

ARENDAL[®]

1961

SPEAKER

H A N D B O O K



WELCOME

*Thank you for purchasing an
Arendal Sound product.*

*We hope you enjoy it as much
as we enjoyed creating it”*

- Team Arendal Sound

**STORY OF ARENDAL
1961 SPEAKERS
PREMIUM BUILD QUALITY
WAVEGUIDE TWEETER
MID-WOOFERS
SPEAKER INPUT POSTS
SPIKES KIT / RUBBER FEET
PLACEMENT & SETUP
SAFETY INSTRUCTIONS
WARRANTY**



ARENDAL®

1961

SPEAKER

BUILDING BRIDGES.

The 1961 series builds on our award winning 1723 series. We have trickled down as much of our 1723 technology as possible and applied all the know-how and tricks we have acquired, leading to a series that offer astounding performance for the money.

1961 are still in the Premium range of speakers. We use high-quality paint and HDF cabinets. No cheap vinyl or simple solutions. We don't skimp where we know it matters.

All Arendal Sound speakers are built around our beloved waveguide technology; the 1961 series offers a new customized waveguide. It's not a horn. It's a properly executed waveguide with a sleek design. It's an engineering piece of art down to nanometre precision for refined and accurate reproduction of sound. The waveguide delivers the best possible experience not only at your sweetspot, but at the surrounding seating positions as well. Our 1961 waveguide makes a difference and is our hallmark in the speaker industry.

With a waveguide, you need a tweeter. Not an average tweeter. We have used all our know-how from the 1723

series, and we designed a new matching tweeter based on the 1723 tweeter. It's a 28mm tweeter with high capacity and the detailed sound you expect from Arendal Sound.

Our new customized 5.5" driver is a high performing woofer that would normally be built into more expensive speakers. Our engineers have done an extraordinary job in creating a dynamic, refined and high performing driver that sounds natural and effortless at any task. The 5.5" driver in combination with our waveguide-tweeter solution makes the 1961 different.

The 1961 series is packed with high performing products. It starts with the extremely high performing 1961 Tower with quad 5.5" woofers, matching 1961 Center and 1961 Monitor, and the TriAxial 1961 Surround for an incredible movie or concert experience. Our compact 1961 Bookshelf can be used for small compact stereo setups, or in multiple configurations for home theatre. For the first time, we have launched a new 1961 Height speaker. You can place it on top of the 1961 Tower, mount it on-ceiling or on-wall. It's your decision.

1961. Building bridges. Premium products for everyone.

STORY OF ARENDAL

I was born and raised in Arendal 1978, Norway. As a kid I enjoyed many activities, such as catching fish for my cat Johnas, riding my bike, playing football and video games, and hanging out with friends. Of course not a day went by without wrestling with my older brother Dan Benny.

My dad, Jan, founded an electronic store in the 70's and it quickly became the top selling store of it's kind throughout Norway. On a good Saturday it was not unusual to sell 40-50 color TV's, which were hot tech at the time. Today he spends his elder days as a fisherman, just like my grandfather Olav before him.

During my younger days there was rarely a weekend when I was not (somewhat reluctantly!) dragged out of bed on a Saturday morning to help sell my grandfather's catch from the night before to the neighbourhood. I was often told "your grandfather has caught a lot of fish, you need to help him sell it". Dragging all the fish with me, I walked several kilometers and knocked on many doors utilizing some maybe desperate sales tactics to charm the older ladies. My customers may have felt sorry for me seeing me walk around with fish, but I was able to sell them and returned home with pockets full of money. My grandfather gave me a cut of the sales so I could buy candy and save the rest in order to purchase more audio products. These were some of the best memories of my childhood.

As you may have guessed, I was introduced to the audio world at a very early age. When I turned 14 I started to work part time at my dad's store. When your hobby is electronics and you work in such an environment you

get the urge to purchase and test as many products as you can, which I did with great joy. Normally, instead of a paycheck, I brought home new speakers or amplifiers that had to be tested. My very first setup was a stereo system with some huge speakers which could play very loud. It was hugely annoying to my mother. Does that sound familiar?

It's one thing to have fun with audio equipment, but another very different thing to understand it. I studied electronics for 8 years, graduated from Grimstad with an engineering degree and was lucky enough to get a job in the oil industry. After working in the oil industry for a while, I knew that it wasn't the field for me. Audio was my passion and that's what I wanted to work with.

With 15 years of business experience in the audio industry and after shipping tens of thousands of audio products throughout Europe and beyond, I wanted something else. Something of our own which had been lingering in the air for many years. At our 10th anniversary, what better way to celebrate and continue the story, than with the release of our own speaker brand?

The idea of Arendal Sound was born.

It was no coincidence. We've spent years researching, listening to our customers, planning, developing, engineering and investing in Arendal Sound. I always wanted our team to have something to be extraordinarily proud of and enthusiastic about. It had to be something that was based on solid acoustic engineering principles

and yet aesthetically beautiful, surrounded by a unique story - ours. Arendal Sound builds upon traditional and historic Norwegian elements, where solid craftsmanship and finish quality are a top priority, backed with pleasure in the use and pride in the ownership. We even want to show our beautiful country to our overseas customers and invite them to Norway.

We are a family and team with the same mentality and goal, to create market leading products, packed with incredible value, backed with our highly acclaimed customer support that extends beyond the date of purchase.

To me, business comes second and at the end of the day, it's my family who are most important. Without them it would have been hard. I would especially like to thank my wife, Heidi, as she has been by my side all this time showing extreme patience and understanding. And of course my two little kids, Marcus and Leander, they are the dessert in life as my mom and dad say.

We hope you will enjoy our products as much as we enjoyed making them.



Jan Ove Lassesen
Founder of Arendal Sound



1961

SPEAKER



1961

TOWER

BLACK MATTE



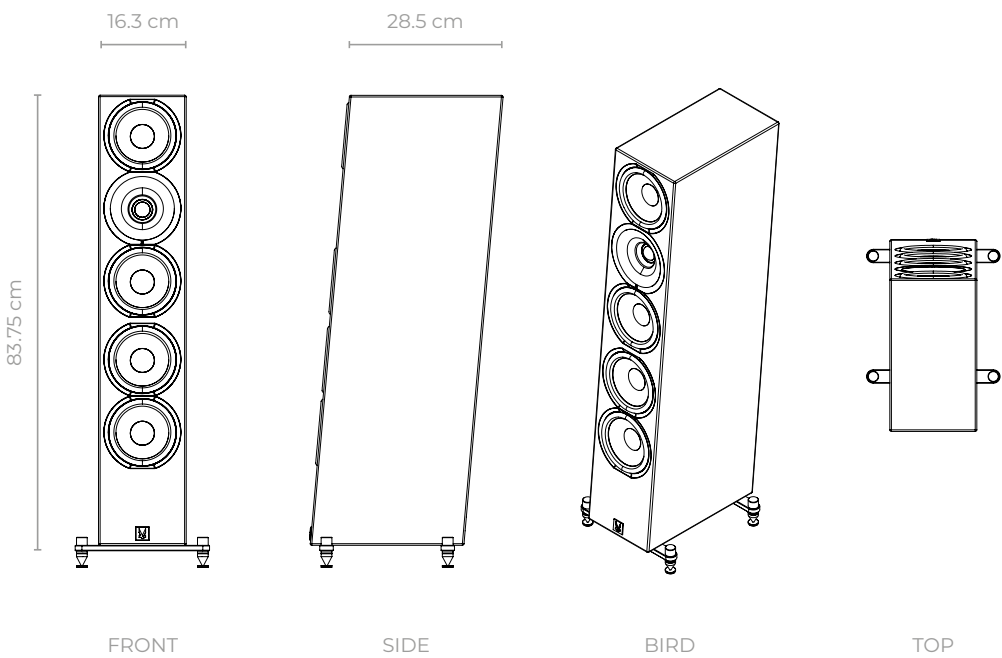
WHITE MATTE



SPECIFICATIONS

1961 Tower is a real wolf in sheep's clothing. It's a relatively compact tower speaker, but in typical Arendal Sound fashion, it offers dynamics, realism and sound pressure you wouldn't expect from a speaker this size. Everything about this speaker is custom designed and developed by our engineers, there are no off-the-shelf components found in other speakers. Well, unless you count other Arendal Sound speakers, as its borrowing quite a bit of tech from its larger brothers in the 1723 series. And of course, the cabinets are heavy and sturdy, made in HDF.

