

BØRRESEN M-SERIES

USER GUIDE | M1 / M2 / M3 / M6

Rev.1.0 ENG

 BØRRESEN



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SAFETY INSTRUCTIONS

Avoid bringing external metal objects close to the loudspeaker. The tweeter contains very strong magnets and close contact with metal objects can cause damage.

The loudspeakers may be damaged due to distorted output signals from too weak, defective or overloaded amplifiers. Use only high quality amplifiers and run these within the specified power ratings.

Let the speaker reach room temperature before plugging it in. Condensation may arise in the electronic circuitry when moving the speaker from cold to warm surroundings. Such moisture may damage the speaker's components.

To protect the surface, please wear protective gloves when handling the loudspeaker.

Never use the product in damp environments. Do not insert foreign objects into the speaker's bass reflex ports. Avoid touching the speaker elements.

MAINTENANCE

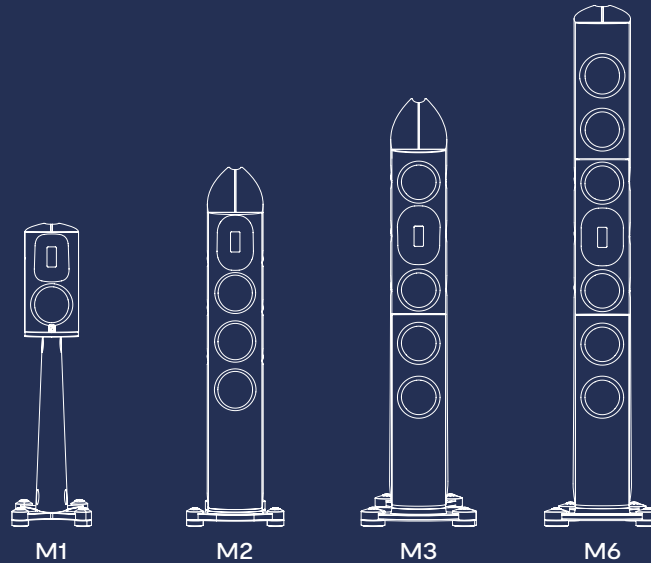
Do not use a vacuum cleaner to remove dust from the loudspeakers elements. Brush it away gently with a soft brush.

Do not use any detergent. It may discolor the finish.

Clean the surface of the loudspeakers with a firmly wrung, damp cloth.

Do not expose the cabinets to direct sunlight.





CONGRATULATIONS

Congratulations on your choice of the exquisite Børresen M-series speaker! We are truly grateful that you have chosen Børresen's extraordinary audio solution, granting you exclusive entry into an unparalleled audio universe.

Meticulously handcrafted in Denmark with utmost precision, Børresen's renowned loudspeakers embody a philosophy dedicated to forging an intimate connection with the enchantment of music. Our unwavering mission is to provide access to remarkable, authentic, and emotionally captivating musical experiences.

We are confident that the Børresen M-series will deliver an unparalleled musical journey, offering you the extraordinary sensation of being intimately connected with the music. Prepare yourself for a remarkable and emotionally satisfying musical encounter with this exceptional speaker.

ABOUT THE PRODUCT

The membrane

The membrane is designed to achieve maximum stiffness with minimum noise. The membrane for the M-series is the most advanced and sophisticated speaker membrane on the market. The membrane has the highest stiffness and the lowest membrane resonance. The technological requirements for this unrivaled, world-class membrane performance made it necessary to design, develop and assemble all components in-house. Michael Børresen and his team had to construct a large number of different variants and models until they accomplished their uncompromising goal of ultimate membrane performance for an unprecedented sound quality.

The result is a membrane that consists of four skins laminated into a single unit: two layers of spread tow carbon fiber, a layer of aramid honeycomb spacers in between, and a titanium skin with Ansuz Supreme coating.

