



ESTELON YB MKII  
TECHNICAL NOTES



# 1. DESIGN PHILOSOPHY

All Estelon products are produced in a similar fashion using the same general design and construction principles. In the design and construction process, it is crucial to consider room and environmental acoustics. All listening rooms have walls, floors, ceilings, furniture, and various décor and treatments which affect the listening experience. Together with the loudspeaker, they participate in acoustical sound reproduction. The goal of the loudspeaker, and the associated system electronics, is to create a life-like (live) and engaging musical experience.

Through Estelon's advanced and innovative engineering concepts, the loudspeakers form a synergy with the room and its acoustics to re-create an emotionally involving listening experience that exposes the soundstage and musical details of the recording, as it was meant to be heard.

## International Red Dot Design Award winner

Red Dot is an organization formed as a critical governing body that stands for what they feel represent the absolute best in design and business. Their international design competition, the “Red Dot Design Award”, is aimed at all those who would like to distinguish their business activities through design. The distinction is based on the principle of selection and presentation. Excellent design is selected by competent expert juries in the areas of product design, communication design, and design concepts.

The Estelon YB loudspeaker had received the prestigious Red Dot “Product Design” award in 2017 where the jury concluded: “These speakers convince with their well-conceived design, enriching any interior with their striking sculptural appearance”. The Estelon YB Mk II suits perfectly in contemporary interiors providing luxury, elegance, and performance.



**reddot design award**  
**winner 2017**

## In an ordinary room the sound waves below 50-100 Hz are evenly spread

Room measurements and characteristics have a significant effect on the listening experience. In typical room measurements, the longest distance between reflective surfaces is smaller than the length of the low bass sound waves at 50-100 Hz. The pressure at these frequencies always changes equally in every position, similar to pressing on a balloon. In these conditions, it is impossible to detect the exact position of the bass drivers. This situation allows the placement of the low-frequency drivers to be separate from other drivers.

The Estelon YB Mk II's woofer is positioned close to the floor so that the woofer acoustically couple with the surface of the floor maximizing its efficiency and output. Another large benefit of this design is that the low bass is powerful, dynamic, and evenly spread throughout the room, even if the room has high ceilings or is large in overall size and volume. Conventional loudspeaker designs will typically experience bass loss and erratic peaks and dips in output in large size rooms, and especially rooms with high ceilings.

## Sound waves over 100 Hz start mirroring and interfering with each other

In frequencies over 100 Hz, there are numerous sound waves created between the loudspeakers and the walls, ceiling, floor, and furniture/décor. In these conditions, the sound waves start mirroring and combining with each other. The drivers that reproduce sounds over 100 Hz (mid-woofer and tweeter) are grouped together and physically placed higher in the cabinets, and in a neutral position.

In this configuration, there is much less impact on mirroring so they can create a realistic and stable stereo image. The mid-woofer is positioned above the tweeter to further reduce the reflections from the floor and thereby decreases sound coloration. This design principle also improves the time-arrival (phase) of the frequencies from the different drivers, allowing for a coherent, accurate, dynamic, and tonally balanced sound.

## 2. CABINET & TECHNOLOGY

The Estelon YB Mk II loudspeakers use a sealed box concept, which is more compact compared to the bass reflex concept and is less demanding regarding the positioning requirements in a room. The bass is very quick, accurate, and deep.

## Proprietary marble-based composite material and molding technology

The unique shape of the cabinet is highly complicated and differs greatly from a classical box design. In fact, it's not a box at all! Estelon engineering took many years of research and testing to find the right material that would allow the highest quality of cabinet and construction for the loudspeaker's acoustically engineered shape.

We developed a proprietary marble-based composite material and special molding technology to be able to make such advanced cabinets with multifunctional shapes, inside and out. The combination of the high-density, solid mass of the molded marble-based composite cabinet and the purposeful shapes, contours, and various internal chambers result in technical characteristics exactly as Estelon Chief Designer, Alfred Vassilkov has calculated. The cabinet is therefore extremely rigid, highly dense, resonant-free, and with exceptional internal dampening and acoustical control.

## Curved surfaces and a system of interior chambers

The combination of curved cabinet walls and a complex system of interior chambers make the cabinet completely “dead” and non-resonant. Such a highly advanced and complex cabinet design and construction allows only pure and uninfluenced sound to emanate from the various high-performance driver elements.