Design	2.5-way
Tweeter	28 mm
Woofer	4 x 5,5"
Enclosure	Sealed / Vented
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency	120Hz / 1500Hz
Sensitivity	87dB/2.83v/1m
Frequency response Sealed	49-20KHz (+/-3dB)
Frequency response Vented	39-20KHz (+/-3dB)
Impedance	4-ohm nominal
Included	Grilles. Manual. Spikes Kit. Rubber feet. Port plug.
Dimensions without feet	83.75H x 16.3W x 28.5D cm
Dimensions with spikes kit	87.8H x 16.3W x 28.5D cm
Weight	17.9 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 350W RMS





1961

MONITOR

BLACK MATTE



WHITE MATTE

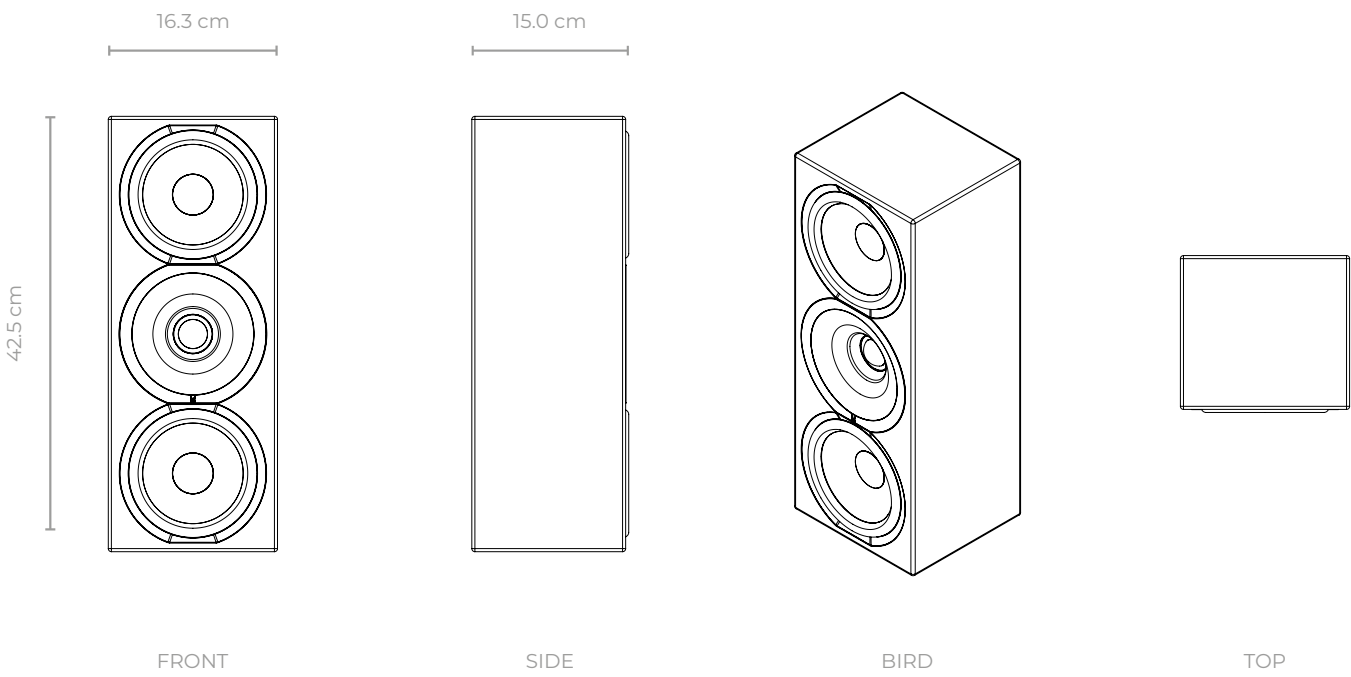


SPECIFICATIONS

With many of the same features and sound trickled down from the 1723 Monitor speakers, the 1961 Monitor is sure to impress with its stunning dynamic capabilities, realism and natural sound. Mounting the waveguide tweeter as close as possible to the midranges result in a very good transition in the midrange to tweeter as well as perfect dispersion off-axis. The result is a speaker that is less affected by different room characteristics – so you can enjoy great midrange to tweeter integration in any room.

1961 Monitor will be equally at home in a home theatre environment as it will in a stereo setup, preferably together with an Arendal Sound subwoofer for great sound throughout the entire frequency spectrum.

Design	2-way
Tweeter	28 mm
Woofer	2 x 5.5"
Enclosure	Sealed
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency	1500Hz
Sensitivity	87dB/2.83v/1m
Frequency response	73-20kHz (+/-3dB)
Impedance	4-ohm nominal
Included	Grilles. Manual. Rubber pads
Dimensions	42.5H x 16.3W x 15.0D cm
Weight	7.25 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 250W RMS





1961

CENTER

BLACK MATTE

WHITE MATTE

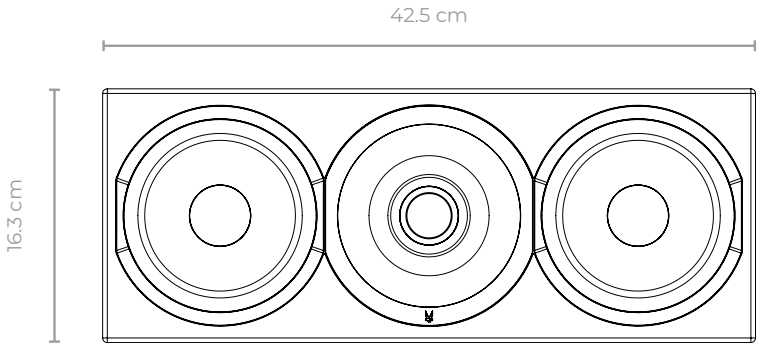


SPECIFICATIONS

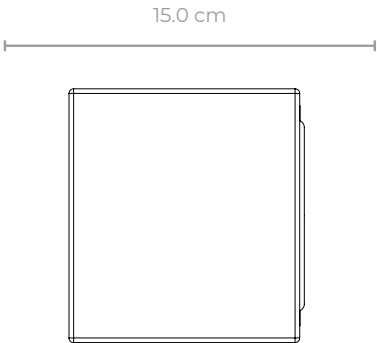
The waveguide tweeter in 1961 Center plays a big part in its ability to reproduce a uniform sound not only to the main listening position, but also to the sides. This was one of the reasons why we have utilized a waveguide with uniform dispersion throughout the 1961 series speakers, mounted as close to the midranges as possible, so everyone will enjoy the same great sound. As known from our 1723 series, the dynamics, realism and great focus on voices are trickled down to the 1961 Center speaker.

1961 Center is the exact same speaker as our 1961 Monitor speaker, with changes only to logo positioning, input posts and wall mount options. This ensure a 100% perfect tonal match together as an LCR system with 1961 Center and 1961 Monitor's together.

Design	2-way
Tweeter	28 mm
Woofer	2 x 5.5"
Enclosure	Sealed
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency	1500Hz
Sensitivity	87dB/2.83v/1m
Frequency response	73-20kHz (+/-3dB)
Impedance	4-ohm nominal
Included	Grilles. Manual. Rubber pads
Dimensions	16.3H x 42.5W x 15.0D cm
Weight	7.25 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 250W RMS



