

ARENDA[®]

1723

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

**THX ULTRA CERTIFIED
STORY OF ARENDAL
1723 SPEAKERS
PREMIUM BUILD QUALITY
WAVEGUIDE TWEETER
MID-WOOFERS
SPEAKER INPUT POSTS
SPIKES KIT
PLACEMENT & SETUP
HOW TO CONNECT
SAFETY INSTRUCTIONS
WARRANTY**

ARENDAAL®

1723

SPEAKER

PREPARED FOR MAYHEM.

The 1723 THX Series is the culmination of years of design, analysis, testing and listening. 1723 THX is the Arendal Sound statement of intent to deliver a quality of design, materials and fidelity at prices the market has hardly seen. There are no corners cut in material specification, whether you can see them or not. In Premium segment of speakers, where others disguise steel with gold, we use rhodium plated copper. Where others use plastics, we use machined aluminium. Where others skimp on cabinet thickness, we went thicker and then up-spec'd to high density fibreboard panels (HDF). We did all of this, because it delivers better audible results.

The 1723 Tower THX features four (4), completely custom built 8" drivers in a 2.5 way lineup of bass drivers, mid bass drivers and waveguide tweeter you cannot find anywhere else.

Featuring the same uncompromising approach we used to create the 1723 Tower, the 1723 Monitor THX was developed for smaller spaces and provide the perfect sonic partner to the matching 1723 Center THX.

In starting with a statement product like the Tower, Monitor and Center, we set ourselves a challenge in designing a matching surround speaker. It had to keep up with the capabilities of our front array loudspeakers. Using the same 8" mid-bass driver and waveguide tweeter on the front baffle results in excellent tonal matching and pin-point imaging. To deliver an all-enveloping surround field and assist in peerless surround steering, we fitted custom built full-range dipolar drivers to the angled side baffles into our amazing Tri-Axial speaker.

Our HDF cabinets, thick crossover PCBs and ancillary parts, feature engineering detail you will not find at anything like the price. You will find no plastic parts, even if we could have used them to keep costs down without affecting sound quality.

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





1723

SPEAKER



1723

TOWER

BLACK GLOSS



WHITE GLOSS



BLACK MATTE



WHITE MATTE

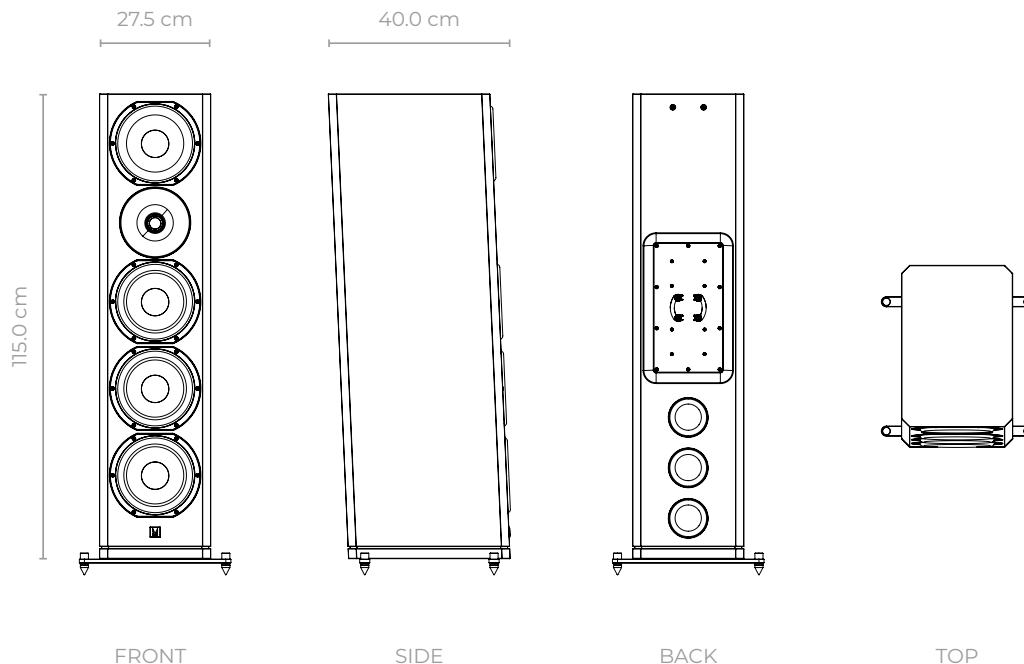


SPECIFICATIONS

The 1723 Tower features a completely custom built 2.5 way lineup of bass drivers, mid bass drivers and waveguide tweeter you cannot find anywhere else. Our HDF cabinets, thick crossover PCBs and ancillary parts, feature engineering detail you will not find at anything like the price. You will find no plastic parts, even if we could have used them to keep costs down without affecting sound quality.

