EXCELLENT DYNAMICS, GRANDIOSE POWER

Active horn speaker Adeus Elysium SL MKII

À Sound Paradise

GRANITE-CLOTHED
Active horn speaker Adeus Elysium SL MKII
A Sound Paradise

Horn loudspeakers offer a twofold fascination: their sculptured appearance that sets them apart from conventional transducers, and their ability to overwhelm the listener with their immediate response and imaging power. The Passau-based manufacturer Adeus Audiofidelity brings this fascination to a large format with their impressive flagship, Elysium SL MKII. The MKII consists of three-modules - a giant horn for treble and mid-range; a granite-reinforced bass unit, weighing over 200 Kg which houses a subwoofer with a square meter membrane; and an external active electronics unit which provide power, control and sound adaptation for the room. Let’s go to Elysium!

SL, the abbreviation for Super Large, is a perfect description of the transducer. The reference speaker of the Elysium series stands 1.74 metres in height. The giant horn extends 94 centimetres in diameter and 62 centimetres in depth. Although, smaller options are available, the Adeus Elysium M and S, for this review we will focus on the SL. Since each speaker weighs 312 kilograms, watching the assembly of the Elysium SL MKII is an experience. This was done by Dirk Uffelmann, physicist, owner and developer of Adeus, with the active support of a colleague. Assembly of the transducers at the customer’s premises is part of the complete package, as is set up optimisation and sound adaptation to the customer’s room. Adaptation is done by calibration, made possible because the Adeus Elysium SL MKII is an active loudspeaker driven by amplifying and sound-optimising electronics. Now let’s take a closer look, starting with the eye-catching horn transducer.

The natural amplifier

Radiant white, flawlessly reflective, opening gently outwards and then curving, the 94-centimetre-wide, sculptured horn of the Elysium SL MKII immediately captivates the eye. As the horn is made of fibreglass-reinforced plastic, in addition to standard white, the visual impact can be enhanced by customising the colour in any RAL or car paint finish. Even gold leaf can be applied, after all, at Adeus each speaker system is made to order. The size of the speaker derives from the size of the room where the speakers will be installed. The SL version is designed for listening rooms from upwards of twenty square metres and for furnished rooms from thirty square metres. The M and S models of the Elysium series, with smaller horns, are designed for living rooms with a smaller minimum surface area. The format and shape of the horn is fixed. The expanding opening of the horn, with a rounding that slightly recedes towards the edge, is the result of many years of experience in acoustics.
Almost one metre in diameter, the highly polished horn is the most striking component of this loudspeaker system. The standard finish for the horn is white, but almost any paint finish is possible on request.

Like the bass module, the horn fixing is covered in granite. The weight of each of the horn components adds up: The horn itself, made of GRP, weighs 20 kilograms, the driver behind it adds another 10 kilos, and the bracket that encloses the driver and fixes the horn weighs another 70 to 80 kilos.

The principle is clear. Man realised from early times that a funnel will act as an amplifier - just by cupping our hands around our mouth we can project our voice. Ancient amphitheatres with their round, ascending tiers were famous for their whispering acoustics.

Double speciality: the spherical horn ...

The reinforcing effect of the horn shape was also found to apply to loudspeaker design. As the funnel is highly efficient, the sound-converting membrane at the inlet does not have to provide power and therefore can be small, light and agile. Amplification is created in the horn because the air that is moved by the diaphragm during vibration cannot escape freely to the sides. Instead, it is directed through the funnel, first having to pass through a bottleneck which increases air flow velocity. The effect is comparable to squeezing the end of a water hose to create a stronger jet of water. The first speaker horns were conically shaped,
The curvature of the spherical horn increases as it opens. Towards the mouth of the horn the opening angle is 180 degrees, and, in the case of the Elysium, curves slightly backwards. But as the uniform opening discoloured the sound, it was replaced by an exponential design which opens out from the narrow beginning to the mouth. This created a smooth transition from the high-pressure air flow in the horn to the normal pressure of the ambient air, resulting in a much less discoloured sound. However, here too there was potential for optimisation by modifying the exponential horn to allow sound waves to radiate in a spherical pattern and avoid highly directional radiation. In this way, sound is naturally generated from a single point. This modified horn shape is called a spherical wave funnel or a spherical horn.