The combination of all these materials gives this state-of-the-art membrane its unique properties. Spread tow carbon fiber is designed to ensure a skin with optimum stiffness in many different directions. This unique characteristic reduces sound disturbing vibrations and resonances to an unprecedentedly low level. This is also true for resonances in the frequency range above 8 kHz. Since the membrane/driver is used up to the 2.5 kHz range, disturbing resonances have been shifted two octaves outside the effective frequency range, ensuring an absolute minimum of resonances.

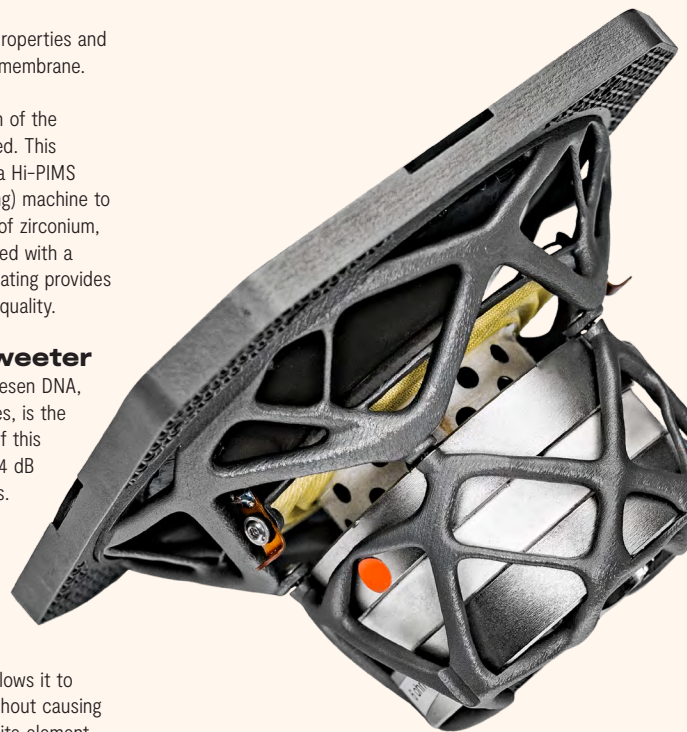
The aramid honeycomb also has the best stiffness to weight ratio in the vertical direction.

Titanium has perfect resonance control properties and supports a natural, organic sound of the membrane.

With the Ansuz Supreme coating, the skin of the membrane is further acoustically optimized. This coating is applied to the titanium skin in a Hi-PIMS (High Power Impulse Magnetron Sputtering) machine to create the finest and most uniform layer of zirconium, followed by a layer of tungsten and finished with a layer of aluminum chrome nitride. This coating provides the music with a truly impeccable sound quality.

The Børresen ribbon tweeter

Another fundamental element of the Børresen DNA, and thus a natural addition in the M-series, is the Børresen ribbon tweeter. The efficiency of this closed ribbon tweeter is an exceptional 94 dB and operates from about 2.5 kHz upwards. The moving mass is extremely low at 0.01 grams. The fully concealed tweeter has the ability to operate at incredible speed, which is an absolute prerequisite for unlocking the subtlest and finest sonic details of any type of music. The tremendous robustness of this tweeter allows it to handle extremely high transient peaks without causing any ear deafening breakups. Elaborate finite element methods were used to linearize and optimize the magnetic flux field, facilitate driver movement, and ensure high efficiency and excellent linearity.



The patented iron-free magnet system

To ensure the essence of Børresen DNA in the M-series speaker, it was natural to use Børresen's patented and award-winning iron-free magnet system. Børresen's iron-free drivers have an inductance that is about twelve times lower than conventional drivers. Silver has much better conductivity than iron or even copper. For this reason, we replaced the copper pole rings in our magnet system with in-house manufactured, handcrafted silver rings.

For Michael and his team, it was important to use only the very best both in terms of technologies, but also in terms of production processes. For this reason, as with the Børresen Silver Supreme 0 series, all metal components in the M-series undergo cryogenic treatment, which reduces inductance by an additional 6-8%. Cryogenic treatment of all metal components of the loudspeaker results in a further significant improvement in conductivity - allowing the finest and most subtle musical details to unfold. Cryogenic treatment of metal components involves subjecting them to extreme cooling. In the course of this process, the crystal structure of the metal contracts more and more. Alloying elements are displaced from the grain structure of the metal, which now becomes very similar to a single crystal. These structural changes in the metal have profound effects on its sound properties. In this way, all the performance-enhancing sound characteristics of the M-series loudspeakers fully come into their own.