Design	2.5-way
Tweeter	28 mm
Woofer	4 x 8"
Enclosure	Sealed / Vented
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency	120Hz / 1500Hz
Sensitivity	92dB/2.83v/1m
Frequency response Sealed	55-20KHz (+/-3dB)
Frequency response 3 vents	38-20KHz (+/-3dB)
Frequency response 2 vents	34-20KHz (+/-3dB)

Ports	Inner dimensions	3 x 65mm
	Outer dimensions	3 x 95mm
Impedance	4-ohms nominal	
Dimensions without feet	115.0H x 27.5W x 40.0D cm	
Dimensions with rubber feet	116.2H x 27.5W x 40.0D cm	
Dimensions with spikes kit	119.1H x 37.0W x 40.0D cm	
Weight	49.4 (without spikes kit)	
Break-in for optimal performance	50 hours	
Recommended amplifier	Up to 500W RMS	





1723

MONITOR

BLACK GLOSS



WHITE GLOSS



BLACK MATTE



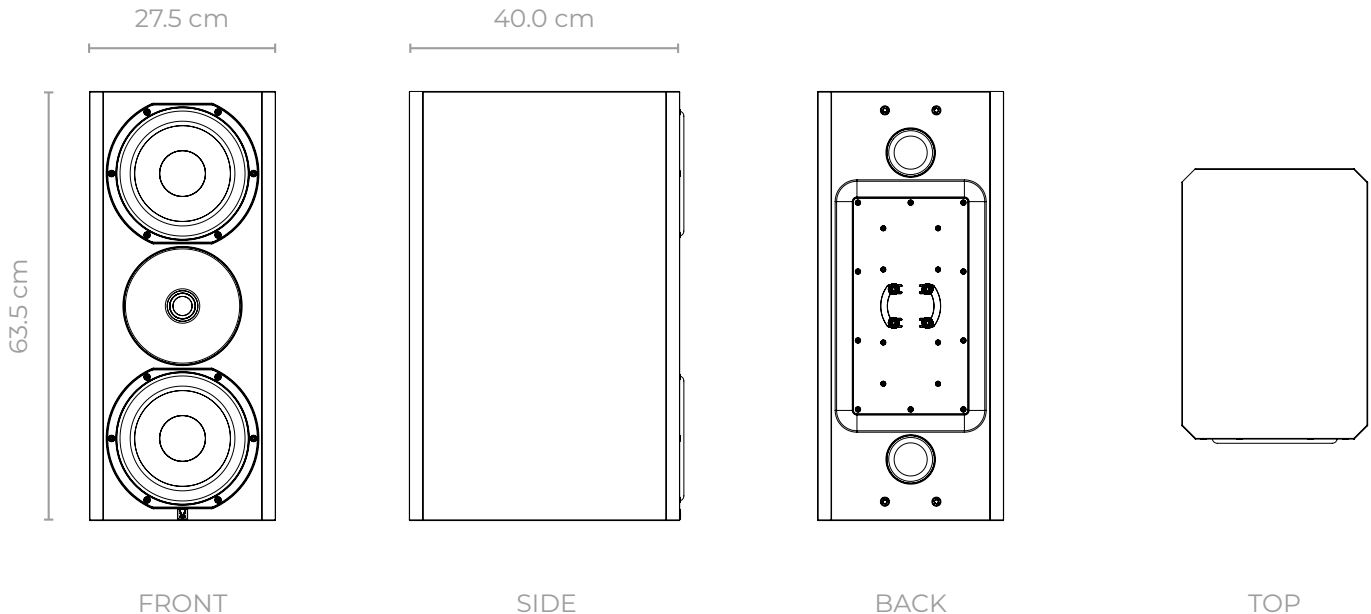
WHITE MATTE



SPECIFICATIONS

Featuring the same uncompromising approach we used to create the 1723 Tower, the 1723 Monitor was developed for smaller spaces and provide the perfect sonic partner to the matching 1723 Center. The 1723 Monitor features a completely custom built 2-way lineup of mid-bass drivers and a waveguide tweeter you cannot find anywhere else.