...with a coaxial driver

Behind this horn is a driver, responsible for the sound conversion. The conversion takes place in a pressure chamber attached to the narrow inlet of the horn. The chamber normally contains a small diaphragm that translates the electrical signal into a mechanical vibration moving the air, to generate sound. In the Elysium SL MKII, however, there is not a single diaphragm behind the horn, but a duo, coaxial system. In this unique loudspeaker, a small tweeter is surrounded by a midrange driver. In this way the treble and mid-range frequencies are radiated from a single point, thus coming closer to the ideal of a point source. Both the tweeter and the midrange driver are designed as ring radiators to create a delicate and therefore fast-acting, impulse-diffusing vibrating plastic diaphragm. It is fixed at the edge and centre and has radial depressions and elevations in the moving area. The coaxial system acquires frequencies above 250 Hertz, with frequencies over 6,500 Hertz transferring from the midrange driver to the tweeter, which can convert up to 22 kilohertz. Below 250 Hertz the large, granite bass module, on which the horn is mounted together with its bracket, takes over.

Granite-clothed: The Bass Module

Of course, the bulk of the weight of each 300-kilogramme speaker comes from the voluminous cuboid in which the bass speakers are housed. This cabinet is made of a composite material with two different acoustic properties. This combination significantly reduces the tendency to vibrate. The core is a birchwood multiplex cabinet several centimetres thick. In turn the wooden cabinet is clad with three-centimetre-thick granite, providing the mass, which in turn significantly contributes to the thorough acoustic calming of the bass enclosure. The large stone slabs used for the cladding are hard to lift -- another reason that the speakers can only be assembled at the customer’s premises. By the way, the granite comes in different colours. Apart from the “Nero assoluto” of our test model, the equally dark “star galaxy” or a “light” “cashmere white” are also available, other granite finishes are possible on request. Despite the mass of granite, the bass module is not completely enclosed, quite the contrary: in principle, this is an open cabinet. The large continuous fabric front panel and the three rear panels conceal the view into the interior, where four powerful 18” woofers do their job. The four cone drivers are not aligned to the front or rear, but radiate upwards, each driver working in its own compartment. These compartments are alternately open to the front and to the rear, allowing sound to escape unhindered. This open construction has a great advantage as the air flows without resistance and the diaphragm does not have to work against an “air cushion” as with closed cabinets. As a result, there are no compression effects during sound conversion, which would colour and obscure reproduction.

One square meter bass membrane

This is a good thing, because the four woofers together create an impressive vibrating surface of about one square metre producing a whopping 12 litres of air displacement.
Two drivers are impulse-compensated, i.e. they are connected as dipoles. This means that they oscillate in opposite phases and thus in opposite directions. As a result, their respective impulses neutralise each other, and cabinet vibration is eliminated. This pulse compensation also contributes to the mechanical calming of the entire loudspeaker and the subwoofer unit plays cleanly down to 25 Hertz. However, despite the advantages of a dipole circuit and open cabinets there can be disadvantages in the bass range. The dipole circuit is not considered very efficient and the open cabinet can cause a drop in low frequency responses if the baffle is not large enough to prevent a so-called "acoustic short circuit". An acoustic short circuit occurs when there is pressure equalization between sound components and the diaphragm radiates backwards and forwards when vibrating. This pressure equalization is prevented by mounting the speaker on as large a baffle as possible. This baffle can be folded to save space. This kind of open-folded design is used in the bass module enclosure of the Elysium SL MKII.

Adeus

The Force: clever and powerful propulsion...

On the back of the bass module we now find the connection terminal of the Elysium SL MKII. It offers separate connections for each of the three-way speaker sections. Thus, treble and midrange of the coaxial driver as well as the bass of the four bass drivers are controlled and driven separately. All this is managed by "Adeus The Force", an active electronic system which simultaneously does the job of a crossover network and a full amplifier. Because of this configuration of the Adeus System, the Passau-based manufacturer dispenses with a passive crossover in each of its transducers, as is normal in conventional speakers. This means that the signal path is free of the resistors, coils and capacitors that make up a passive crossover. "Adeus The Force" is complementary to the Elysium SL MKII enriching it as an active speaker. It orchestrates the perfect interplay of the horn and the bass, which would not be possible in a passive system. It also provides a powerful and precisely tuned drive with six built-in amplifiers: for the trebles it delivers 100 watts, for the mid-range 280 watts and for the bass 800 watts per speaker. If that's not enough, you can tap the pre-amplified signal and send it to external power amplifiers - either balanced via XLR outputs or unbalanced via RCA outputs. "The Force" offers a versatile input section. On the analogue side there are one balanced and four unbalanced line inputs, the digital section includes three electrical S/PDIF inputs that accommodate Hi-Res files of up to 192 kilohertz/24 bit, and three optical S/PDIF inputs that accept 96 kilohertz/24 bit. All incoming signals, whether analogue or digital, are trimmed to a sampling frequency of 96 kilohertz for the subsequent sound shaping by the digital sound processor.