FRONT



SIDE



1961

SURROUND

BLACK MATTE



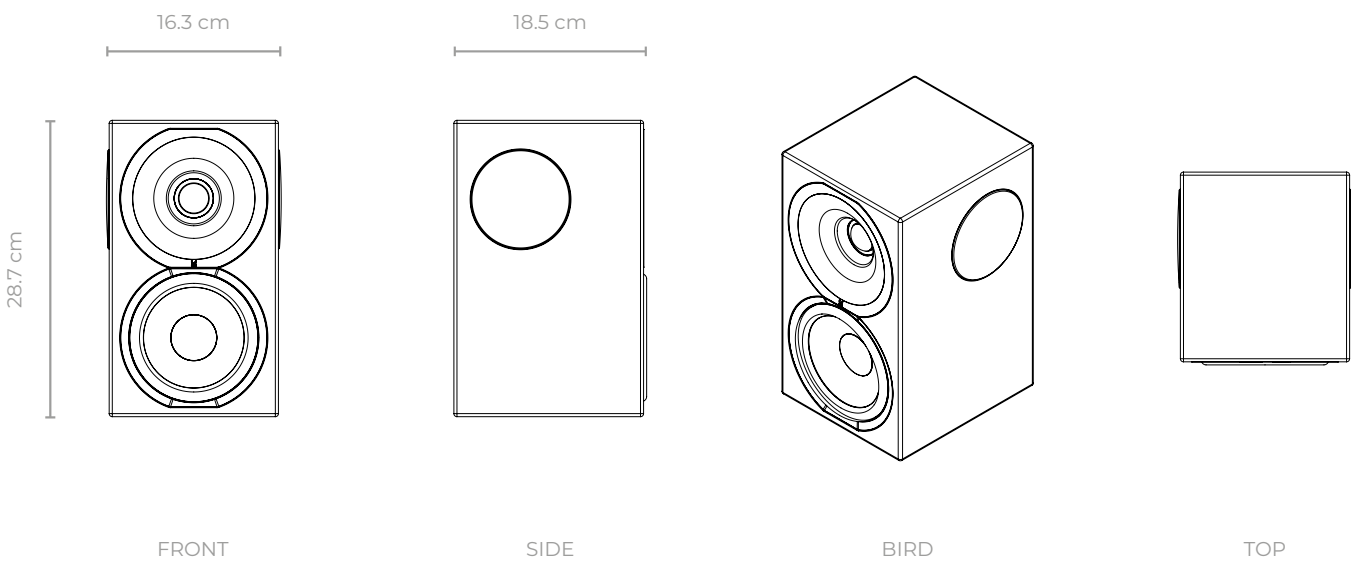
WHITE MATTE



SPECIFICATIONS

For a fully immersive home theatre experience, the surround channels can really make or break the system. 1961 Surround speakers are based on the same TriAxial design as know from our 1723 series, that give an extraordinary feeling of sitting in the middle of the action. The front baffle is based off our 1961 Bookshelf speaker with the same custom woofer and waveguide tweeter, the side channels utilize a custom built 3” full range speaker that are connected in dipole. This combination ensures a huge sweet spot and perfect matched tonality with the rest of the 1961 series.

Design	TriAxial
Tweeter	28 mm
Side	2 x 3"
Woofer	5.5"
Enclosure	Sealed
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency	1500Hz
Crossover frequency Side	200Hz
Sensitivity	84dB/2.83v/1m
Frequency response	75-20kHz (+/-3dB)
Impedance	4-ohm nominal
Included	Grilles. Manual. Rubber pads.
Dimensions	28.7H x 16.3W x 18.5D cm
Weight	6 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 180W RMS





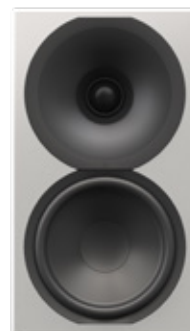
1961

BOOKSHELF

BLACK MATTE



WHITE MATTE



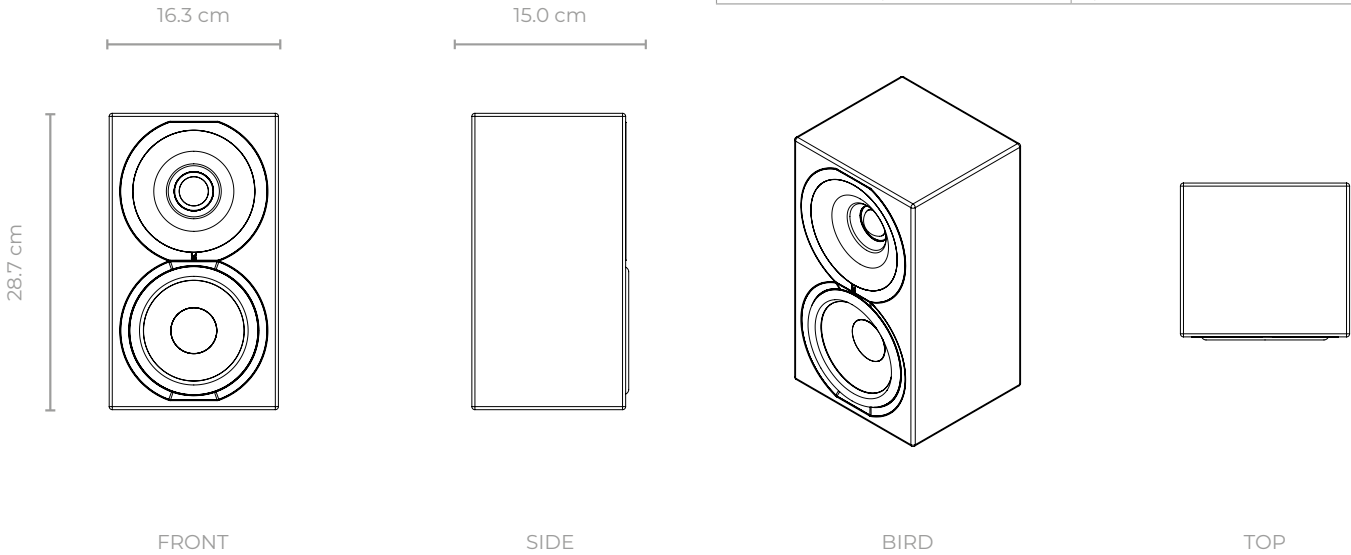
SPECIFICATIONS

1961 Bookshelf features our custom-built waveguide tweeter and 5.5" woofer, that are shared throughout the 1961 series. Just like the Monitor and Tower speakers, the Bookshelf is made to be equally at home in a home theatre environment and a pure music setup. The materials, drivers and finish are all what you would expect from an Arendal Sound product. Premium grade.

1961 Bookshelf has a lot of features trickled down from the 1723 series. Not only do they share many of the same features, but even the sound has a red thread throughout these series. Which is great for anyone who would like to mix and match a home theatre system across the different series.

1961 Bookshelf was designed for smaller spaces, or to fit a modern living room décor better than its larger brothers. Don't be fooled by its size though, while small and compact, it's incredibly powerful, dynamic and detailed with a big soundstage.

Design	2-way
Tweeter	28 mm
Woofer	5.5"
Enclosure	Sealed
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency	1500Hz
Sensitivity	84dB/2.83v/1m
Frequency response	75-20kHz (+-3dB)
Impedance	4-ohm nominal
Included	Grilles. Manual. Rubber pads.
Dimensions	28.7H x 16.3W x 15D cm
Weight	4.9 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 180W RMS