Design	2-way
Tweeter	28 mm
Woofer	2 x 8"
Enclosure	Sealed / Vented
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency	1500Hz
Sensitivity	89dB/2.83v/1m
Frequency response	
Sealed	58-20kHz (+/-3dB)
2 vents	34-20kHz (+/-3dB)
Ports	
Inner / Outer dimensions	2 x 52mm / 2 x 70mm
Impedance	4-ohms nominal
Dimensions	63.5H x 27.5W x 40.0D cm
Weight	25.4 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 400W RMS





1723
CENTER

BLACK GLOSS

WHITE GLOSS

BLACK MATTE

WHITE MATTE

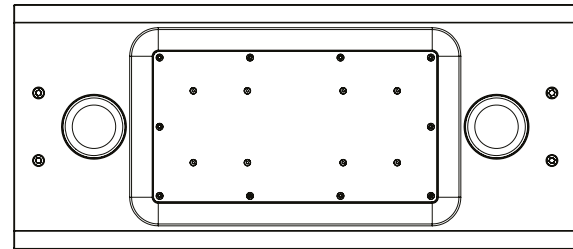


SPECIFICATIONS

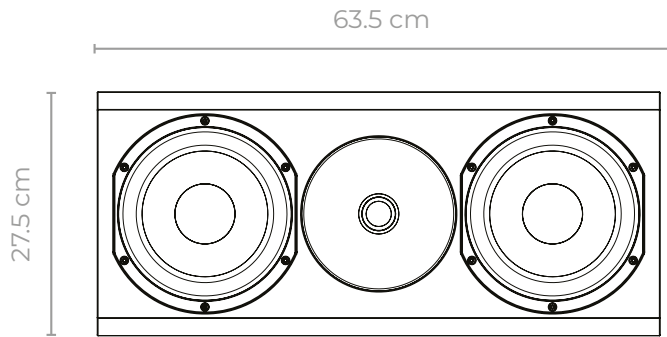
In developing the 1723 Series, part of the reason for using a waveguided tweeter was that it offered controlled dispersion, plus a lower crossover point than a traditional tweeter flat mounted on a baffle. Lowering the crossover point, removed concerns about turning the 1723 Monitor on it's side for use in the horizontal format under a screen. As such, the 1723 Center is the same speaker as the 1723 Monitor but sold singly and with the grill badges moved for aesthetic purposes. Tonally, it is a perfect match for The 1723 Monitor and 1723 Tower.

Ports	
Inner / Outer dimensions	2 x 52mm / 2 x 70mm
Impedance	4-ohms nominal
Dimensions	27.5H x 63.5W x 40.0D cm
Weight	25.4 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 400W RMS

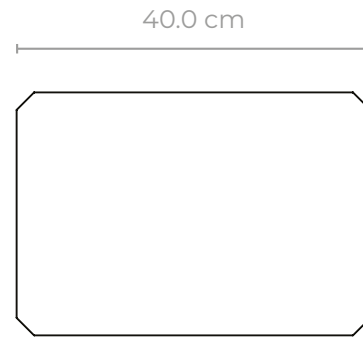
Design	2-way	
Tweeter	28 mm	
Woofer	2 x 8"	
Enclosure	Sealed / Vented	
Enclosure material	High Density Fiberboard (HDF)	
Crossover frequency	1500Hz	
Sensitivity	89dB/2.83v/1m	
Frequency response		
	Sealed	58-20kHz (+/-3dB)
	2 vents	34-20kHz (+/-3dB)