Test 2020 | www.lite-magazin.de | errors reserved
**Setup and calibration**

To achieve this, the Elysium SL MKII must first be optimally positioned. It is best to consider the location before the two transducers are set up, as, the 312-kilogram speakers are not easy to move. Set-up is part of Adeus’ full service, and so we watch in fascination as Dirk Uffelmann and his colleague create the Elysium - starting with the assembly of the granite cladding, through the placing and fixing of the horn construction to its perfect alignment. The correct listening angle is achieved when sitting at the listening position and being able to just see the insides of the two bass modules. A minimum gap of about 50 centimetres from the speakers to the wall is required for clean reproduction. Now calibration begins. Uffelmann sends reference signals generated on his laptop with the help of the calibration software to the USB port of "The Force", which amplifies the signals before they are emitted via the Elysium SL MKII. A measuring microphone positioned about one meter in front of the transducer records the playback and sends it to the laptop via an audio interface. Here the software compares the recorded signal with the reference signal, checking in which frequency ranges the room distorts sound. Here, Dirk Uffelmann uses the software to make corrections until the sound is balanced - and now, after the work is done, the fun begins.

**This is how the Adeus Elysium SL MKII sounds**

Our large listening room was at the geometric limit for the Elysium SL MKII. If the room was smaller it would have been difficult to optimise the distance from the transducers to the listening position. Fortunately, everything was still within the green zone, confirmed by the first test piece. We play Norma Winstone’s beautiful jazz ballad "Just Sometimes" via our SACD player Oppo UDP-203. The melancholic song begins with a piano intro, the pianist Glauco Venier plays a gentle succession of seductive chords on his grand piano which bubble into our space with such clarity and presence that we immediately forget the real surroundings and are enveloped by this recording. Already we could hear, the imaging power inherent in the Elysium horns. But somehow the music floats lightly above us. The sofa we were sitting on was simply too low. The optimum ear height for this large speaker is about 1.10 to 1.20 metres. So, sofa out, higher armchair in - and now everything is correct: Venier sits at his grand piano right in front of us, we can hear every touch, can almost see his fingers moving over the keys. Then Norman Winstone joins in, the grande dame of European jazz almost casts a spell on us with her soft, beguiling voice. "Just sometimes I catch a glimpse of something in the stranger, you’re always somewhere near", there is no question that this meant for us, the chanteuse is singing to us. We experience this wonderful immediacy and the directness of the horns, particularly of voices: We listen intently to every word that Norma Winstone sings to us.
Power of the reproduction

One notices how perfect this illusion is and how powerful the effect of the reproduction when one leaves the so-called "sweet spot", i.e. the listening position to which the loudspeakers are directed. I moved to an adjacent seat to let other listeners enjoy this reproduction. Norma Winstone still sings - but now not for me but for my neighbour in the sweet spot. To be honest, I feel a bit jealous. We change places, and now everything is fine again. Yes, this playback has the potential to be addictive. The small sweet spot is the result of the extreme coherence with which the six drivers cooperate to radiate a completely coherent sound. The ear can immediately register when the distance between the listening position and the speakers is unbalanced, something less noticeable with more imprecise speakers. Klaus Gesing starts playing his bass clarinet whilst we change seats. This was also an experience: we first hear the wind sounds because Gesing, who is standing live to the left of us, first plays very softly below the volume level of the piano. A great effect, which puts us in suspense and expectation - finally Gesing steps forward as a soloist, underlining the singing with this rarely heard instrument, which delivers very unusual sounds in undreamt-of bass registers in addition to the typical clarinet sound. Amazing! Here, too, we listen spellbound, because the mixture of exoticism of the instrument and intensity of the reproduction is irresistible.