The 40 kg weight of each speaker gives a reactive and dynamic stability, which also supports the explosive acceleration of the driver membranes. There are no losses in powerful dynamics or subtle micro-dynamics in the sound

## Advanced internal dampening

In order to assist the loudspeaker to unveil its purest musicality, advanced internal dampening has been implemented. The dampening was designed through a long testing process to have the best effect and overall balance throughout the musical spectrum.

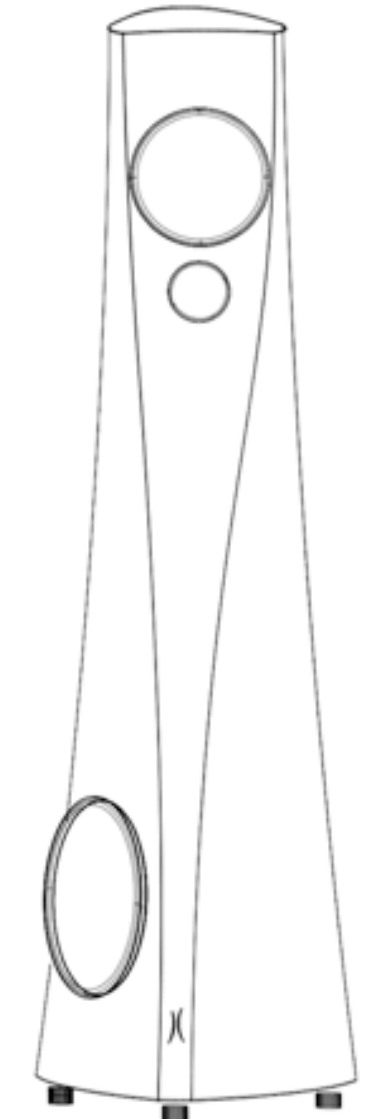
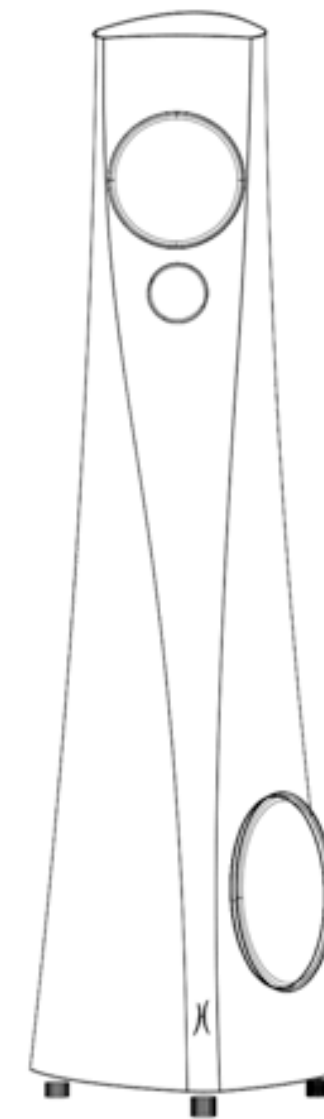
We have chosen different natural and synthetic dampening materials that are strategically and scientifically placed, which together create the best effects at different frequencies. The benefits are both audible and measurable.

## Woofers positioning and decreased mirroring effect for accurate stereo image

The bass driver is positioned in an angle, facing the other loudspeaker. In smaller rooms the loudspeakers are often located near the side walls and part of the midrange frequencies reflect on the walls and add coloration to the sound. The stereo image can also be impaired.

The angled woofer position assists in reducing the reflections so that the audio signal remains pure within a realistic sound stage. For this reason, the left and right speakers are in a mirror like position (Graph 1).

In difficult acoustic conditions (very small rooms or when walls are too close) we suggest trying to use the speakers in opposite positions (L  $\leftrightarrow$  R) so that the woofers are facing opposite directions.



Graph 1. Estelon YB Mk II loudspeaker typical set-up



3. TOP QUALITY  
DRIVERS, CABINET  
CHAMBERS AND  
CROSSEOVERS

## High quality drivers from Scan-Speak and SEAS

The tweeter is a 25 mm (1 inch) beryllium “Illuminator” driver from Scan-Speak. Beryllium is a material characterized by great stiffness, light weight and high damping. It has very low distortion and a distinct clarity that brings out the best of any musical genre!