BACK



FRONT



SIDE



1723

SURROUND

BLACK GLOSS



WHITE GLOSS



BLACK MATTE



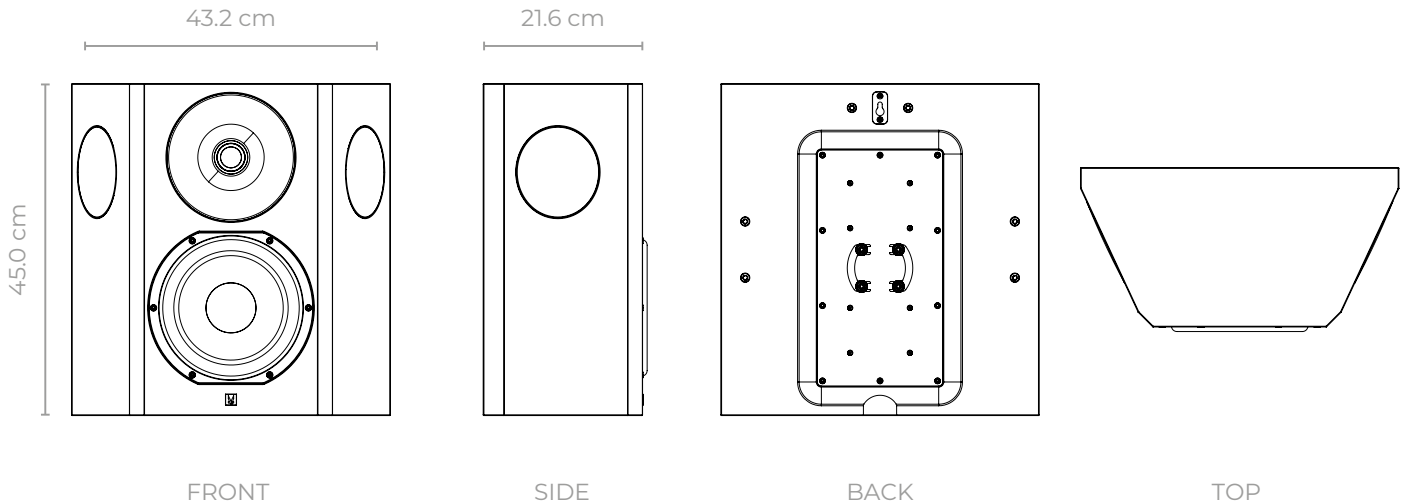
WHITE MATTE



SPECIFICATIONS

In starting with a statement product like the The 1723 Tower and 1723 Monitor, we set ourselves a challenge in designing a matching surround speaker, that could keep up with the capabilities of our front loudspeakers. Using the same 8" mid-bass driver and waveguide tweeter on the front baffle as used throughout the 1723 Series, excellent tonal matching is assured as is pin-point imaging. To deliver an all-enveloping surround field and assist in peerless surround steering, we fitted custom built full-range dipolar drivers to the angled side baffles into our TriAxial speaker.

Design	TriAxial
Tweeter	28 mm
Woofer	2 x 4"
Enclosure	Sealed
Enclosure material	High Density Fiberboard (HDF)
Crossover frequency 4"	200Hz
Crossover frequency 8"	1400Hz
Sensitivity	87dB/2.83v/1m
Frequency response	58-20kHz (+/-3dB)
Impedance	4-ohms nominal
Dimensions	45.0H x 43.2W x 21.6D cm
Weight	17.4 kg
Break-in for optimal performance	50 hours
Recommended amplifier	Up to 300W RMS







PREMIUM BUILD QUALITY

Rock solid HDF cabinets

Higher density and naturally better damped than MDF (Medium Density Fiberboard), using HDF (High Density Fiberboard) results in a sonically inert cabinet. HDF was also chosen because it can be machined much more precisely than MDF, which is especially important for precision critical areas like the two part HDF & Aluminum waveguide.

Arendal Sound products are using HDF thicknesses ranging from 18 to 50mm throughout the designs, with critical areas like driver mounting and cabinet bases being the thickest.

Internal bracing has been strategically placed to increase overall cabinet strength and limit unwanted panel vibrations that may cause audible colorations. Internal braces are CNC routed to shape to smooth internal airflow and minimize volume losses within the cabinet, whilst maintaining thickness at critical assembly joints.

The final detail for 1723 Tower, Monitor and Center, is to apply a butyl based differential mass damping layer to the inner faces of the cabinet, just to be sure we have damped out every last resonance in the large enclosures. Butyl is not added for 1723 S speakers as these have smaller enclosures and did not give any differences in testbench measuring or audible differences.

Magnetic metal grills

We are especially proud of our new exclusive and fully custom made grills. For all Arendal Sound speakers we have made a free flowing, perforated metal grill which does not affect sound quality. We have then wrapped it with a clean black cloth to tone down the visually hard look, whilst simultaneously damping out any residual vibrations.

In addition, we did not want plastic pins to add the grill, which will degrade the clean look of the cabinet with pin cups. Neodymium sub-surface magnets grip the metal grill with great force, preventing unwanted movement and vibration during high level playback. The grills have a rubber protection to ensure the cabinet is not damaged when you attach the grill and you will hear a nice 'thump' when you let them seat. Grilles on or off, our speakers look and sound great either way.