1961

HEIGHT

BLACK MATTE



WHITE MATTE

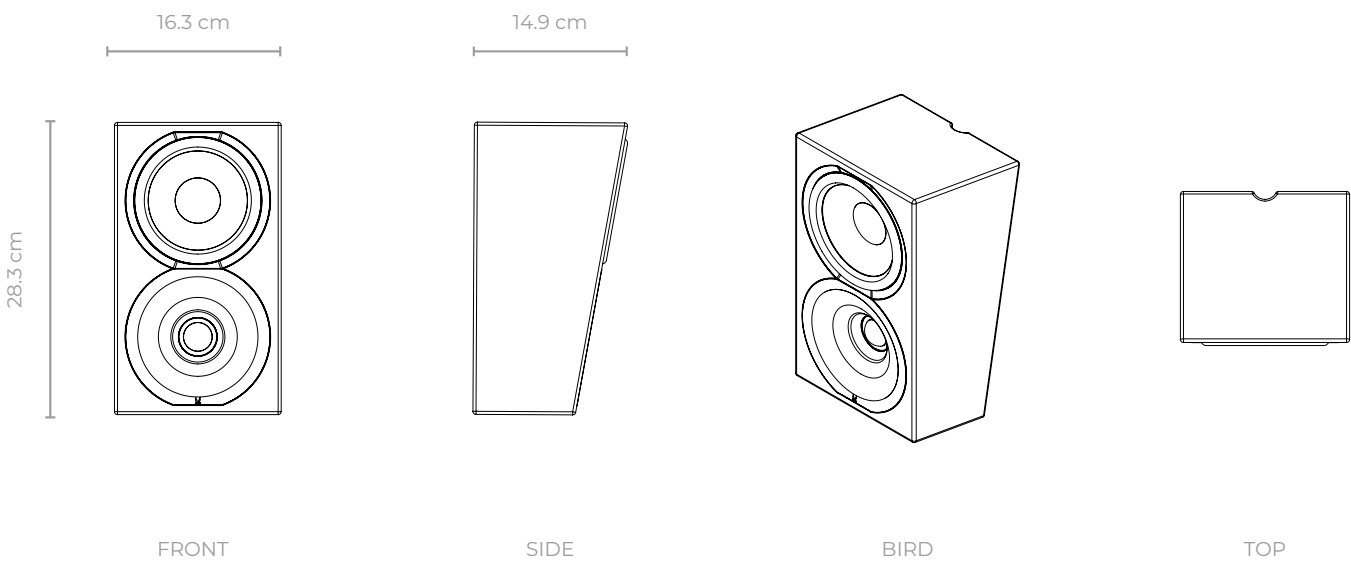


SPECIFICATIONS

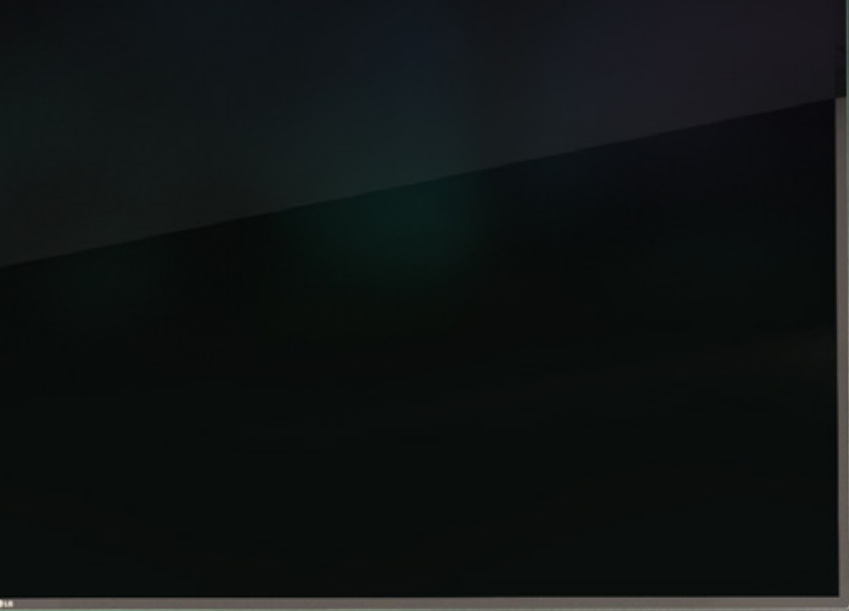
Introducing 1961 Height, a speaker our customers have been requesting for a long time. A speaker designed for height and Atmos duties in a home theatre, but not at all limited to those applications. It perfectly fits on top of the 1961 Tower speaker for a smart look and good sound integration for the Atmos channels.

Designed from the ground up to have a sound very similar to our 1961 Bookshelf speaker, the 1961 Height speaker with its slim size will be equally at home as stereo speakers mounted on the wall, or as an LCR where great sound and a small footprint is sought after for your home theatre applications.

Design	2-way
Tweeter	28 mm
Woofer	5.5"
Enclosure	Sealed
Enclosure material	High Density Fiberboard (HDF)
Baffle angle	10 degrees
Crossover frequency	1500Hz
Sensitivity	84dB/2.83v/1m
Frequency response	75-20kHz (+/-3dB)
Impedance	4-ohm nominal
Included	Grilles. Manual. Rubber pads.
Dimensions	28.3H x 16.3W x 14.9TD x 10BD cm
Weight	4.4 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 180W RMS







PREMIUM BUILD QUALITY

Premium quality HDF cabinets

Even for our 1961 series we opted with HDF (High Density Fiberboards) cabinets over conventional MDF (Medium Density Fiberboards). The reason being a much stiffer cabinet which improves dynamics and sound quality, as well as being easier to machine more precisely compared to MDF, to retain Arendal Sound's high level of craftsmanship.

All 1961 products are using HDF thicknesses ranging from 15 to 50mm throughout the designs, with critical areas like baffles being the thickest.

Premium finish – No vinyl-wrap

Just like for our 1723 series, the 1961 series also come in high quality multiple-layer paint finishes. We offer a very nice PU paint that has a little more texture than the 1723 series satin matte paint, which makes them blend seamlessly into any interior. Forget about annoying reflections from these products in your home cinema setup!

We offer Black and White matte paint for 1961 series subwoofers and speakers. We use multilayer paint, consisting of primers and polyurethane paint, hand finished. The finish is what you would expect from premium products. No vinyl.

Internal wiring

Not your average zip cord. All 1961 products are equipped

with multi-strand wire, perfectly braided together. These were not done for looks but chosen to produce the most consistent impedance and electrical current carrying capabilities possible. The result is very low insertion loss without the problems of “skin effect” caused by larger diameter wires. This ensures minimal colorations and no sound degradation.

Magnetic grills

For our 1961 series speakers and subwoofers we did not cheap out on looks. We felt using typical pin inserts in the cabinet and grills, as most manufacturers will in the price range, just did not feel right. We custom designed and tooled our own grills in ABS plastic material including neodymium magnets in both the cabinets and grills, with a protective rubber surface to avoid scratches.

The grills are perforated and free flowing, wrapped with a thin fabric cloth, ensuring they do not affect sound quality. And get that right Arendal Sound look to them.

There is something enjoyable about the nice “thud” when you let the grills seat, be it on one of the speakers or a subwoofer. You can rest assured that the sub-surface neodymium magnet will hold the grills tight in place to avoid any rattling sound during playback.



WAVEGUIDE TWEETER

The design of our 1961 speakers are built around a 28mm synthetic soft dome with custom designed, matching waveguide. The design of this tweeter was made on the 1723 series, and most of its design principles are trickled down to the 1961 series. The soft dome itself is very light weight, totally pistonic to ultra-high frequencies, optimally damped, produced to exceedingly tight tolerances and specifically chosen for its sweet sound character and consistent frequency response. We are basically utilizing the same tweeter as in the 1723 series, but instead of a neodymium magnet assembly we have opted for a less expensive ferrite magnet assembly that still makes the tweeter sound exquisite.

The role of the waveguide is to take an already excellent tweeter and provide refinements to the tweeter's performance. The size and shape, although appearing rather simple, is in fact the result of painstaking modelling, testing and refinement. In precisely controlling directivity across the tweeter's frequency range, we are able to broaden top end dispersion, which the tweeter naturally wants to beam straight ahead and focus frequencies at the bottom end of the tweeters range, which naturally want to spread out in all directions. This provides a more consistent polar response across the tweeters entire range and provided a close match to the dispersion pattern of the mid-bass driver it works with, simplifying crossover design.

Design

Everything about this tweeter except for the diaphragm is completely ground up modelled, designed and tooled. The motor of this tweeter is a powerhouse, all bespoke designs for Arendal Sound and extensive FEA modelling and optimization through Comsol. As per usual we use Klippel analysis to review all driver designs.

The end result is a high performance, high power handling tweeter with very good bandwidth, low distortion and high efficiency.

- High temp polyimide CCAW wire.
- Underhung voice coil design.
- Ultra-low viscosity Ferrofluid contributes to voice coil cooling and ensures the best possible transient response.
- Large aluminium heatsink/shorting ring lowers distortion and prevents thermal compression.
- Multiple vents for increased airflow and balanced compliance.

Waveguide assembly

The waveguide is specifically designed for the new 1961 tweeter and its new speaker applications. It's a constant directivity, custom designed and tooled waveguide in ABS plastic material, thick and sturdy to avoid any resonance.

To put that final touch of feel and looks to the waveguide assembly, we have designed and tooled an NBR rubber ring that fits smoothly to the end of the waveguide shape covering screw holes and showing off a subtly integrated Arendal Sound logo.

The waveguide serves several purposes, augmenting tweeter performance to a level that no flat baffle mounted single dome solution could reproduce:

- Increased efficiency by controlling lower frequency dispersion - Typically a 6dB gain.
- Very low distortion due to increase in bottom end efficiency.
- Precise Polar Response control (constant directivity).
- Low crossover frequency (approx. 1 octave lower than without the waveguide).
- Excellent directivity transition from mid/woofer to tweeter.

Air flow venting

The air chambers, venting and damping materials found behind the dome and surround are optimized to create a very well controlled impedance, void of secondary resonance spikes that typically result in electrical phase shifts that present an awkward load for amplifiers and further smear the sound, adding a harsh character.



5,5" WOOFERS

Our 1961 series utilize a 5.5" woofer that is built around the same core fundamentals as its bigger brother, the 1723 series. The cone body is the same, using long fibre pulp paper with our proprietary coating that ensures covering a wide frequency range from the deepest bass to well above 1500Hz without any hint of cone resonance. The cone material also makes it inherently self-damped which gives a natural sound without coloration throughout the frequency band.

The entire surround of the driver is designed to follow the same curvature as our waveguide, so the speakers are recessed into the cabinets and have a smooth NBR rubber surround that also acts as a gasket and smoothes out the curvature to meet the face of the baffle. The looks are just like we do on our 1961 Subwoofers and 1723 Subwoofers, except here it is a single integrated piece in the woofer design.

Modelling

While many brands may advertise FEA design and modelling, usually this only refers to the basic magnetic circuit. Arendal Sound has taken the science of transducer modelling to another level. The motor topology is firstly designed to meet flux density and excursion requirements. Then the materials and geometry are fine tuned to minimize flux modulation and stabilize the inductance vs both position and current. Lastly, the voice coil stroke or BL(x) shape is optimized for zero-point centring and symmetry which are the final points for maximizing motor control over excursion and minimizing distortions.

We use non-linear FEA modelling to analyse the compliance of both the spider and surround to achieve excursion requirements and optimize Cms(x) to compliment the motor. This translates to increased excursion and lower Distortions which equals maximum sound quality.

