



XC MK II  
TECHNICAL NOTES



# 1. DESIGN PHILOSOPHY

All Estelon products are produced in a similar fashion using the same general design and construction principles. 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.

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.

The XC Mk II is a stand-mount design, produced to the same industry-leading standards as our floor-standing collection. It comes with a newly re-designed integrated stand, made by aluminium and it provides the necessary stability in order to achieve the best possible performance.

## 2. CABINET & 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!

## Proprietary marble-based composite material and moulding technology

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 complex shape. We developed a proprietary marble-based composite material and special moulding technology to be able to make cabinets with such advanced surface geometry, inside and out. The combination of the high-density, solid mass of the moulded marble-based composite and the purposeful shapes, results in characteristics that allow for close to perfect acoustical properties. The cabinet is extremely rigid, highly dense, resonant-free, and with exceptional internal dampening and acoustical control.

## Curved surfaces

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! There are no parallel walls, almost every surface inside is curved. The curved cabinet walls and 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 49 kg weight of each speaker gives it static and dynamic stability. This provides a solid foundation for the explosive acceleration of the driver membranes. There is no compression effect in macro dynamics and no confusion or uncertainty in subtle micro-dynamics of 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. The dampening materials type, placement and amount have been chosen through calculations, measuring and rigorous listening test.

### 3. A COMBINATION OF THE BEST DRIVERS

Each speaker has 2 mid-woofers, and one tweeter. In order for the speaker to reproduce the full spectrum of sound with the absolute highest quality, a combination of 2 different driver types has been carefully chosen. These high-quality drivers are designed and produced by German driver manufacturer Thiel & Partner GmbH under the brand name Accuton and are revered globally as the best.

## 2 x Mid-woofers - ceramic

The two 173 mm (6.8 inches) mid-woofers have ceramic membranes providing a very clean impulse response with very low total harmonic distortion (THD) and intermodulation distortion (IMD) products. Through continuous improvements and developments, the right amount of damping is used to maintain a linear frequency response.

