





Apertura





When products refuse to fit the mainstream, it's always worth taking a look. A critical look, however, because being different just for the sake of being different would be a cheap solution. However, Apertura Audio is light years away from cheap solutions.



## DIFFERENCE RECOGNITION

I use to listen quite a lot of loudspeakers: small, medium, large, built with every conceivable technique ... and I am often told the only theory about a loudspeaker but very often this does not match with the advertised, supposedly unique sound. Not least for this reason, I have reserved a special place in my audio heart for companies and their products that are far removed from this kind of grandiloquence. That includes Apertura.

The company was founded in 1983 by Christian Yvon, who had already left his mark on the loudspeaker world. In 1978, he has developed a rather unique crossover for Sonus faber, which was phase-coherent and therefore both electrically and mechanically time-correct. You can let that melt in your mouth because what may seem so obvious is by no means the rule; why? The solution is elaborate, complex and expensive, and the matching of the components and the individual adaptation to the chassis are decisive factors. Yvon laid the foundation for Apertura with this crossover.

Yvon shares his passion for audio with friends who have nothing to do with the industry. On the contrary, they are all philologists, some of them even classical philologists. Why am I telling you this? Well, he told his friends at the time that his new start was a challenge towards an opening towards a whole new concept of reproducing the purest sound without creating any additional resonances, no colouration, no phase errors or delays in the impulse reproduction and step response of his new loudspeakers. The friends let this sink in and at one of their next meetings, one of them suggested the company name "Apertura", which means "opening" in Latin. The term is familiar from photography, where it refers to the aperture. Not only was the right company name found, it could also be understood and pronounced in many languages - even in French. Would you like another name?

Eric Poyer, Yvon's company and development partner, who is responsible for the mechanical design of the speakers, among other things, solved the mystery surrounding the name of this speaker: "Enigma was chosen in reference to the famous cryptographic machine and the work of Alan Turing, who has developed the foundations of modern computer science and technology."





## Apertura Enigma MkII Loudspeaker

As you can see, the difference starts with the company name, continues with the name of the speakers and forms the basis for all models. Because the recipe that Yvon found for his sound transducers was something he didn't want to change and didn't have to change, at most he had to refine it. Let's take a closer look at this recipe, which doesn't just include the crossover. What criteria are decisive in loudspeaker construction? The drivers, the cabinet and the crossover - all are unique to Apertura and of course, you need a harmonious combination of all three. The first version of the Enigma was launched in 2012.

Eric Poyer: "The idea was to create the best 2-way design that we could realize in a reasonable size at a reasonable budget.

In 2019, the MKII version was initiated, made possible by the experience gained during the development of the Adamante, which in turn had benefited from the original Enigma. The main differences are the new loading principle, the modification of the drivers and a new crossover.

Let's start with the crossover. I love the contrasts in our hi-fi world. It can be that a 2-way system with a minimal crossover absolutely plays coherently. And on the other hand, a classic BBC monitor design like the LS3/5a shows that an abnormally complex crossover can produce a comparable result. Apertura also follows this path, as a quick glance at the lavishly equipped, two-part crossover shows. It is a testament to the special art of crossover design to achieve such a homogeneous sound despite this complexity and the inherent energy loss caused by the many components, which I can already spoil for you. Of course, we would like to reveal Christian Yvon's secret, but we wouldn't be the first to do so. In any case, his crossover design is called "DRIM" (Dual Resonant Intermodulation Minimum) and that's where I'm already getting off - you probably would too.

Let me put it this way: a lot of brainpower, calculations and measurements went into this

approach, which incidentally also benefited companies such as Einstein Audio and Focal JMLab.

Eric Poyer wrote: "The circuit boards used are 2 mm thick FR4 with 140  $\mu\text{m}$  copper thickness (high-power circuit board). All coils and capacitors are from Jantzen. The capacitors are a combination of different areas of the Jantzen line to provide the best listening experience. Both circuit boards are firmly connected to the solid aluminium rear panel. And there are separate boards for low-mid and high frequencies."