We utilize Klippel Laser based diagnostics. It's a tool often misunderstood, but when used properly in conjunction with component design, a woofers design can be dialled in. Klippel testing basically serves to confirm the initial FEA modelling and accuracy of part tooling and offers the diagnostic abilities to allow our engineers to refine the initial designs until final goals for excursion, linearity, stability and distortion are met.

Material selection and design

Distortion is closely related to how far the cone and motor has to move and for a given volume level. Size presents it's own engineering challenges and the motor, suspension and diaphragm all must be delicately balanced to be able to cover the critical midrange frequencies without coloration.

We utilize low carbon steel specifically chosen for its ability to carry more flux is used in the magnetic circuit.

The vented T-yoke is CNC milled to final dimensions to ensure tight tolerance, proper fit and prevent flux robbing losses often found in typical motor assemblies. Vents in the aluminium bobbin as well as the T-Yoke, vents in the basket under the spider and in the cone body all together reduce physical and thermal compression, maintaining a hugely dynamic response. This continuous exchange of air mitigates thermal compression and increases the woofer's overall power handling capability. Second, the airflow relieves asymmetric compliancy and noises (ie, distortion) due to non-linear compression and rarefaction of air typically trapped under the dust cap and spider. Typical vented pole designs will be limited in effectiveness due to the lack of airflow volume. Meaning, at the highest power and excursion where the airflow is needed most, the pole vent alone will not be sufficient.

Aluminium voice coil wire is chosen for its weight to conduction properties and lower sensitivity to temperature change, compared to copper. This results in higher efficiency and lower thermal compression. The driver also has a large linear excursion of 13mm peak to peak and a very low inductance design to maximize sound quality, bass response and extension.

We use copper shorting rings to reduce inductance, increase frequency bandwidth and lower distortion.

Symmetrical suspension consists of critical components such as the NBR surround, Poly-cotton spider material

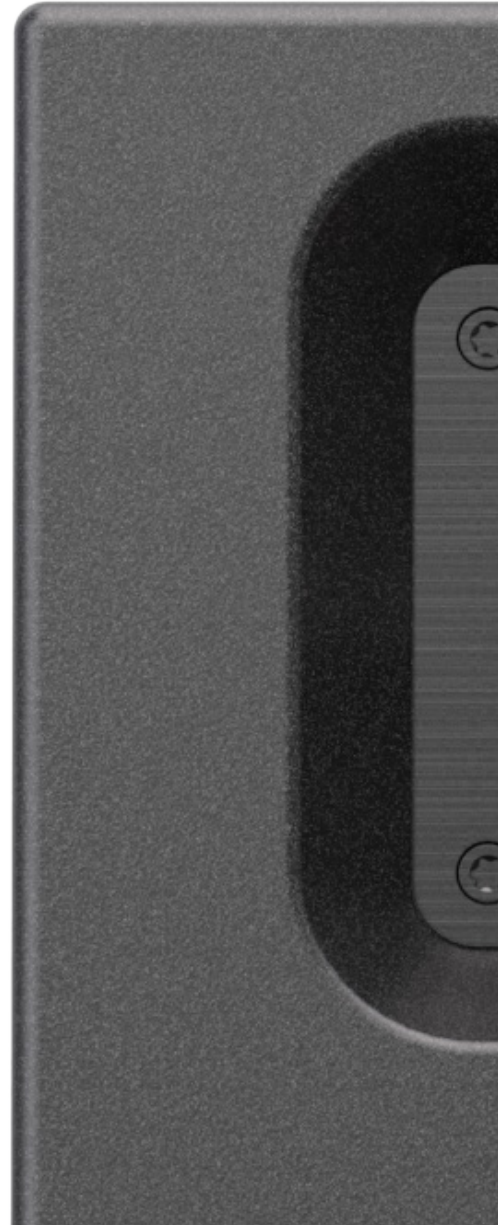
with progressive roll geometry, and integrated tinsel leads. All combined to create very high excursion capability with an exceptionally linear suspension. Again, this contributes to high output and low distortion at all operating frequencies.



SPEAKER INPUT POSTS

At much higher price points than for Arendal Sound 1961 series it is commonplace to see a plastic speaker input terminal plate. Although it does not really offer anything tangible in terms of performance, it certainly is resonance free and rigid as can be though, plus we like the looks and feel of a properly brushed and anodized aluminium plate for the input posts, over a cheap plastic piece.

The binding posts are custom made specifically for our 1961 series and accepts commonly used wire terminations like banana or spade plugs, as well as bare wire.



ARENDA[®]

1961

HEIGHT

4 Ω

S/N LABEL

CE

✓
RoHS

DESIGNED IN NORWAY. MADE IN CHINA.

SPIKES KIT/ RUBBER FEET

Supplied with The Tower and Monitor Stands, The Spike kit is there to ensure a firm stable mounting of your loudspeaker, with the ability to adjust tilt to suit listening seat height and uneven floors.

We recommend optimization of speaker positioning (see How to Setup Loudspeakers in this handbook) prior to fitting the spikes to prevent damaging floors and floor coverings. Due to the massive construction of Arendal Sound Speakers and despite the large size of our spikes, we do not recommend walking the speaker, or dragging the speaker on its spikes as this may damage The Spike Kit.

Once positioned, you need only slide the locking ring under the Spike Bar and then screw the spike in from above using the top Adjusting Ring. We recommend starting with the lowest adjustment required to lift the Spike Bar just clear of any floor covering, such as carpet.

Adjust levelling by screwing down the spike at the lowest corner, using a spirit level to level with the highest opposing corner. Then adjust of the opposing spikes to set the cabinet level. The fourth spike should then be adjusted until no rocking of the speaker can be felt.

Now, if required adjust the front or rear spikes as a pair to tilt the speaker, up or down until the front baffle is firing directly at the listening position. Owing to our wide dispersion

Waveguide Tweeter, this is not critical but aesthetically, it looks wrong if the two speakers are not level with each other.

Finally; Secure this position by tightening the lower Locking Ring up to the underside of the spike bar.

The Puck – Customized rubber feet

For 1961 Tower and subwoofers, we have customized a new slick puck-design mounted with M6 bolts. They create extreme stability against the floor. Branded with the Arendal Sound logo.









PLACEMENT & SETUP

- SPEAKERS

Too often, calibrating a home cinema is a task that is often entirely left to the the AV Receiver/Processor and an 'Auto Setup' or 'Auto EQ' feature. However, by taking steps to choose and setup your equipment properly, you reduce the requirement for EQ and less is always more with audio. EQ should be thought of as a band-aid for small problems; there just to add a final polish to the end result. It should not and cannot make poorly chosen, or positioned loudspeakers perform optimally. For that to be possible, we have to start with the basics and in this article, we will deal with the front loudspeakers.

Positioning - Why we've done what we have

All Arendal Sound speakers are designed with emphasis on not just having an linear on-axis (directly in front of the acoustic center of the loudspeaker) frequency response throughout the frequency spectrum, but also off-axis. At Arendal Sound, we place much emphasis on having a linear power response - This being the sum of the frequency responses in all directions.

Much scientific research has been undertaken on this subject and a linear power response has a greater positive impact on the overall sound, because the frequency response is more even in all directions. This means an Arendal Sound speaker will be more tolerant of differences in room shape, size, construction and materials.

In speakers with a tweeter mounted flat on the baffle, the frequency response can vary wildly compared to the ideal as you move away from this axis in any direction and that uneven sound reflects from elsewhere within the room and arrives back at your ears, tainting the flat response. This type of speaker will be very room dependent - read inconsistent from one room to the next.

The controlled directivity design that Arendal Sound has refined, aids the speakers in having a linear frequency response at the listening position, even when placed relatively close to side walls, so Arendal Sound speakers are relatively room independent and allow more freedom with positioning. This does not mean they will not benefit from careful attention to positioning, but simply that positioned correctly, they will tend to remain consistent performers wherever you are listening to them.

In terms of the actual positioning in the the room, there are number of factors to balance and perfecting one element, can be at the detriment to others, so it is always a case of balancing stereo imaging, bass power, bass evenness, etc.

What follows are our general recommendations in line with the capabilities and design of Arendal Sound speakers. Most recommendations follow general convention, because Arendal Sound Speakers are designed to work with normal systems in normal rooms and applications

like Home Theatre mandate certain speaker placements and angles. We would also recommend that in a dual use Home Theatre and Stereo System, you follow the guidelines for Home Theatre setup, as that will tend to benefit more than one person.

Positioning - Listening Axis

Most front loudspeakers like to be positioned with the listening pointing at ear height and that's true for Arendal Sound loudspeakers. The listening axis is the point on the front baffle where the output of all of the drivers sums to a smooth whole, and in the case of Arendal sound with a mid/bass driver above & below the tweeter, the tweeter is at the acoustic centre and the axis is firing perpendicular to the baffle.