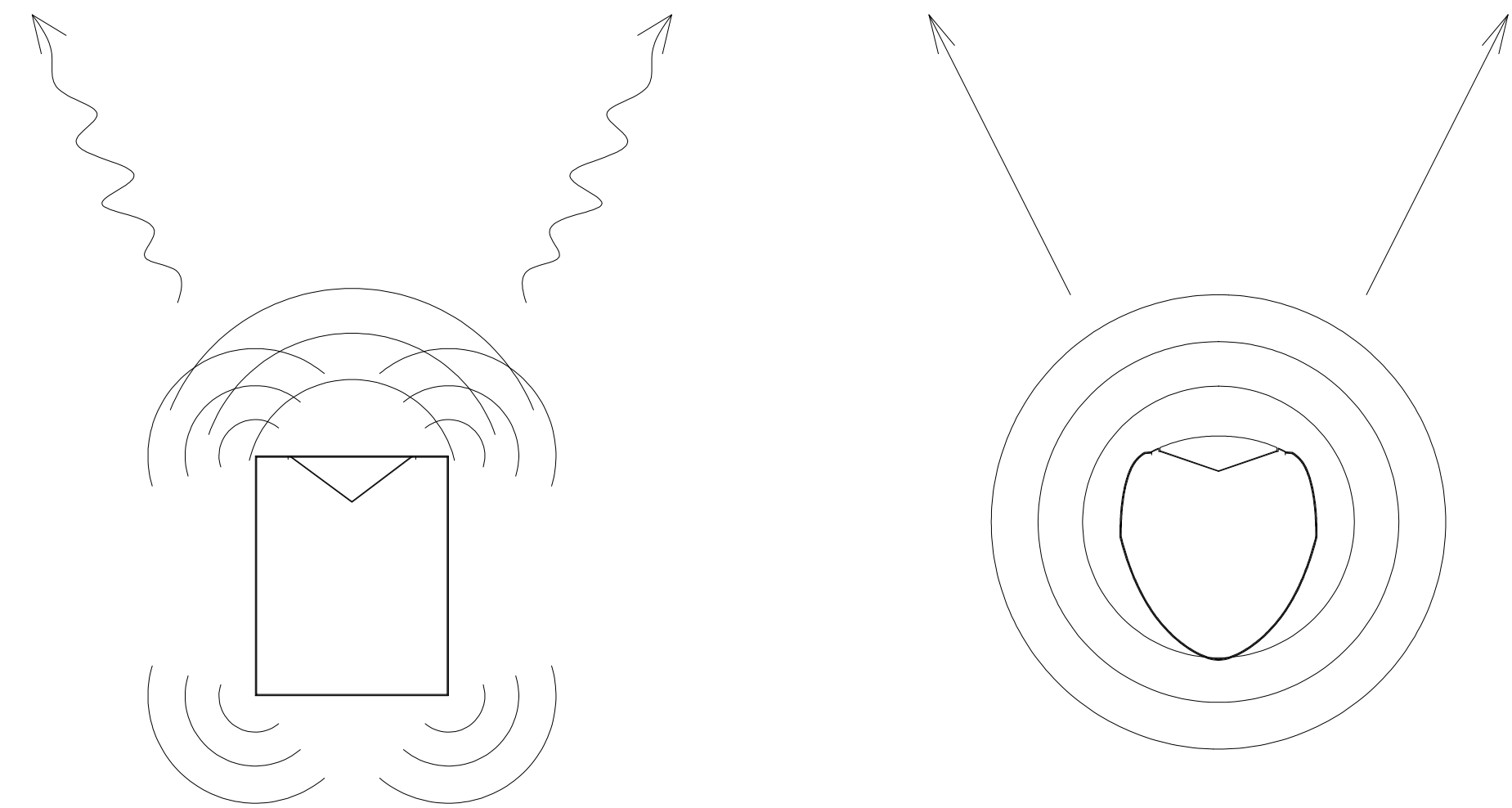
## Tweeter – ceramic

The 25 mm (1 inch) inverted dome alpha corundum tweeter is made by Accuton. Typical to high-quality hard domes, the impulse response is outstanding, the distortion is kept very low, and the first break-up modes are pushed out of the audible range.

## 4. LOUDSPEAKER CABINET

### The cabinet is curved to eliminate diffraction

The Estelon XC Mk II cabinet has been designed in a way that there are no sharp edges (Graph 1). The soft curves of the cabinet eliminate the effects of reflective diffraction from the drivers' output; thus, the directivity of the speaker is homogenous and wide. The frequency response and timing change very little from the center to sides, retaining smooth tonal characteristics and time alignment of the drivers. This widens the ideal listening position.