But why is the switch so complex? Well, this is due to the previously mentioned phase and time alignment. Because this is what it's all about: the correct phase, i.e. the congruent amplitude response of the individual drivers over time, is partly responsible for the crucial time alignment in conjunction with the driver selection and its arrangement. Correct timing means that all sound events reach the listener's ear at the same time. No more, but also no less. And this is one of the biggest challenges in loudspeaker design, as the principle of working with drivers that are sometimes very different in terms of technology. In the case of the Enigma MKII, these are two cone loudspeakers and a ribbon, which could hardly be more different in their impulse processing. Despite the nominally high efficiency and an inconspicuous impedance minimum of 3.4 ohms, Jan Sieveking wrote to me: "Although the speakers are efficient, they still like control. Single-ended triodes are not the typical driver. Surprisingly, Class D concepts work better than one would actually expect.

I think it's because there are no phase problems on the crossover, and Class D amps like that a lot. The Enigma scales in terms of sound; That means that you can hear very quickly if the source is better than before, for example, but they don't mercilessly cut up problematic recordings."

The cabinets are also a very special, integral part of the Apertura recipe. Jan Sieveking told me that I should be careful not to angle the speakers when setting them up, as they are already designed that way. Aha, I thought, I'll have a look at that. When I did, I have immediately realised what he meant: the cabinets are concave, the sides are different lengths and the back is angled. The only parallel parts are the lid and base, which are double solid. The angled rear panel then results in a kind of natural angulation of the fronts when the rear is parallel: "tres francais". The ribbon should always face inwards. I can't think of any other commercial loudspeaker manufacturer that uses such a cabinet shape.

I asked Eric Poyer why they use MDF for their cabinets, not a noble material as we all know. He answered me in detail: "MDF tends to store energy, but on the other hand it has pretty good damping properties. More than ten years ago, we tested various materials in a simple experiment. The idea was to use a simple cabinet with a removable back panel. We carried out measurements with our measuring system and an accelerometer glued to the back panel.

We tried 25 mm MDF, 2 x 15 mm MDF glued together and 12 mm corian, 10 mm aluminium and 10 mm carbon fibre. We achieved by far the best result with carbon fibre, followed by the 2 x 15 mm MDF. All materials used in the loudspeaker industry have advantages and disadvantages. Since we can't make a speaker out of carbon fibre for cost reasons, we have chosen a clever solution. Since laminated material has proven to be the solution (carbon fibre is nothing other than a laminated material), we use a laminated process with several thin layers of MDF glued together for our speakers with curved panels. The material is no longer homogeneous, but creates successive refraction modes when transmitting vibrations."





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The internal construction of the loudspeaker is also very special. To maximise the avoidance of standing waves and various resonances, there are a large number of different chambers with 10 vertical and horizontal stiffening boards, in and on which no fewer than four different damping materials are inserted and applied. There are areas where antistatic bubble wrap is wound and its alignment in the cabinet is intended to have a sonic effect.

The next unusual feature is the positioning of the individual monitors. Apertura uses a central spike under the cabinet at the centre of gravity. This makes sense when you think about it, but it is not a viable solution in the literal sense of the word. Instead, there are four additional spikes with a round tip on the solid base plate, which can be quickly adjusted to prevent tipping. Christian Yvon had already introduced this principle in a commissioned work for Goldmund.

The Enigma MKII was originally planned as a classic bass reflex solution. As with the Adamante, Christian Yvon wanted to use a very large tube in order to maximise the reduction of flow noise.

But, as Eric Poyer wrote to me, you move a lot of air with two 22 cm bass-midrange drivers and a loading volume of almost 80 litres. Due to the length and diameter of 12cm, they had to place the tube at the bottom of the speaker. Added to this was the special internal architecture of the cabinet, which simulates an equal loading volume for each woofer. In a classic bass reflex solution with multiple woofers, the tube is typically positioned at the rear of the speaker.