The Arendal Sound waveguide does a lot to lessen this requirement. As a result of carefully controlled dispersion and efficiency gains in the lower frequency regions of the tweeter's output, potential issues inherent in normal tweeter implementations are shifted down in frequency where they are easier to deal with. However, listen too far above or below this axis and you will be changing the relative distances between the drivers and will be causing the response through the crossover regions to become uneven and ragged.

The spikes for Arendal Sound Tower speakers have been engineered to be easily adjustable without tools, from above the outriggers, without having to lift the speaker. Tilt them until you are on axis in the horizontal plane and for the sake of aesthetics, the speakers are vertical when viewed from the front.

Positioning - Toe In

Whilst we have taken great care with the design of the Arendal Sound waveguide to control dispersion and reduce the impact of side walls, Arendal Sound speakers are designed to be toed in toward the listening position, to further reduce issues from the closest boundaries. This will increase image focus across the soundstage and serve a wider range of listening positions more consistently in holding that focus between the loudspeakers rather than the sound collapsing toward the one which you are sitting closest.

In the case of Home Theatre use, we recommend the traditional equilateral triangle between you and the speakers, with them as far apart as you are from each loudspeaker. For stereo listening, we recommend you experiment, but rather than the 60deg angle of Home Theater, we feel a greater soundstage depth and focus is achieved with the front stereo pair closer to 45deg apart. This closer spacing does tend to serve the central listening position better, but as stereo listening tends to be a more individual.

In stereo world, it's also worth trying slightly less severe toe-in to help open up the soundstage a touch and allow it to breathe. However, that will result in a very gentle roll off of the very highest frequencies and it should be balanced against the evil of early side-wall reflections.

Positioning - How to cope with walls and floors

We recommend a minimum 20-30 cm between the front wall and the rear of the speakers. Any closer than this will make the speakers sound muddy in the lower midrange and thicken the upper bass, making voices and instruments generally sound congested and indistinct.

Although Arendal Sound speakers are engineered to ensure a reduced amount of upper frequency energy is lost sideways and that which is, is engineered to be of equal power across as wide a range of frequencies as physically possible, further from a sidewall is always better. The energy reflected from the sidewall effectively creates a wider phantom speaker between the point of reflection and the real speaker. If you add that time delayed version of the sound to that arriving direct from the loudspeaker, it will not only make the sound busier and less clear, it will blur the size and positioning of images across the soundstage, as well as making the extreme left and right of the soundstage dominate over the central images.

One set of reflection points you really can't avoid, wherever you point your loudspeakers, is the floor. We strongly recommend a rug positioned across the first reflection points. If you wish to know where these points are, place a mirror on the floor and the point at which you see the tweeter reflected in the mirror when seated in the listening position, is it. Use a bit of tape to mark the point and repeat for any of the other listening positions and for all of the front speakers. You will then see the area that needs covering and add 30cm in all directions for good measure.

Of course, this 'good practice' of soft furnishing the floors first reflection points, also applies to the walls we've previously mentioned. However, hanging rugs or other

soft sound absorbing items on walls is rather a matter of taste; or lack of, depending on your point of view.

None the less, the methods described for the floor apply equally to the walls and at least one wall will generally have a window, that is even worse in acoustic terms than a painted wall. If that window has curtains, then the room will sound better with them closed. Whilst we're getting picky - are you sitting on a leather sofa? If so, the hard surface of the leather places a mid-high frequency reflection point right behind your head. Cover it with something soft and it will have a positive impact.

If you're lucky enough to have a dedicated room, then easily one of the biggest upgrades you can make to any system, is to add proper room treatment. It's slightly out of the scope of this guide, but there is a massive range of pre-made and DIY solutions available. Backed with research and/or professional guidance, engineering the correct blend of absorption, diffraction and reflection can have an absolutely staggering effect on the quality of reproduction of even modest systems.

Getting back to the speaker positions; One final consideration, is try and ensure that ideally, the relative distance from the floor to the centre of the bass drivers, is not equal to the distance to the front wall behind and in turn, that the distance from that point to the sidewalls is different again. This has to do with the way bass reflects and reinforces/cancels within a room and by randomizing these distances, you are helping to spread out and reduce the impact of these room (not speaker) related artifacts. It's just a logical extension of the golden ratios employed in ideal listening room dimensions to achieve exactly the same end.

Positioning - You

It would also be worth mentioning that, you the listener are also part of this bass and stereo imaging equation. Just as it is ideal for the speakers to create the right image depth, it is also ideal that you as a listener are 38% of the room's length from the rear wall. This is considered ideal in terms of reducing the rear wall influence on the sound from the front speakers (that sound will have travelled just over twice as far and be over 4x quieter), but also divides the room's dimensions so as to help smooth the bass response.

Again this is a rule of thumb as you don't want that measurement to be equal of any of the three used to position the front speakers and preferably not a multiple of the speaker to front wall dimension for the same reason. However, moving a sofa an appreciable amount can be the cause of much 'discussion' in a family household, but as we said, these are just handy rules of thumb that should be accommodated, if they can.

Basically, other than the distance from you to each speaker, try and mix it up a bit!

Positioning - Center Speaker

The Arendal Sound Center speakers uses the tweeter waveguide to great effect. As previously mentioned, increased tweeter efficiency allows a lower crossover than conventional systems, so the problems of off-axis comb filtering have been greatly reduced and down-shifted to much less sensitive frequencies. Thus, Arendal Sound Center speakers are ideally suited to center duties and used with identical left and right monitors, provides an absolutely perfect tonal match.

Whilst positioning has been (relatively!) unproblematic to achieve for the front left and right loudspeakers, owing

to the spatial freedom they enjoy, the center channel will have to deal with the small matter of fitting in with where your screen needs to go.

Whilst you might be able to fire the center speaker through an acoustically transparent projection screen, that obviously isn't possible with TV displays. Do all you can to mount the center speaker up as high as possible (up against the TV) and try to avoid housing it in an enclosed space in a cabinet. It will just end up sounding thick, muddy and unclear on dialogue. Likewise, sitting the Arendal Sound Center speakers on a solid shelf that is up against the front wall is akin to putting the left or right speakers in a corner and will also thicken the bass and mid-bass making voices sound chesty and indistinct. In this case, you can at least pull the speaker to the front of the shelf to ameliorate this effect.

The center speaker equivalent of toe-in is limited to tilting it up/down until it's firing straight at you. If you are lucky enough to be firing through an acoustically transparent projection screen, we recommend placing the center speaker at least ear height and if possible slightly higher as this gives additional help in terms of lifting the combined output of the front three loudspeakers up into the middle of the screen. For the best performance and tonal balance, the center channel speaker should be installed vertically. If you can mount three Arendal Sound Center, Monitor or Bookshelf speakers behind the screen, try and get them all to the same height, ideally 1/3 of the way up the screen, or ear height - whichever is higher.

Positioning - Surround Speakers

Our TriAxial surround speakers come in a configuration of Left and Right speaker. This design is a culmination of a regular direct-firing two-way speaker, with two full range drivers added to the sides. It is a mix of a monopole

and dipole configuration and in our opinion this is the superior layout for a surround channel.

The reason for the left and right specific speakers is that the side mounted drivers in this TriAxial surround are mounted out of phase with each other, is to create a large, rear surround field. The side driver that is in phase with the front mounted drivers, needs to be the one pointing at the front speakers for optimal surround effect placement and steering. This means that the TriAxial surrounds are mirror image pairs.

This speaker works equally well as height or presence channels as well and can even be mounted on the ceiling with our wall-mount brackets.

Ideally you have a rectangular room, with at least 38% of the room behind the listening position, solid front and rear walls and nothing to block the forward and rearward radiation of the TriAxial Surrounds. Unlike the front speakers, the strong front and rear wall reflections are very much part of how the TriAxial (and any other surround with side firing drivers) surround works.

TriAxial surround speakers should be ideally mounted 50-60cm above head height and directly to the side of, to 10deg behind the listening position. Higher will work too, as will a bit further back.

Surround Back Channels

When mounting as the surround back channels in a seven channel system, the in-phase drivers should be mounted pointing at each other in the center of the rear wall. Meaning, the Left speaker should be placed in Right position at the back wall, and the Right speaker on the Left side. This means the out of phase drivers are working in phase with the out of phase drivers on the side

channels. Between them, this pairing continues to assist with placing pin-point images at the rear, whilst working with all of the other drivers to diffuse the sound field around these effects.

Positioning - Height speakers

For height duties, be it for Atmos or Auro 3d, we recommend using our dedicated Height speakers, or even our TriAxial Surround speakers.

