some Caruso Blue users will have to wait longer than others.

The new firmware offers many improvements, such as:

- On/off switching via the app (in standby mode: App).
- Enhanced 3-channel mode with enhanced stereo effect for external speakers.
- Improved search function of the Streaming Client (SCL).
- Revised configuration menu with new functions („Device name“ and „Device info“).
- Optimization of the digital inputs - especially at high data rates (176.4 and 192 kHz).
- Updated FM and DAB radio software.

(Photo: T+A elektroakustik)

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Spendor adds new top model to A-series

British speaker specialist Spendor's new addition to its A-series, the A7 floorstander (€3700/pair), is equipped with Spendor's latest 18cm



polymer-cone mid/bass driver 22mm polyamide-dome tweeter. A dedicated bass reflex chamber works uses small polymer dampers, which convert vibrational energy into heat, at vibration-prone locations, while the cabinet sits on four stabilizing feet. The speaker has 8 ohms nominal impedance, and a 5ohm minimum, and the 93 cm-tall speaker is now available in natural ash black ash, walnut dark and light oak. For a 10% surcharge you can also have it in satin matt white, while the optional grilles are €239 a pair. (Photo: A7 and detail back front, Spendor)

Ripping from Melco

To complement its N1 music server, Melco has launched the D100 CD/DVD/Blu-ray drive, selling for €1000. It's housed in high-quality case-work, with its internal components mounted on a 20mm thick chassis sitting on Melco's anti-vibration platform. The drive is connected via its USB-B port to the server, which stores the tracks as FLAC or WAV files on its hard drives and also embeds the metadata and cover photos, and can also be connected to any PC or Mac. If required, a USB DAC can be connected to the drive via an additional USB A port – all ports are USB 3.0 – in order to play



CDs directly, with control via the front display of the connected Melco server. Also new is the E100 external hard drive module, also selling for €1000, which adds 3 terabytes to the server's storage capacity and again uses Melco's anti-vibration platform is used. Both accessories are supplied with offboard power supply units. (Photo: D100, Melco Audio)

Tape recorder as design object

In English, a hi-fi designer is usually a developer (or technician), whereas in German is a „designer“ is responsible for the aesthetics of a product, and so is more of an artists. Kostas Metaxas is both, and at the upcoming High End show he'll will present his new creations: a portable tape recorder and a turntable in shapes one can only really as bizarre. The mechanics of the recorder are based on the Stellavox SM8, and the design has the blessing of Stellavox founder Georges Quellet, which is why it is simply called „GQT“ – for „Georges Quellet Tribute“. It runs exclusively at 38cm/s and is powered by a DC motor without electronic or logic control, with all the audio electronics built from discrete components, rather than



ICs. View it as a „kinetic art object“ that can also record and reproduce audio tapes and it starts to make sense, and the same applies to the turntable PP1, or Phonographic Perambulator No.1. Intrigued? The prices of these works of art will be revealed at the High End show in May. (Photos: GQT R2R, Phonographic Perambulator No.1, Metaxas)

Technics SP-10 flagship turntable starts from 9000 Euro

Technics has announced prices for its two flagship turntables, both of which use newly designed direct drive technology. The SP-10R (without plinth or tonearm) is €9000, while the SL-1000R – complete with S-shaped magnesium tonearm, but without headshell or cartridge – is €16.000. Both are due on sale at the end of April.



Lebenslänglich



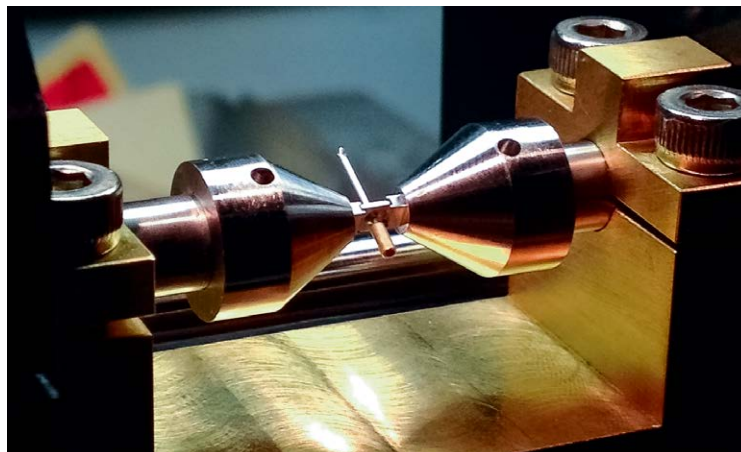
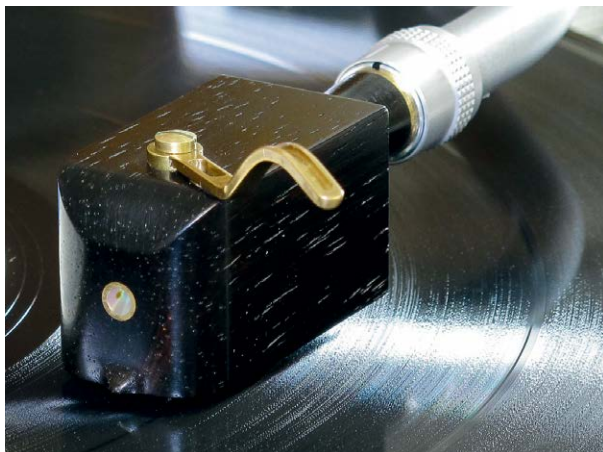
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STAR-PARADE EVERYTHING UNDER OWN CONTROL

Hyun Lee manufactures his „Tedeska“ cartridges by hand to the highest standards, and to meet his own requirements as well as those of his customers.