The Basket

The basket is a real revolution - it is a topology-optimized 3D-printed basket made of zirconium, which ensures maximum rigidity and thus minimum vibration and resonance.

The basket is not just a placeholder for the membrane. The energy generated by the membrane is also held by the structure behind it. The goal was therefore to eliminate the noise of the basket by designing a basket with maximum stiffness. Studies were conducted using computer-optimized finite element designs, resulting in a topology-optimized 3D-printed basket made of the exclusive material zirconium.

Børresen has not only designed a basket with extreme stiffness, but also added important factors such as tremendous internal damping and resonance control, resulting in extreme clarity in overall performance. Thanks to the 3D printing process, the cavities are filled with zirconium powder, which gives the basket additional damping properties. Zirconium is by far the best choice of material, since it allows the basket to generate an inconceivable quality of natural sound.



POSITIONING

The sound from loudspeakers depends very much on the room and on the way they are set up. Please consult your dealer for advice on how to set up your Børresen loudspeakers in your home.

These guidelines are general and will give you a good starting point for further experimenting in finding out what is just the right setup for your room.

The distance from the side walls to the loudspeakers

The Børresen loudspeakers are not that sensitive in regard to getting too close to sidewalls. A distance of about 15 cm will be enough. Too short a distance to the side walls is likely to increase the amount of bass.

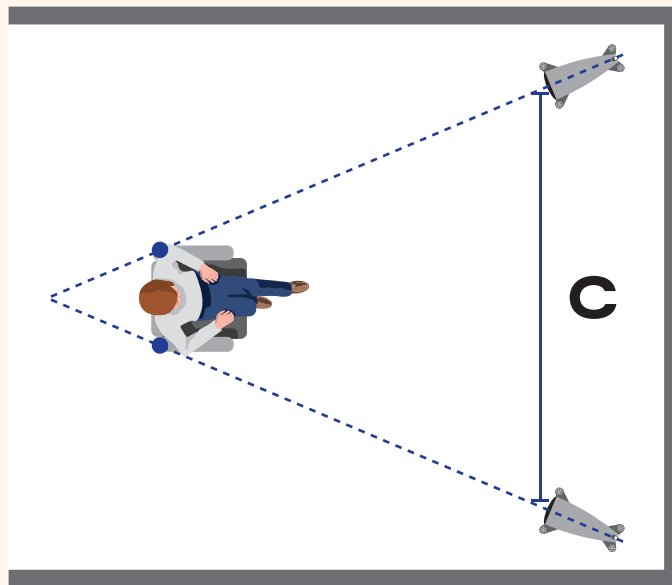
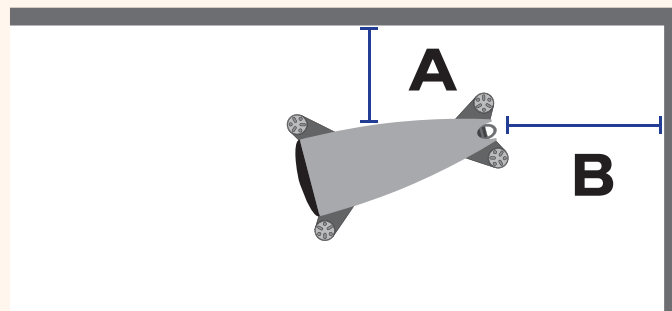
The distance between the rear of the loudspeakers and the wall behind them

Start with a distance of 50 cm. This distance should be exactly the same for both loudspeakers. Try the loudspeakers out with music you know and find out what distance gives the best sound.

Greater distance = weaker bass, more precise bass, better precision and bigger sound stage. Shorter distance = more and softer bass, and a smaller sound stage.