Seas builds the bass-midrange driver according to Apertura's wishes. The wide, soft surround for a deeper bass extension, the woven plastic cone and the 134 mm ferrite magnet for the powerful drive are striking. Next to it is the solid ribbon tweeter from Fountek, which has also been modified. The damping of the basket and housing is clearly recognisable on both chassis



Schematically, the top woofer has the largest internal loading volume, the bottom one the smallest. However, internal stiffening plates have now been used to create a structure that simulates a similar load volume for each woofer. The result of this structure is that the bass reflex principle is mixed with a quasi-transmission line. Sounds a little complicated, but it doesn't matter to the listener.

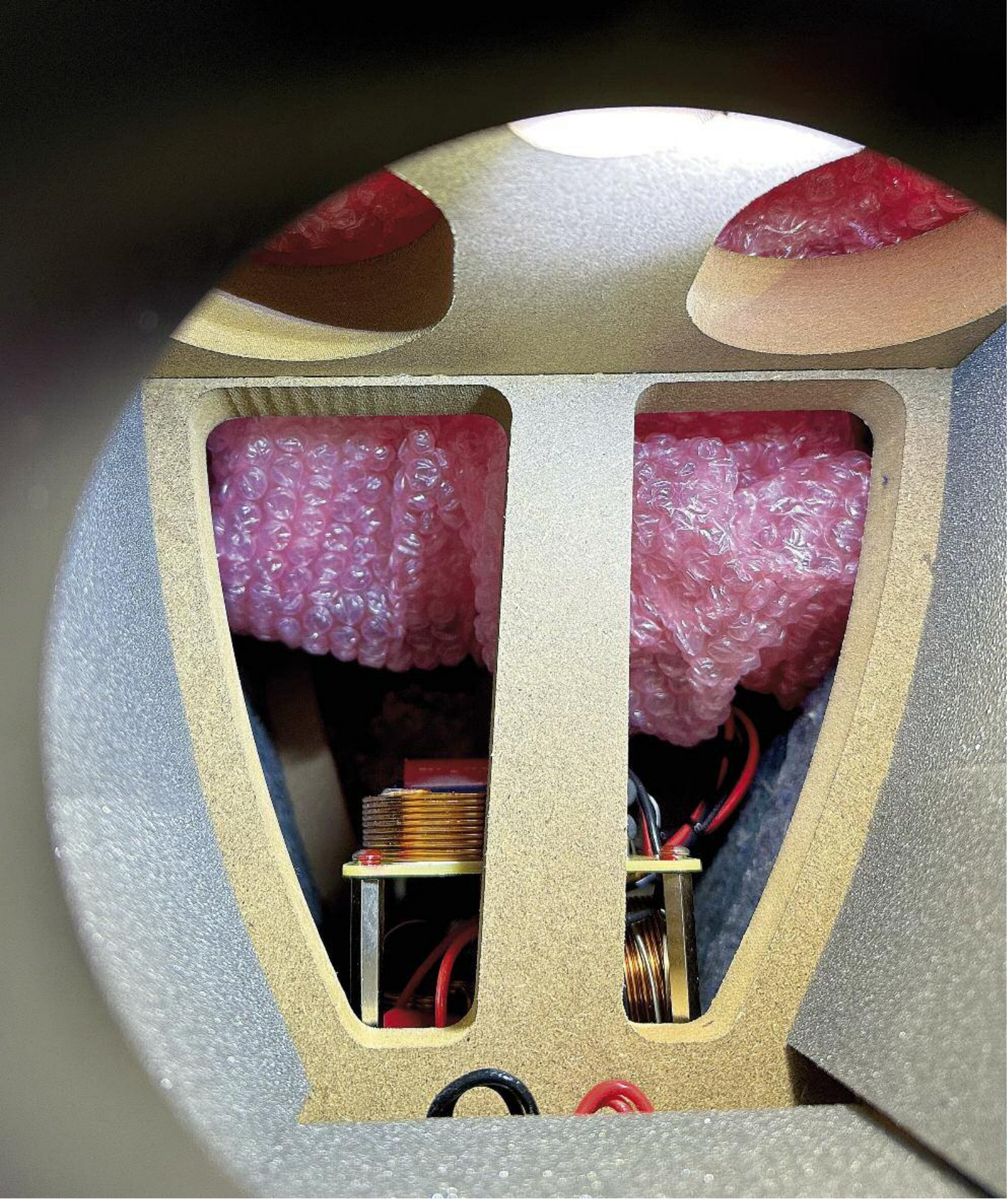
The 22 cm woofers come from Seas, albeit in a customised design for Apertura. Their cone material, called Curv®, is the world's first self-reinforced, 100% thermoplastic composite material made from heat-compressed, woven polymer fibres. The voice coil former is made of titanium, which easily costs 20 times as much as typical copper. The driver is also modified at Apertura: Copper parts are attached to the pole piece and a copper ring and a copper phase plug with damping are also fitted. According to Poyer, this increases performance and reduces distortion. In addition, the driver basket is completely damped with a special compound.