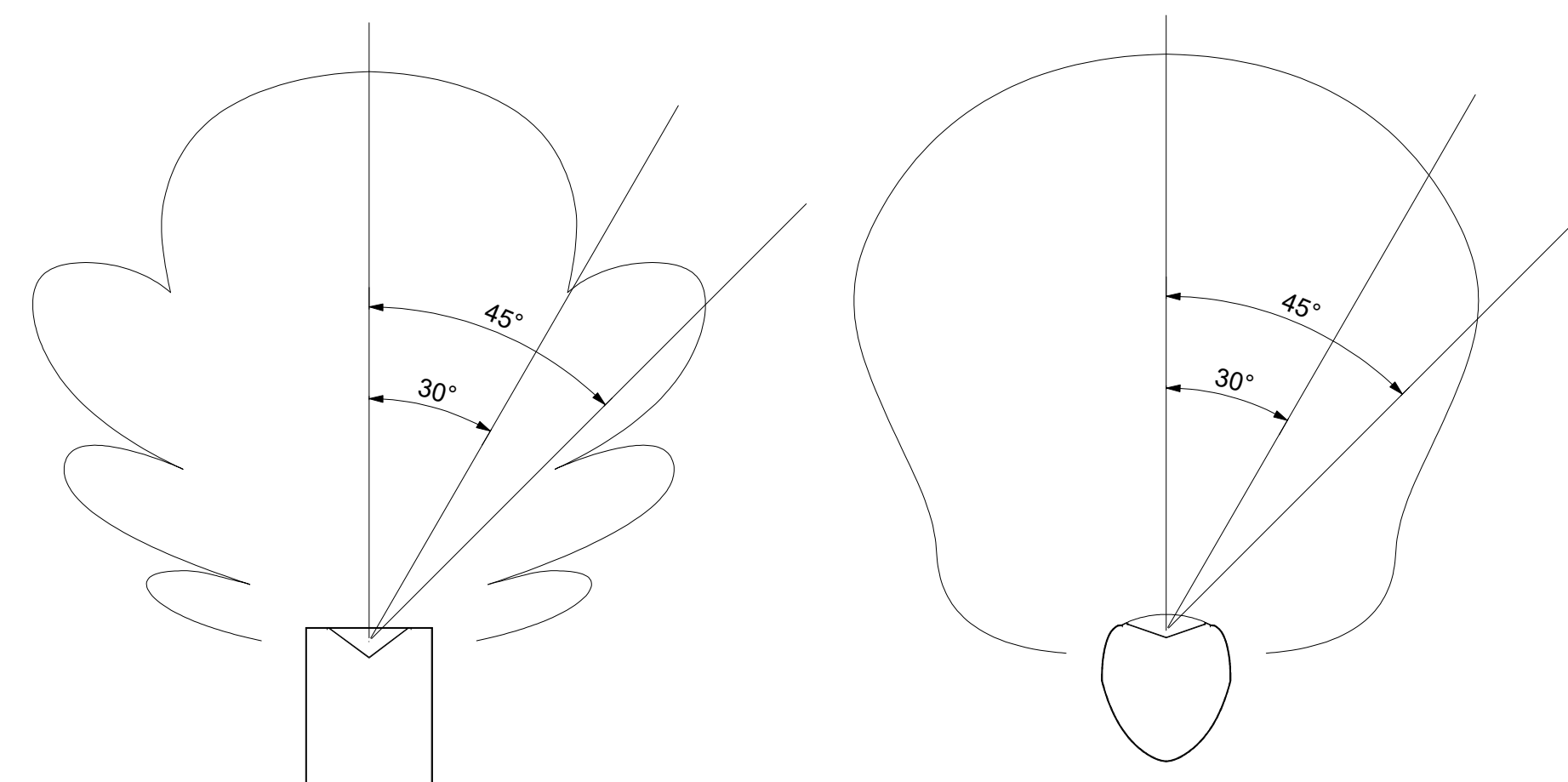


Graph 1. Top view. A traditional box shaped speaker on the left, Estelon XC Mk II on the right.



## The cabinet surface creates dispersion control

The narrowing front face and smooth curves (at a calculated radius) help create a controlled directivity wave propagation. Such configuration helps to create a linear and even directional dispersion that enhances the overall high-frequency performance (Graph 2), allowing the high frequencies to be clearly heard at different listening locations while also improving imaging.



Graph 2. Top view. A traditional box shaped speaker on the left, Estelon XC MK II on the right.

## 5. CROSSOVERS

Countless hours of R&D and real-world listening test have been conducted of each crossover design and its related parts, right down to the physical placement of each part and its positioning within the cabinet. The crossover components have been chosen from among the absolute best available, and the synergy of the end result has been a significant deciding factor. Every component is measured to yield perfect pairs.

In order to achieve the highest degree of micro-detail fidelity, the filter components are connected directly, via point-to-point techniques, all hand-soldered with high-quality solder, and with the shortest possible cable runs between drivers, crossover and binding posts. All internal cabling is from the renowned cable manufacturer Kubala-Sosna. The crossover is 2<sup>nd</sup> order between the tweeter and the mid-woofers. Each crossover construction process involves careful attention from our engineers and designers, where every process is carefully thought out and each component tested to make sure that the final result is perfect. After passing technical measurement tests, the finished speaker is put through extensive critical listening tests.

## 6. CUSTOM FINISHING

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 colour 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. 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.

## 7. PACKAGING

The packaging is precisely thought-through so despite the weight of 49 kg (108 lbs.) of each speaker, they can be easily and safely transported to their final position in the room.

The transport cases (industrial grade custom flight-cases) are equipped with wheels to ease the transportation and setup. The speaker have designated special floor spikes or flat bases (supplied).

## 8. EASY TO SET UP

Considering the mentioned special characteristics, the XC Diamond 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 are offering 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 two able-bodied individuals.

## 9. TECHNICAL SPECIFICATIONS

Type:	Passive speaker. Bass reflex.
Frequency response:	45 - 30 000 Hz
Power rating:	150 Watts
Nominal impedance:	8 ohms
Sensitivity:	91 dB/2.83 V
Min amplifier power:	20 Watts
Internal cabling:	Kubala-Sosna
Cabinet material:	Marble-based composite

### Drivers:

2 x Mid-woofers:	173 mm (6.8 inch) ceramic membrane from Accuton
Tweeter:	25 mm (1 inch) CELL ceramic inverted dome from Accuton

# 10. DIMENSIONS

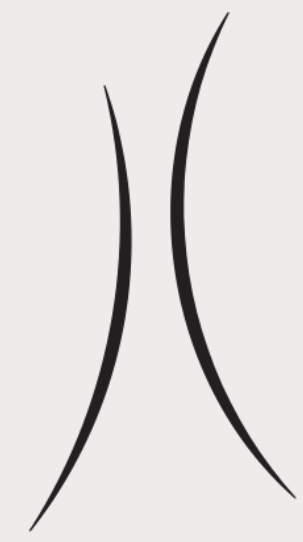
Height: 1260 mm (49.6 inches)

Width: 332 mm (13.1 inches)

Depth: 394 mm (15.5 inches)

Net weight: 49 kg (108 lbs) per piece with integrated stand

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



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