The Height speaker can be placed directly on top of an Arendal Sound Tower speaker for a sleek setup in your room. We do not recommend doing this if your ceiling is made of acoustically absorbing materials of any sort. The ceiling is meant to reflect the sound back down to the listening position.

The acoustically best option of mounting the Height speakers is directly in the ceiling with a VESA100 mount, or on wall close to the ceiling. Mount it so that it points towards the listening position, refer to specific setup for the type of format you are listening to, be it Atmos, Auro 3d or any other format with height duties.

Arendal Sound TriAxial surround speakers can very well be utilized for height duties. For Atmos setups with only 2 ceiling channels they make the perfect choice, as with the side drivers enabled they will dish up a very involving sound stage that gives all listening positions a better sound comparatively to monopole designs. They should be mounted right and left as for surround duties, with the full range drivers pointing to the front and back of the room, with the tweeters facing each other. For setups with more than two height channels we recommend monopole speakers.

Recap

- Try to avoid enclosing the center speaker in a cabinet or between shelves of a rack.
- Position the speaker at ear level. If you can't point them up or down so they point at ear level.
- Position the left and right speakers at a maximum of 60deg, but no closer than 30cm to the nearest wall and preferably more to the sides.
- Cover the first reflection point on the floor with a rug as a minimum.
- Toe the speakers in to point directly at the center listening position, even if you habitually sit off axis.

Now you can press the Auto EQ button!





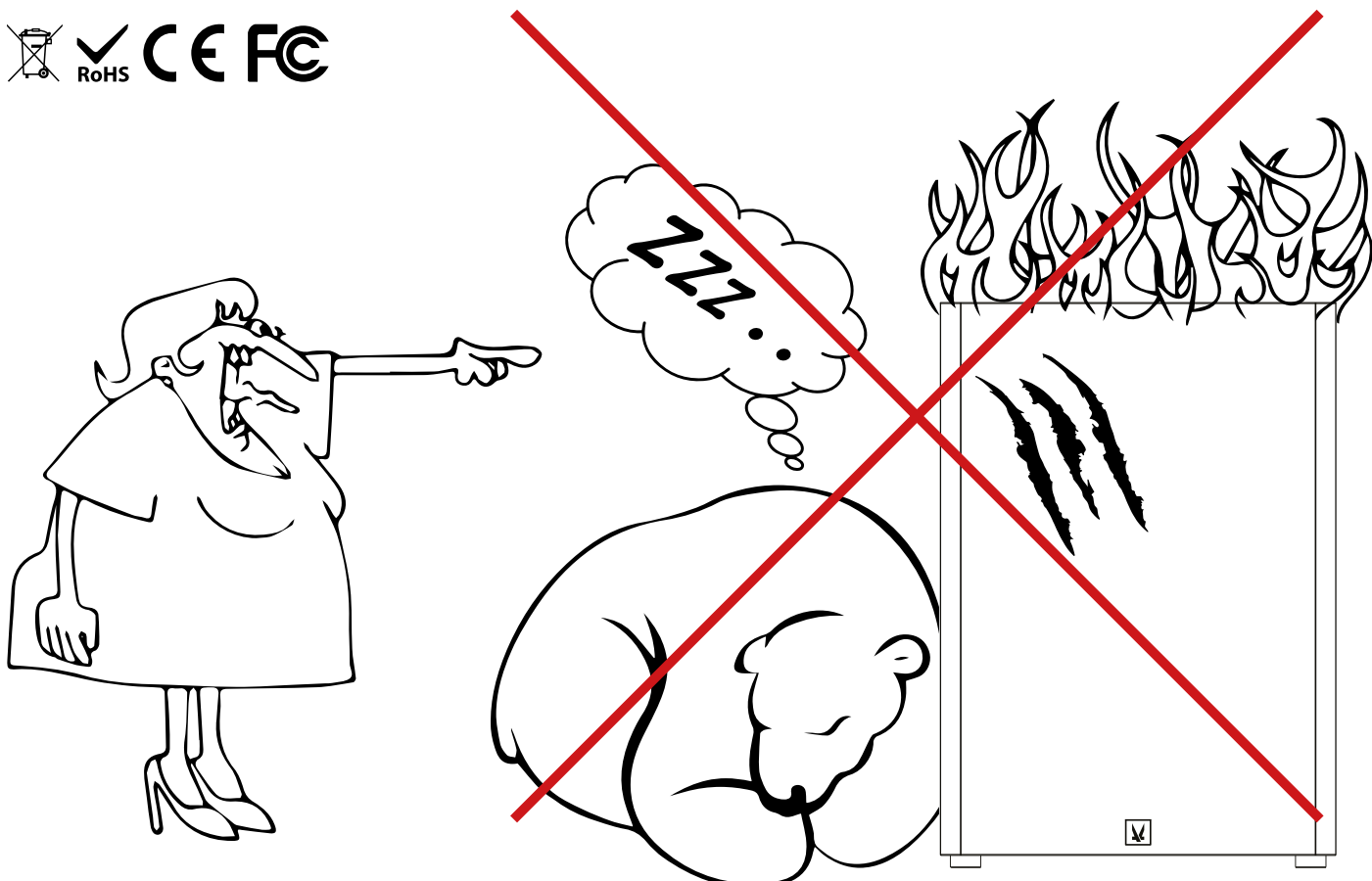
SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- **Do not shower or bathe (with) this product. It does not like water nor soap.**
- Do not restrict the natural ventilation for this product. Do not cover amplifier plate with polar bear hide or similar as this product is built to handle even the cold northern climates without such heating devices.
- **Large house pets like dogs, big cats or bears should be trained not to cuddle or sleep against this product to avoid overheating, scratches and bite marks.**
- Clean this product only with dry cloth.
- Do not install near any heat sources such as an open fireplace, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Protect the power cord, signal cables or speaker cables from being walked on, chewed on or pinched particularly at plugs and the point where they exit from the apparatus.
- Only use attachments and accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Check that there are no cables under the carpet that may be damaged by the spike/cone feet. Do not walk the product on the spike feet as this may cause them to become detached from the cabinet and cause damage. Take care not to impale yourself with the spike feet.
- Do not place this product on an unstable stand, tripod, bracket or table. The product may fall causing serious injury and serious damage. Any mounting of the product should follow the manufacturer's instructions.



- For continued protection against fire hazard, use fuses only of the correct type and rating. Mains fuses are located inside the appliance as well as on its back panel. Replacement of the internal fuse should be entrusted to an authorized operative. User-replaceable fuse types are shown in the specification.
- WARNING: To reduce the risk of fire or electric shock, this apparatus should not be exposed to rain, snow or moisture and objects filled with liquids, such as vases, should not be placed on this apparatus.

- The mains plug of the power supply cord shall remain readily operable.
- WARNING: This product is capable of producing very high sound pressure levels. Please exercise restraint in its operation to prevent hearing damage.





SICHERHEITSANWEISUNGEN

- Lesen Sie diese Anweisungen.
- Bitte diese Anweisungen aufbewahren.
- Folgen Sie diese Anweisungen.
- Bitte alle Warnungen beachten.
- Nehmen Sie keine Dusche oder Bad mit diesem Produkt. Es mag weder Wasser noch Seife.
- Die natürliche Durchlüftung darf nicht eingeschränkt werden. Dieses Produkt kann selbst die Kälte des Nordens ohne Kälteschutzmaßnahmen vertragen und darf daher mit einem Bärenfell oder ähnliches nicht bedeckt werden.
- Große Haustiere wie Hunde, Katzen oder Bären müssen abgerichtet werden, nicht mit diesem Produkt zu kuscheln oder neben dem Produkt zu schlafen, um Überhitzung, Kratzer oder Bissspuren zu vermeiden.
- Reinigen Sie dieses Produkt ausschließlich mit einem trockenen Tuch.
- Halten Sie dieses Produkt fern von Hitzequellen wie offenem Feuer, Heizungskörper, Kachelöfen oder anderen wärmestrahrenden Geräten, einschließlich Audioverstärker.
- Schützen Sie das Stromkabel, die Cinchkabel oder Lautsprecherkabel gegen Bissen, Tritten oder Quetschungen, insbesondere an Steckverbindungen und in der Nähe des Geräts.
- Verwenden Sie ausschließlich vom Hersteller spezifiziertem Zubehör.
- Trennen Sie dieses Produkt vom Strom während Gewittern oder bei längeren Zeiten ausser Betrieb.
- Jegliche Wartungen und Reparaturen müssen vom Fachpersonal durchgeführt werden. Reparaturen sind bei jedem Defekt notwendig, z.B. Schaden am Stromkabel, beschädigte Stromstecker, Flüssigkeitseintritt, kleine Objekte verloren im Produkt, Aussetzung des Regens oder der Feuchtigkeit, Fehlbetrieb oder Sturz des Produkts.
- Stellen Sie sicher, dass keine Kabel unter dem Teppich durch die Gerätefüße beschädigt werden. Bewegen Sie das Produkt nicht auf die Gerätefüße, da sie dadurch vom Gehäuse gelöst werden können und Schäden verursachen können. Vermeiden Sie, sich selbst mit den Gerätefüße aufzuspießen.
- Stellen Sie das Produkt nie auf instabile Ständer, Stative, Tische oder Halterungen. Das Produkt kann in dem Fall stürzen und ernste Schäden/ Verletzungen herbeiführen. Die Anbringung bzw. das Aufstellen des Produkts darf ausschließlich nach den Anweisungen des Herstellers folgen.
- Um Brandgefahr zu vermeiden dürfen nur Sicherungen mit der passenden Spezifikationen verwendet werden.
- Die Netzsicherungen befinden sich im Gerät, sowie auf der Rückseite. Netzsicherungen im Gerät dürfen nur durch autorisiertes Fachpersonal ausgetauscht werden. Durch den Benutzer austauschbare Sicherungen werden in der Produktspezifikation angegeben.
- WARNUNG: Um Stromschlag oder Brandgefahr zu vermeiden, darf dieses Gerät dem Regen, der Schnee oder der Feuchtigkeit nicht ausgesetzt werden. Vasen oder andere Gefäße mit Flüssigkeiten dürfen auch nicht auf dieses Gerät gestellt werden.
- Der Stecker des Netzkabels muss jederzeit zugänglich bleiben.
- ACHTUNG: Dieses Produkt kann sehr hohe Schallpegel erzeugen. Mäßigung im Hörpegel über längere Zeiten ist angebracht, um Gehörschäden zu vermeiden.