The Fountek ribbon tweeter is one of the largest on the market and the same one used in the Adamante. It is also modified with a special front panel, EMI protection and mechanical damping. All drivers are measured, matched and then given individual values on the crossover.

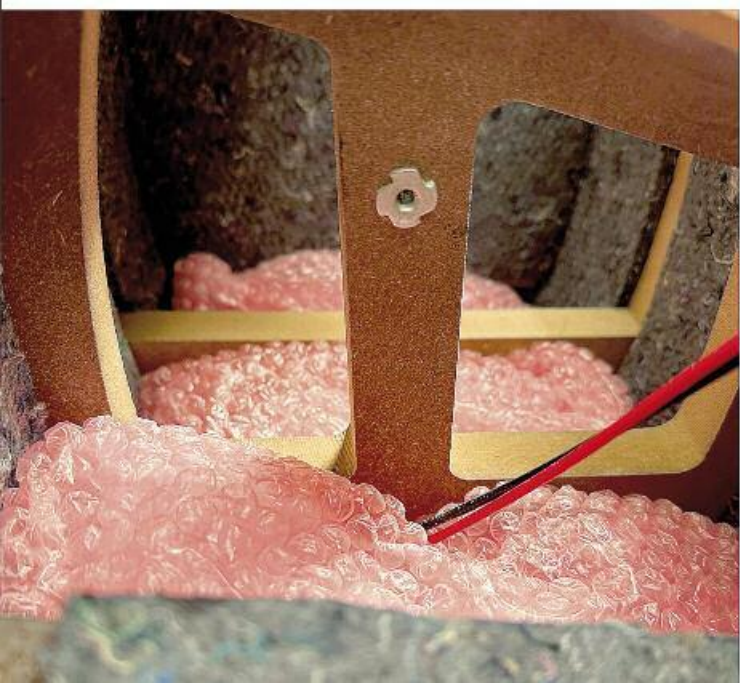
The parallel running bass-midrange drivers with the ribbon tweeter in between could be misinterpreted as a D'Appolito arrangement, which is not the case. Eric Poyer explains once again: "The arrangement of the drivers on the front of the loudspeaker may look like a D'Appolito, but it has nothing to do with the real D'Appolito structure, as these driver positions are combined with a special crossover topology. This is not the case with an Apertura loudspeaker. Thanks to Christian Yvon's "DRIM" technology, the integration of woofers and tweeters is much easier than with classic structures. The woofers run parallel and the acoustic centre of the loudspeaker is defined in the axis of the tweeter."











These pictures almost make you feel like a peeping Tom. They show exciting interior views of the Apertura Enigma MkII. On the one hand, you can recognise the solid construction and can at least guess at the laminated MDF panels. The many different baffle boards are important, as they provide each driver with an optimum working environment and counteract standing waves and reflections. They are supported by the four different damping materials. This mixture has been optimised in long series of tests in terms of measurement and hearing technology and is unique





Aporeur  
By Christian Van Der Vliet

Enigma mkII

SABOTI  
Enigma mkII  
100W/16Ω

Assembled by  
Stéphane SALS - France

CE

Enigma mkII

And how does the sum of these special features sound? Exceptionally good. Just like in a football team where one player stands out, the Enigma MKII immediately makes it clear that it makes the difference in a chain. It does this, however, without trying to show off, but simply through its intrinsic qualities. From the very first note, the monitor qualities of the Enigma MKII were clear. As Jan Sieveking described it, you can really hear every change in the chain and can, and I emphasise "can", use this speaker as a working tool. Or you can just have fun with it, as I did. I have listened the Enigma MKII with our MBL integrated amplifier, which plays neutrally and smoothly; connecting a powerful tube to the Enigma would also be very exciting.