Premium Finishes

All Arendal Sound 1723 speakers comes in four premium finishes;

- Black Satin
- Black Gloss
- White Satin
- White Gloss

To ensure the best and long lasting quality, all Arendal Sound speakers use up to 12 layers of paint, consisting of primers and polyurethane paint, hand finished. We use no vinyl, anywhere.

The finish is what you would expect from Hi-End products.



No plastic - “Green sound”

Well, you may find a cable strap somewhere in plastic, but all components in Arendal Sound which affects the sound are built up from non-plastic parts. High grade aluminium back plates on subwoofers and speakers. Even our logo is in anodized aluminium.

Internal wiring

Not your average zip cord. All products utilize high count multi-strand wire, braided together. These were not done for looks, but chosen to produce the most consistent impedance possible and electrical current carrying capabilities. The benefit is very low insertion losses without the problems of “skin effect” caused by large diameter wires. This insures that each driver sees what the amplifier intended without additional colorations.

Rubber feet

All subwoofers comes with rigid rubber feet (M6 threads) which have a strong grip on the floor. You will not have a subwoofer walking around, even if that is impossible due to the sheer mass of our HDF cabinets which are “super quiet”. Put your hand on our speakers whilst they are playing and you will feel, very, very little.

WAVEGUIDE TWEETER

The heart of all Arendal speakers, our Tweeter utilizes a 28mm synthetic soft dome with custom designed, matching waveguide. The soft dome itself is sourced from the high end stable of Dr. Kurt Mueller. It 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.

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 modeling, 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.

High efficiency, high power motor

The motor of this tweeter is a Tour de Force. All components are bespoke designs for Arendal Sound, extensively FEA optimized. The result is a very wide bandwidth, high efficiency, low distortion tweeter capable of being crossed over at very low 1500Hz, even at very high powers. This is truly a rare combination of such low crossover point, high output capability and clean sound.

- Large, high grade neodymium ring magnet.
- High temp polyimide CCAW wire.
- Underhung voice coil design.
- Copper and aluminum shorting rings.
- Ultra low viscosity Ferrofluid contributes to voice coil cooling and ensures the best possible transient response.
- Large aluminum heatsink/shorting ring lowers distortion and prevents thermal compression.

Hybrid aluminum & hdf waveguide assembly

The final piece to Arendal's tweeter performance is mating the dome with the custom matched, proprietary waveguide, entirely optimised in-house. 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 (sometime referred to as directivity response control).
- 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.

MID-WOOFERS

The 6.5" and 8" woofers in the 1723 series are built upon the same core fundamentals as the the 13.8" subwoofer, but with application specific details changed. The woofer cones does not have the glass fibre reinforcement of the 13.8" as it is already stiff enough and the bass material's inherent self-damping with its proprietary cone treatment is chief quality. An entirely bespoke design, the mid-woofers are optimised to cover a very wide frequency range from 1500Hz, down to the lowest bass notes without a hint of cone resonance.

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 use:

1. CCAW (Copper Clad Aluminium Wire) in the voice coil, balancing the lightness of aluminium, with the conductivity of copper.
2. An aluminum shorting ring to reduce inductance, increase frequency bandwidth and lower distortion, whilst benefiting from the greater heat dissipation of a larger voice coil.
3. Suspension FEA analysed to deliver symmetrical travel, lowering non-linear distortion.
4. Klippel analysed, lightweight, long fiber pulp cones, treated with a custom formulation for inherent self damping, that remains pistononic through its operating range and beyond.
5. Voice coil venting to reduce physical and thermal compression, maintaining a hugely dynamic response.

Multiple drive units are combined to further reduce Doppler distortions and augment bass output and power handling. The result is clean, dynamic, high output capability, maintaining composure and subtle details.

After thorough optimization and testing (using FEA, Klippel and other methods) of aluminum shorting rings with a focused field design, the result is a linear magnetic field over a wide range of input levels, ultra-low distortion, low inductance, and very dynamic bass.

Symmetrical suspension consists of critical components such as the NBR surround, Connex spider, 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.

Air flow venting underneath the dust cap (vents in cone body) and spider (vents in the basket) is added for two very important reasons. First, air heat from the voice coil is forced away with each stroke of the cone diaphragm. 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.

Shielding is added to all drivers except for 1723 S models.



SPEAKER INPUT POSTS

Not to be forgotten, the connection point of each speaker offers potential pitfalls for installation woes and signal degradations.