The mid-woofer is a Scan-Speak “Revelator” 148 mm (5.8 inch) sliced paper cone. The slices are filled with damping glue, which reduces drastically the break-up modes in the diaphragm. This leads to less overall distortion in the mid-range frequencies, and the sound is clear and accurate.

We use a 220 mm (8.6 inch) SEAS woofer. The extremely lightweight and stiff aluminum cone provides tremendous bass precision. The cone and the low-loss rubber surround show no sign of the familiar cone edge resonance and distortion associated with soft cones.

We provide special fabric wrapped driver covers/grilles, which can be placed magnetically on the driver rims for protection.

## Drivers have anti-resonance chambers

The woofer is in one optimized sealed chamber. The chamber configuration has no parallel or flat walls, which eliminates internal mirroring effects, internal resonance, and soundwave cancellation as well as reduces distortion. This allows the driver to perform without the typical cabinet-related acoustical problems.

The chamber of the mid-woofer and tweeter driver is isolated and constructed by the same principles as the woofer chamber, free from resonances and well dampened. The sound is free from colorations, distortions, and is extremely accurate.

## Carefully designed and manufactured crossovers

We use specifically engineered and highly precise third-order crossovers for the woofer and second-order networks for the mid-woofer and the tweeter.

Countless hours of R&D and real-world listening tests have been conducted of each crossover design and related parts, right down to the physical placement of each part and positioning within the cabinet.

The crossover components have been chosen from among the best parts producers from around the world. We use transformer-core coils, OFC (oxygen-free copper) coils, and silver-gold-oil capacitors, all of which are measured and spec'd to extremely tight tolerances before using in the crossover production.

To maintain the smallest of details in the audio signal we use direct mounting techniques with hand-soldered connections with short cable runs to each respective driver and binding posts. All internal cabling is of the highest quality and from the renowned cable manufacturer Kubala-Sosna.

Each crossover construction process involves careful attention from our engineers and designers, where every process is carefully measured, and each component tested to make sure that the final outcome is perfect.

In addition to technical measurements, there is also a final listening and evaluation process done by our highly experienced engineers.

### 3. CUSTOM FINISHING

It is a time consuming process to finish each cabinet and takes several weeks to complete this intense artisan procedure, but is indeed worth the wait.

Because of the highly sophisticated cabinet shape, all the processes in the finishing stage are hand-made with extreme care by highly experienced specialists using the best technology and procedures. We offer a wide range of color options in gloss and matte, with custom finishes upon request. Each cabinet is professionally painted and wet-sanded between each coat of the highest grade of paint, and then carefully hand-polished to perfection.

## 4. EASY TO SET UP

Considering the mentioned special characteristics, the YB Mk II loudspeaker is easy to set-up and achieves a natural tonal balance with realistic 3D image. To decrease the vibrating effect from the floor, we offer special stainless-steel stand options – with a flat bottom surface for hard floors and with spiked cones for carpeted floors. Both types are included with the loudspeakers. It is important to note that setting up these speakers will require at least two able-bodied individuals.

## 8. TECHNICAL SPECIFICATIONS

Type:	Passive speaker. Sealed box concept
Frequency response:	30 - 40 000 Hz
Power rating:	150 Watts
Nominal impedance:	6 ohms
Sensitivity:	86 dB/2.83 V
Min amplifier power:	30 Watts
Internal cabling:	Kubala-Sosna
Cabinet material:	Marble-based composite

### Drivers:

Woofer:	220 mm (8.6 inch) aluminum cone from SEAS
Mid-woofer::	148 mm (5.8 inch) sliced paper cone "Revelator" from Scan-Speak
Tweeter:	25 mm (1 inch) beryllium dome "Illuminator" from Scan-Speak

## 9. DIMENSIONS

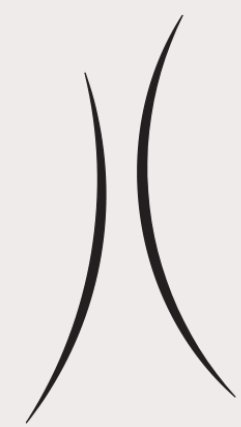
Height: 1260 mm (49.6 inches)

Width: 332 mm (13.1 inches)

Depth: 394 mm (15.5 inches)

Net weight: 45 kg (99.2 lbs) per piece

Recommended room size: 16-45 m<sup>2</sup> (172 – 484 square feet)



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