I am listening to Bon Ivers For Emma, Forever Ago (4AD CAD 2809CD, UK, CD 2008), an extremely familiar work that I am indeed experiencing anew. One example is "The Wolves (Act I and II)". The scratchiness in the vocals, the guitar strumming, aeroplane noises, the subtle bass with a lot of emphasis, the ever-increasing intensity towards the end of the piece and finally the fireworks in the room, behind and even next to me, leave me speechless. As if I had witnessed a live reinterpretation, I find this rendition nothing less than sensational.

Far beyond the actual listening area, the Enigma MKII not only takes possession of me, but also of all the rooms around it.

At the end of "Blindsided" I hear guitar picking details that had previously remained hidden from me. Vocal tracks also seem to have been added.

Left: Here you can see the immaculately finished rear view of the Enigma MkII. The very solid connecting plate houses elegant single-wiring connections on the outside

Above: If you unscrew the connecting plate, the very special DRIM crossover is revealed, perhaps the French company's greatest secret and engineering asset.

It is teeming with fine capacitors and coils, all of which come from the same manufacturer and have been harmonised in terms of sound. You really have to be able to handle such a large number of components and that is back to the genius of Eric POYER.

Below: below you can see the ultra-stable base plate with the outlet of the extremely long bass reflex tube, the large central spike and the outer round spikes for balancing. This is all great loudspeaker art





## Apertura EnigmaMkII Loudspeaker

At some point I realise that I'm listening louder than I normally do, and much louder. Don't get me wrong, you can also listen wonderfully quietly with the Enigmas, but they are even more fun at medium and higher volumes. Then let's give Donald Fagen his due on *The Nightfly* (Warner Bros. Records 92.3696-1, Germany 1982, LP), because this is not quiet listening music. On "I.G.Y.", Anthony Jackson's wonderful bass line is exemplarily well defined, it rolls, it grooves, it swings in and swings out again - what kind of exceptionally good stop-and-go qualities are these? And I keep coming back to the monitor qualities of this loudspeaker: you can hear the production and you can hear the music. Where had Ronnie Cuber's baritone saxophone been hiding on the right channel until now? And why have I never noticed the handclaps towards the end?

A riddle, or rather an enigma, to unravel the mystery. It's a mystery to me how she does it. John Lee Hooker's voice on *The Folk Lore of John Lee Hooker* (Get Back GET 7516, Italy 2003, LP) stands in the centre of the room with a ghostly presence. It is not produced by equipment, it is there, he is there. He sits in front of me and talks, seduces, grabs me by the throat. Or Trentemøller with his groundbreaking album *The Last Resort* (Poker Flat Recordings PFRCD18, Europe 2006, 2-CD). Here it's not the man, here it's his music, which is so fat and rolls through the room at massive volume. It has zero sharpness, and the electronic, layered sound layers are resolved so well that I've never heard it before - of course with completely preserved overall integrity. In the end, I sink into a piece of childhood music that everyone knows: Antonín Dvořák: *Symphony No. 9 in E minor "From the New World"* (Clearaudio/Deutsche Grammophon SLP138127, RE Germany 2015, LP). I can absolutely let myself fall into this completely timeless heavenly music. Am I holding my breath? It almost seems that way with all the beauty, delicacy and finesse, plus the creamy lushness and a magic of sound colours that brings tears to my eyes.

### **What does make Apertura Enigma MKII so magical?**

Is it its time-correctness? Is it the crazy cabinet construction? It's a mix of all of them and remains a secret that is rooted in the genius of Christian Yvon and Eric POYER and that we will never be able to decipher precisely.

What we can do, however, is recognise this performance and the difference that such a loudspeaker makes when listening.

And this difference is big, very big!