Each binding post is made from copper (not brass or other lower conductivity metals), then CNC machined into shape. After the machining process is completed, each component is polished to insure burr free, smooth function and clean cosmetics. The final step is Rhodium plating. Chosen for its excellent conductivity, corrosion resistance and hardness; all serve to protect the copper material and music signal carried within. Each post accepts commonly used wire terminations - banana, spade, pin and bare wire. Input jumpers, made from the same materials as the binding posts, create a simple bridge between inputs without any compromise in quality for use when Bi-wiring is not employed.

The exclusive terminal plate in brushed and anodized aluminum does not only have a beefy look but it also offers a, rigid resonance free performance. The reason for its size is the massive crossovers which are mounted on the back and they need all the space they can get. Mounting the crossovers directly on the plate gives the option for easy future upgrades...

ARENDA

1723

TOWER

CONCEIVED IN NORWAY. BORN IN CHINA. RAISED BY YOU.

HIGH
8 Ω

SPIKES KIT

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.





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!



HOW TO CONNECT

Enclosure tuning

The Monitor, Center and Tower enclosures offer the alternative of being used in a vented alignment. By removing the foam plugs inside the ports, low frequency -3dB point can be extended and given different bass characteristics. Damping and therefore impulse response are slightly less optimal than the sealed alignment, but the extended response delivers more bass output down to the ports tuning frequency.

Larger rooms and/or speaker positions further from room boundaries, may value this extra natural output as they will be less supported than in a smaller room.

Tower

The Tower has the added flexibility of plugging different combinations of the 3 ports. With all three 3 ports open maximum bass output is guaranteed, but with a higher roll-off point. With two 2 ports open, the -3dB point is lowered and the response curve starts to shelve down from roughly where the sealed alignment would, but at a lower rate of roll-off. With one port open, the -3dB point is lower still, but with an increased rate of roll off. All ports plugged brings the Tower back to a fully sealed alignment. The Tower therefore delivers a choice of multiple roll-off, output and damping 'tunes' that will suit a wide variety of tastes, room acoustics and speaker placement.

Please Note: With only a single port open, higher listening levels could generate some port noise (sometimes called 'port chuff') from the extremely high velocities of the air

within the port. It is therefore not recommended for high SPL listening, but may perform quite well at moderate levels.

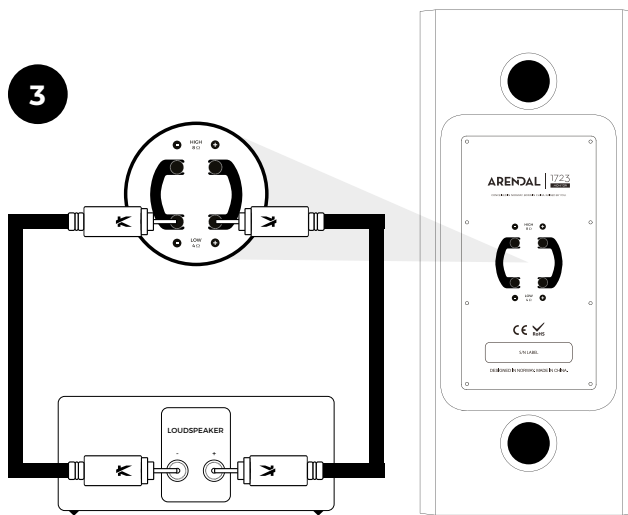
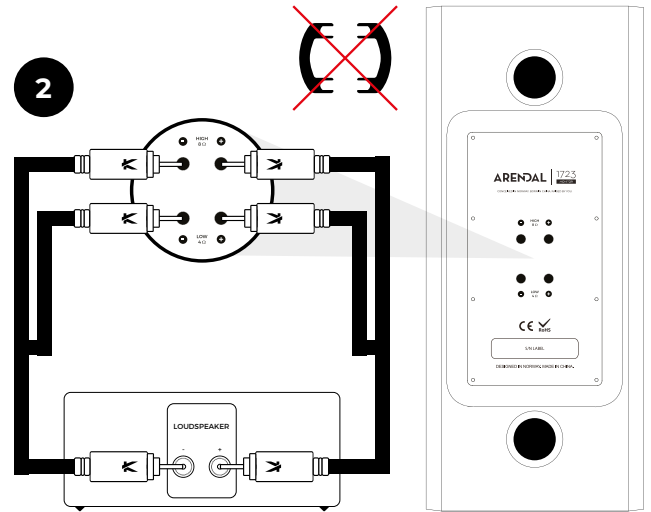
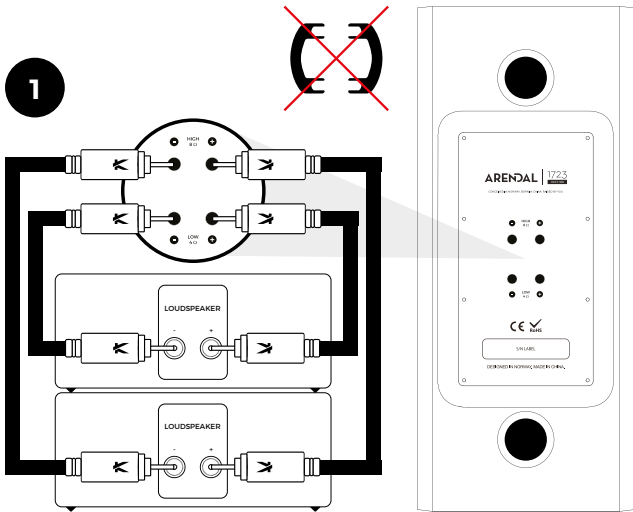
Monitor & Center