SIKKERHETSINSTRUKSJONER

- Les disse instruksjonene.
- Ta vare på disse instruksjonene.
- Vær oppmerksom på alle advarsler.
- Følg alle instruksjonene.
- Ikke bad (med) dette produktet. Det liker ikke hverken vann eller såpe.
- Ikke begrensn den naturlige ventilasjonen for dette produktet. Ikke tildekk forsterker platen med isbjørnpels eller liknende, da produktet er bygget for å håndtere selv de kaldeste nordlige klima uten slike varmeprodukter.
- Store husdyr som hund, katt eller bjørn må læres opp til å ikke kose eller sove mot produktet for å unngå overoppheting, skrap og bitemerker.
- Rens produktet kun med en tørr klut.
- Ikke installer nær varmekilder som åpent ildsted, varmeovn, peis eller andre apparater (inklusive forsterkere) som produserer varme.
- Beskytt strømkabelen, signalkabler eller høyttalerkabler fra å bli tråkket på, tygd på eller lagt i klem, spesielt nær plugg eller der de stikker ut fra apparatet.
- Benytt kun tilleggsutstyr og tilbehør som er spesifisert av produsenten.
- Koble apparatet fra strømmettet under tordenvær eller når det ikke skal brukes over lengre perioder.
- Henvis all service til kvalifisert servicepersonell. Service kreves når apparatet har blitt skadet på noe vis, som når en strømkabel eller plugg er skadet, væske har blitt sølt eller objekter har falt ut av apparatet, apparatet har vært utsatt for regn eller fuktighet, ikke har normal funksjonalitet, eller har fått støt.
- Sjekk at det ikke er kabler under teppet som kan være skadet av spike/kone føtter. Ikke flytt produktet på spike føttene da det kan føre til at de faller av kabinettet og forårsaker skade. Ta hensyn slik at du ikke blir spiddet av spike føttene.
- Ikke plasser dette produktet på ustabil stativ, tripod, brakett eller bord. Produktet kan falle og forårsake seriøs skade. Montering av produktet skal følge produsents instruksjoner.
- For kontinuerlig beskyttelse mot brannfarer, bruk kun den korrekte type og verdi på sikringen(e). Hovedsikringene er lokalisert både på innsiden av produktet i tillegg til på panelet. Erstatning av de interne sikringene må gjøres av autorisert personell. Sikringer som kan byttes av bruker er vist i spesifikasjonene.
- ADVARSEL: For å redusere faren for elektrisk støt, må apparatet ikke utsettes for regn, snø eller fuktighet og gjenstander fylt med væske slik som vaser, skal ikke plasseres på apparatet.
- Strømkabelen til strømforsyningen skal være lett tilgjengelig.
- ADVARSEL: Dette produktet kan yte veldig høye lydtrykk. Vennligst vis aktsomhet for å unngå hørselsskader.



INSTRUCCIONES DE SEGURIDAD

- Lea estas instrucciones.
- Guarde estas instrucciones.
- Siga todas las advertencias.
- Siga todas las instrucciones.
- No se duche o bañe con este producto. El agua y el jabón dañarán este producto.
- No impida la ventilación natural de este producto. No cubra el amplificador con una piel de oso polar o una protección contra el frío similar. Este producto está diseñado para resistir incluso el clima frío del norte sin necesidad de calentadores.
- Animales domésticos de gran tamaño como perros, gatos o incluso osos han de ser instruidos para que no se acurruquen o duerman pegados a este producto para evitar sobrecalentamiento, rayaduras o marcas de dientes.
- Limpie este producto exclusivamente con un paño suave y seco.
- No instale este producto junto a fuentes de calor como radiadores, chimeneas, hornos u otros aparatos que produzcan calor (amplificadores incluidos).
- Proteja el cable de alimentación, los cables de señal y los cables de altavoz ante posibles pisotones, mordiscos o pinzaduras, especialmente cerca de los conectores y de las entradas/salidas del equipo.
- Use tan solo accesorios especificados por el fabricante.
- Desconecte este aparato durante tormentas eléctricas o períodos largos sin uso.
- Remita el equipo a personal cualificado para cualquier reparación. Una reparación será necesaria en caso de cualquier daño, como por ejemplo en el cable de alimentación o su enchufe, líquidos vertidos sobre el equipo, objetos perdidos dentro del equipo, exposición a lluvia o humedad, caídas o funcionamiento defectuoso.
- Compruebe que los cables no son pisados por los pies de apoyo del producto. No traslade este producto sobre sus pies de apoyo, ya que podrían aflojarse y causar daños. Evite empalar cualquier parte de su cuerpo con los pies de este producto.
- No coloque este producto sobre un soporte inestable. El producto podría caer, causando heridas y daños serios. El montaje de este producto ha de seguir las instrucciones del fabricante.
- Use tan sólo fusibles del tipo y especificación correctos a fin de evitar peligros de incendio. Los fusibles están situados dentro de este aparato, así como en su panel posterior. El reemplazo de fusibles debe ser realizado por personal cualificado y autorizado. Los fusibles que pueden ser reemplazados por el usuario se muestran en las especificaciones técnicas.
- ADVERTENCIA: no exponga este aparato a lluvia, nieve, o humedad ni coloque sobre él objetos con líquidos, como jarrones, a fin de reducir el riesgo de fuego o shock eléctrico.
- El enchufe de corriente del cable de alimentación debe permanecer accesible en todo momento.
- ADVERTENCIA: este producto es capaz de general niveles de presión sonora muy elevados. Úselo con la debida contención a fin de evitar daños auditivos.



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WARRANTY

Luckily for you and for us, Arendal Sound products are extremely durable products that have gone through extreme stress tests during development. However failures may happen and if they do, you will always know we are here to back you up.

Arendal Sound offers up to 10 Years warranty for 1723 Series (5 years on electronics) which is an incredible statement for you as a buyer. For 1961 Series, we offer a hefty 5 years warranty. We are of course accepting warranty to follow second hand purchases where the sales receipt is proof of purchase on all Arendal Sound products. The new owner needs to acquire this from the original buyer.

Register today to achieve your full warranty

All Arendal Sound products can easily be repaired by the customer, by replacing modules yourself. This means the replacement module can be sent to you, instead of sending the complete product back and forth, this saves down time and you will be guided by qualified staff from the Arendal Sound team, or your dealer. We will only ask you to do very simple steps to fix the products and you do not need any servicing experience at all.

If your product needs service

In the unfortunate event of a product failure, it will usually only take a few days to get the problem fixed.

If you have a problem with your product, please contact your dealer or contact Arendal Sound at

service@arendalsound.com.



For any service inquiries please send serial number of the product with description and we will help you to identify the problem. If you bought your Arendal Sound second hand, please send the receipt along with the report.

Important!

Do not try to repair the product without permission from Arendal Sound. Disassembling or removing parts from your product(s) in one way or another, can damage your product(s) without the right instructions. It will void your warranty rights.



REGISTER YOUR PRODUCT AT

ARENDASOUND.COM/WARRANTY

TO APPLY FOR 5 YEAR WARRANTY.