Excellent dynamics, grandiose power

If enjoyment of the music is already so great within the manageable framework of a trio, what about the larger orchestral format? The answer is provided by the rendition of the “Allegro Agitato” from George Gershwin’s Piano Concerto in F major. This movement begins with a tutti by the St. Louis Symphony Orchestra - and the concentrated power of the orchestra makes us wince, because the Elysium SL MKII blows us away fortissimo with a breath taking and effortless attack. Yet we know this recording and should not be surprised! However, we underestimated the power of the combination of horn, bass module and six-channel amplifier. True, we had turned up the volume to find out the speakers’ capabilities, but still we weren’t really prepared for this mixture of power and liveliness. The drivers should react perfectly to the impulses of the music signal - and the Elysium SL MKII does this excellently. In the concert allegro, it shone especially brilliantly with its excellent dynamic capability: The rapid movement is rhythm-driven, the wind section drives the movement with jagged, rising tonal cascades, the violins respond with fast, sharply contrasting staccato passages. At the climax of each escalation, timpani and percussion deliver a boom that runs through the limbs. Even the solo piano part is highly percussive: Kirill Gerstein’s swirling fingers repeatedly ride full-fingered attacks of tone. After each fortissimo, the soloist and the orchestra lower the volume in order to enjoy the next discharge more forcefully. This up and down is a real feast with the Elysium SL MKII, because in addition to the coarse dynamics, it also masters the very fine gradations and, despite the constant back and forth of the music, it maintains an overview. We hear a wonderfully transparent and physical orchestra, we can walk with our ears through the rows of the individual groups of musicians. Even the smallest details, such as the short interjections of the xylophone positioned at the very back, can be heard clearly and distinctly despite the dense sound events on this imaginary stage. Chapeau! In the meantime, we briefly leave the listening room - and only now do we realize at what high volumes we are testing. Here, the Elysium once again shows itself to be seductive: even at this high level it delivers an effortless, relaxed, compression-free reproduction.
Now we can also focus on the numerous sounds, noises and percussive elements which appear in this track and buzz around us, enriched with a great reverb and echo, and leave the boundaries of our space to finally disappear into an unreal far distance. Long since we had closed our eyes to dive into this acoustic art cosmos and enjoy a wonderfully intense sound experience.

**Conclusion**

The Adeus Elysium SL MKII offers the fascination of horn reproduction in excellence: Due to the immediacy of the response, voices and solo instruments have an almost magical attraction. The imaging and transparency are breath-taking. The vitality of the musicians and the three-dimensional representation of the musical events are outstanding. The tremendous fidelity of impulse, dynamic capability and strength results in reproduction that is completely effortless, relaxed and natural, right down to the deep, voluminous bass. In the high and mid-levels this is achieved on the one hand by a coaxial driver with ring radiators, and on the other by the spherical horn, in the bass by four 18-inch woofers connected in pairs as dipoles in the granite-reinforced bass module and thus impulse-compensated operating in an open cabinet with a folded baffle. All drivers are driven by external, active electronics. The amplifiers provide the richest power at 2,360 watts, while the processor allows the sound to be optimized and adapted to the room. These active three-way speakers release the full impact of reproduction and the high-end sound converter combines visual and acoustic impact. The room-filling Adeus Elysium SL MKII, with two 312 kilograms, is not only the heaviest loudspeaker we have ever tested in our editorial office, but also one of the most impressive: the Elysium delivers a heavenly sound.

---

**Powerful and light: the bass paradox**

This no-limitation applies to the bass. We notice this especially with Kari Bremnes, the Norwegian singer and songwriter who serves up a technical delicacy with her song "Det Vi Har". The electronic song begins with a constantly repeating synthesizer pattern, over which further layers of sound are gradually added, with an artificial clacking providing the fast beat. We have used this song several times before, but we have never heard this intro with such intensity. We haven’t noticed the fine dynamic rise and fall of this sound carpet. While we are almost hypnotized by the pattern, Kari Bremnes starts with her clear, expressive singing. Again, we experience this emotional pulling effect with which the horn speakers make voices irresistible. But we are almost more impressed by the bass that now begins: a rapid low frequency sequence presses our eardrums and stomach. These five tones leave us in awe: the bass is voluminous and powerful, at the same time completely clear, contoured and effortless. Thus, unifying a real contradiction: power and lightness. This bass paradox is so impressive that we listen to the song again.

**Test & Text: Volker Frech**

**Photos: Philipp Thielen**