The distance between the loudspeakers and the listener

The ideal distance between the loudspeakers is not less than 3 metres. Put the loudspeakers in an angle making the center point at the listeners shoulders. The lines should cross about one meter behind the listeners head, meaning that the listener should just be able to see the two inner sides of the speakers.



CONNECTING THE SPEAKERS - M1

With every connection system, ensure that the contact is tight and has a proper contact area.

Connectors with gold plating will typically offer the best results and remain corrosion-free.

Please ensure that the positive and negative cables do not make contact with each other.

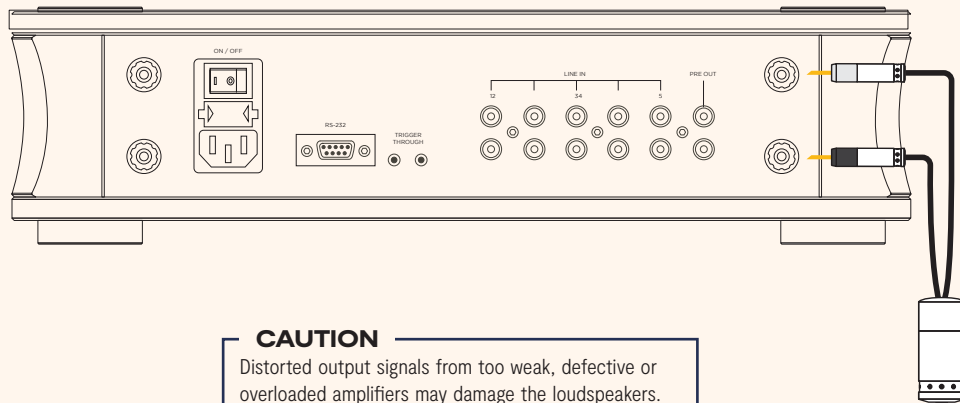
Check the connectors from time to time to make sure that nothing has loosened.

1. Connect a two-pole (+/-) loudspeaker cable to the terminals, located at rear of the loudspeaker.

The high quality binding posts can accommodate only 4-mm-plugs ("banana plugs").

The pins can be put directly into the binding post without any tightening necessary.

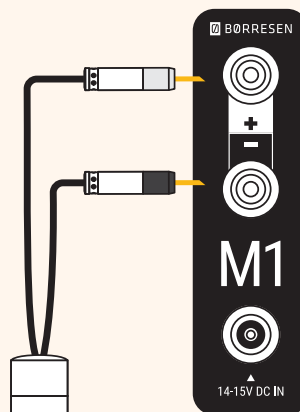
2. Connect the other cable ends to the loudspeaker outputs of your switched off amplifier.



CAUTION

Distorted output signals from too weak, defective or overloaded amplifiers may damage the loudspeakers.

Use high quality amplifiers only and run loudspeakers and amplifiers within specified power ratings.



CONNECTING THE SPEAKERS – M2 / M3 / M6

The speakers can be connected in three different configurations:

1. Single wiring

Single wiring is the most common principle for connecting the speakers. Since bi-amping is optional for this speaker, you need to connect the included jumper speaker cable to the speaker cable.

2. Bi-wiring

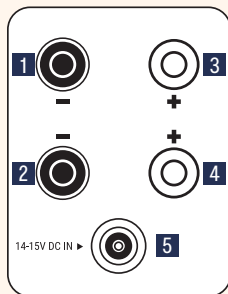
Allows you to use two sets of speaker wires to connect individually to the low bass section (below 150 Hz) and the bass (over 150 Hz)/midrange/tweeter section.

3. Bi-amping

This principle allows you to use two sets of speaker wires connected to two stereo amplifiers. It also allows you to use an active crossover* in front of two stereo amplifiers to optimize the level between the deep bass (below 150 Hz) and bass (over 150 Hz)/mid/high frequencies according to the listening rooms acoustical properties.

* = we recommend using the Dual Slope Analog Active Crossover found in some Avik amplifiers.