In the case of the Monitor and Center, we recommend only fully sealed, or fully ported operation, in line with the recommendations above with respect to room type and positioning. Although remarkably bass proficient, it is envisaged that the Monitor and Center will typically be supported by a subwoofer for maximum bass extension and will therefore always perform at its optimum when run sealed in this situation.

Connectivity

All Arendal Sound 1723 Speakers offer the possibility of Bi-amp & Bi-wire, as well as normal single wire operation. In all cases the tweeter (High) crossover is electrically separated from the mid/bass (Low) crossover, by removing the external jumper plates that come fitted between the top and bottom pairs of speaker input terminals. If using separate amplifiers to power the high & low speaker inputs, care should be taken to ensure the power amplifiers are gain matched, to prevent an imbalance in the output of the drivers.

NEVER connect across the high pair of terminals, or the low pair of terminals using the jumper plates or other cable, while the amplifier is connected. This will result in permanent damage to your amplifier. Always shut down the amplifier when connecting the speakers.





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.

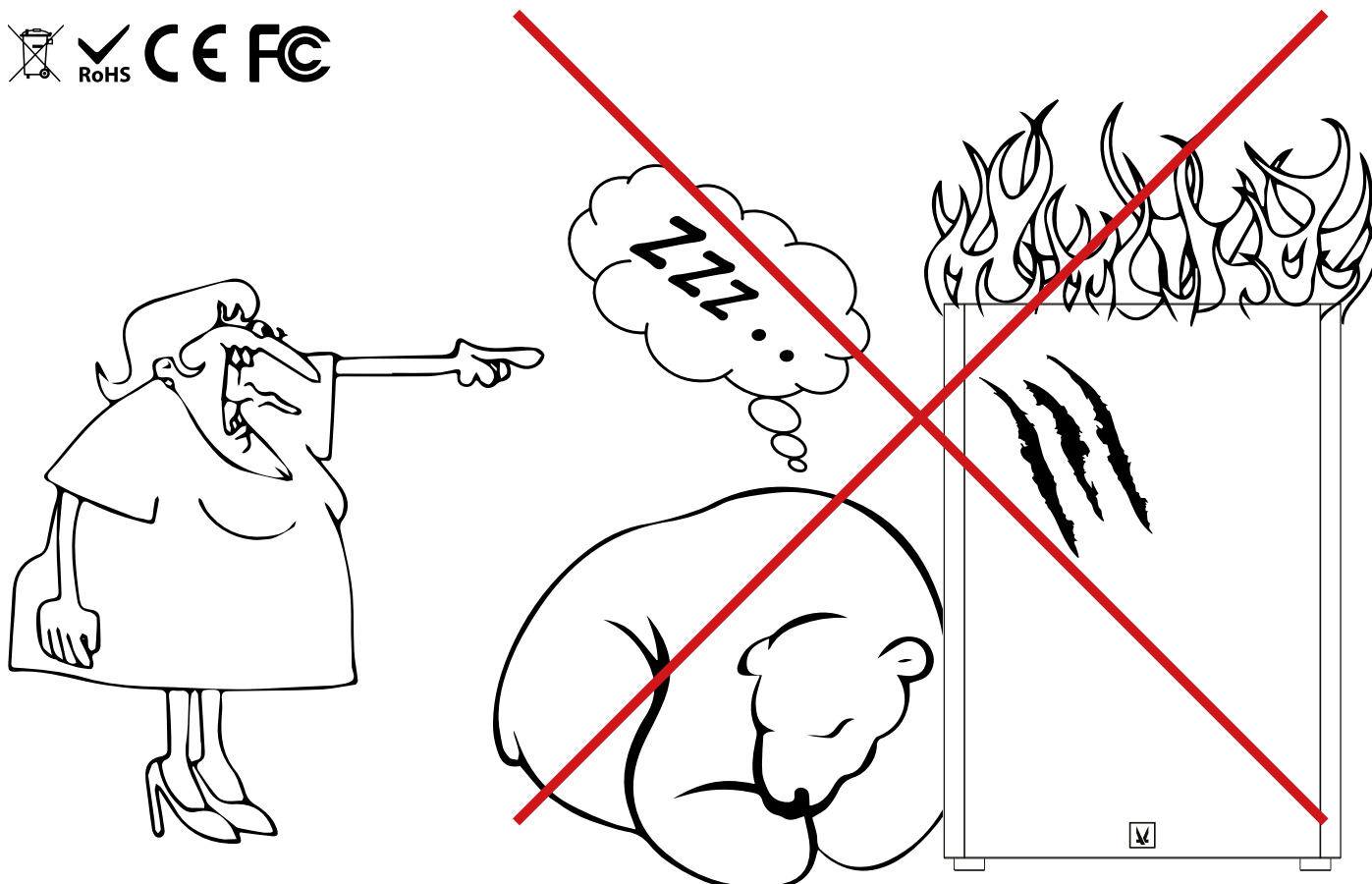


- For continued protection against fire hazard, use fuses only of the correct type and rating. Mains fuses are located inside the appliance as well as on its back panel. Replacement of the internal fuse should be entrusted to an authorized operative. User-replaceable fuse types are shown in the specification.
- **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.



CAUTION!
RISK OF ELECTRIC SHOCK
DO NOT OPEN
USE IN DRY LOCATIONS ONLY





SICHERHEITSAVWEISUNGEN

- 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 begrens den naturlige ventilasjonen for dette produktet. Ikke tildekk forsterker platen med isbjørnepels eller liknende, da produktet er bygget for å håndtere selv de kaldeste nordlige klima uten slike varmemprodukter.
- 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.



THX RECOMMENDED USE

Large Home Theaters or Living Rooms

THX CERTIFICATION FEATURES

Extended Bandwidth and Flat Frequency Response.