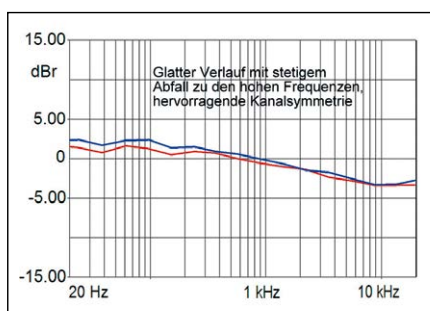


▲ The DST201 worked excellently on the Technics arm, the jewelry pearl on the front face being a Tedeska trademark. ► In the laboratory, the value of Hyun Lee's handiwork became apparent: the designed-in drop towards the high frequencies is very even, and the channel balance simply superb.

We'd already heard a lot about the man who makes mono and stereo moving coil cartridges by hand, right down to the smallest detail. In fact, Korean Hyun Lee builds between 40 and 50 units a year in his Berlin workshop, selling them at prices between €3800 and €5000, and since 2009 this has been his main profession. But it didn't start like that: in his 'previous life', the designer was a musicologist who taught at the University of Seoul and came to Germany as a student. So why cartridges? He explains that at some point his audio system started making horrid noises, so he took the cartridge apart to find out why and – well, he was hooked!

With the arrival of its new DST201, Tedeska has a total of six models, so we asked for a presentation in our listening room, and what came was the 'long-body' version, the DST201L; the cartridge also comes in conventional half-inch-mounting "u", and short-body "k" versions.

A special feature is its ironless "motor", using pure copper coils in the field of an Alnico & Samarium cobalt magnet, which is designed to prevent dynamic losses caused by eddy currents. While teaching himself to make cartridges from scratch, Hyun Lee has also experimented widely with materials, generally follows the carbon theory and using organic materials instead of special plastics or metals, because they have proven to be superior



in listening experiments. The hand-turned and shellac-covered cases are made of hard and precious woods such as grenadilla, rosewood or ziricote, which are also used in instrument making, while their undersides are formed from bone.

And hand-crafting is the trump card everywhere: even the tiny cantilevers and connection pins are hand-turned by the designer, who admits such processes are "stupid" because the effort is out of proportion to the quality of parts he could simply buy. However, if he did that, the product would no longer be one hundred percent his own: in fact only diamond styli, cut to Lee's specifications by the Japanese specialist Namiki, are bought in. But then he does mount and set them up himself...

Intensity on tap

At well as the €5000 DST 201L "Dynamic Stereo Pickup", we also tried Tedeska's €4500 DT101L mono model, also in long body form – and, like the 201 also available with standard half inch mounting. We started with the Technics SL-1200G turntable – whose high-quality magnesium arm offers a quick coupling for the Tedeskas – and played a mixture of old and new records from our collection, quickly revealing why these handmade cartridges are enjoying a growing fan base.

▲ Control mania or consequence? Even the particularly hard „AW2017“ aluminum cantilever of the Tedeska is handmade.

Both models offered a stirring combination of refined precision, coarse and fine dynamic attack, and an intensity fed by natural vitality and color. Even with good mono recordings this was the case, the DT101 drawing an open, airy sound that makes it an excellent high-end recommendation for ambitious listeners of a single-channel persuasion.

However, we couldn't help but think that with the stereo version there was some shortage of fervor and tonal glow, despite the powerful lower registers – a factor the designer was able to explain. At the request of the customer and as a tribute to his great role-model, the Japanese cartridge expert Haruo Takeda, Lee provided the DST201L with a gentle but even roll-off to the upper registers. The idea was to give the sound a noble, dark timbre without affecting the transparency or joy of playing, although "Of course, I could have voiced it differently".

In the laboratory, it became clear how precisely and evenly he had achieved this effect, and with complete channel-symmetry. What's more, after a few minutes of comparative listening, cartridges with a more linear response suddenly appeared bright and intrusive beside the Tedeska.

A psychoacoustic trick? Of course - but an effective one, and with addictive potential.

Matthias Böde

Contact: Tedeska Vinyl Groove Pickup Technology, Phone: +49 151/40770712, www.tedeska.com

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REINER H. NITSCHKE Verlags-GmbH

Eifelring 28, 53879 Euskirchen
Telefon: +49 2251 65046 0
Telefax: +49 2251 65046 49

Herausgeber und Chefredakteur:
REINER H. NITSCHKE

Sonderaufgaben:
MATTHIAS BÖDE

Geschäftsführender Redakteur:
MICHAEL LANG

Redaktion:
CARSTEN BARNBECK, ANDREAS KUNZ,
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STEREO-Messlabor:
Dipl.-Ing. ULRICH APEL

STEREO-Fotostudio:
JOACHIM ZELL

Grafische Gestaltung:
DANIEL SCHIEPE

Objektleitung:
VOLKER PIGORS

Anzeigenleitung:
ILHAMI DÜZGÜN
Telefon: +49 2251 65046 20
Telefax: +49 2251 65046 29
email: marketing@stereo-magazine.com

Anzeigenabwicklung:
ANDREA ENGELS
Telefon: +49 2251 65046 22
Telefax: +49 2251 65046 29
email: andrea.engels@nitschke-verlag.de

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