High Output, Low Distortion Design at 12 ft Listening Distance.

Conforms to THX Bass Management Requirements.

THX PERFORMANCE NOTES

Capable of THX Reference Level in a room up to 3,000 cubic feet (85 cubic meters).

WARRANTY

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

Arendal Sound have up to 10 Years warranty (5 for electronics) which cover all costs for you as a customer within the warranty terms. We are also accepting warranty to follow second hand purchases where sales receipt is proof of purchase which new owner needs to get from original buyer.

All Arendal Sound products can easily be repaired by the customer, by replacing components yourself. This means we may send you the replacement part/module which is needed, 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. We will only ask you to do very simple steps to fix the products and you do not need any servicing experience at all. 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 service@arendalsound.com, send us the serial number of the product that has a problem and we will help you to identify the defective component.

If we ship you a replacement part for your product, that you can swap out by yourself, we will send pre-paid return labels to return the defective part to us. This part must be returned or you will be invoiced for the replacement part



in full. Every cost is covered by us if the product is under warranty. Should you prefer to send the entire product back to us for service - please contact us at service@arendalsound.com. When sending the product back to us it is important that you use the original packaging or something of similar quality. We are not responsible for damage caused by inadequate packaging but we will be helpful with arranging the return shipment.

Important!

Do not try to repair the product without permission from us. 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.

Non-authorized sales

Any sales done outside arendalsound.eu or lsound.eu (or belonging domains) are non- authorized and will therefore not be under our warranty. Please email us at sales@arendalsound.com if you have any questions.



REGISTER YOUR PRODUCT AT

[ARENDALSOUND.COM/WARRANTY](https://www.arendalsound.com/warranty)

TO APPLY FOR 10 YEAR WARRANTY.