To activate the built-in Ansuz noise reduction technologies, connect the included power supply to the speaker and a power outlet **5**.



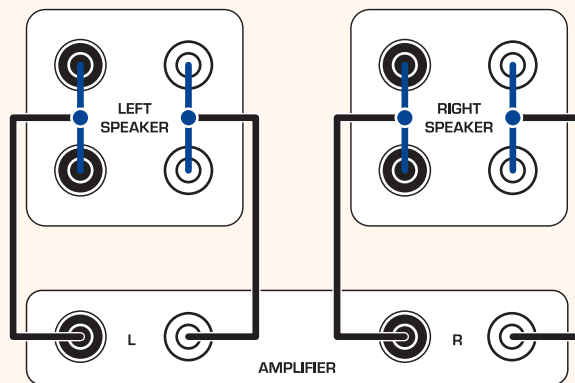
Single wiring

The M2, M3 and M6 speakers is equipped with two pairs of binding posts. Follow these steps to connect your two-pole (+/-) speaker cables:

A. Use the provided jumper cables to connect the speaker cables to the M3 speaker. Connect the included jumper cables to each pole on the speaker cable.

Connect the black marked connectors to minus (-) pole **1** and **2** on the speaker, and the white marked connectors to plus (+) pole **3** and **4** on the speaker.

B. Connect the other ends of the speaker cables to the speaker output on your amplifier. Ensure the amplifier is switched off.

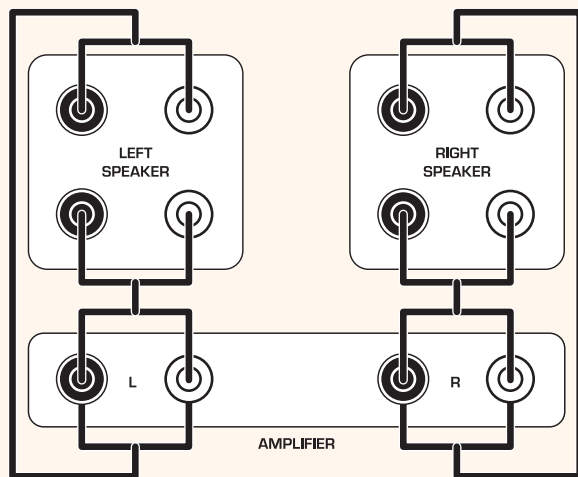


2 Bi-wiring

The M2, M3 and M6 speakers are equipped with two pairs of binding posts. Follow these steps to connect your two sets of two-pole (+/-) speaker cables:

A. Connect one set of speaker wires to the upper terminals with negative (-) **1** **3** to black and Positive (+) to white. Connect the second set of speaker wires to the lower terminals the same way **2** **4**.

B. Connect the other ends of the speaker cables to the speaker output on your amplifier. Ensure the amplifier is switched off.

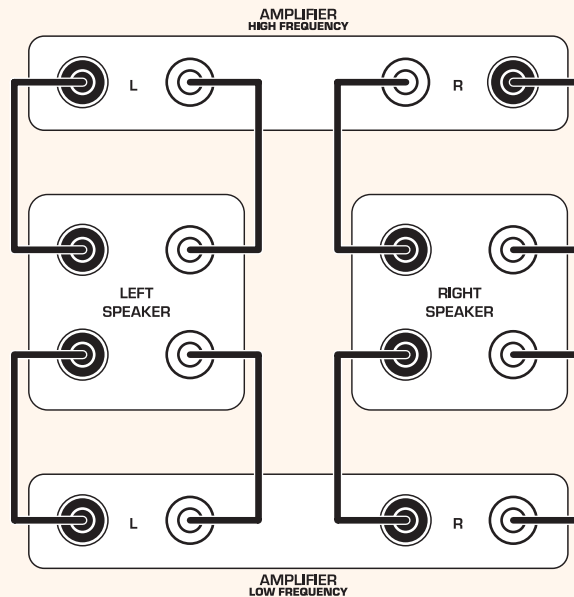


3 Bi-amping

Connect the speakers to two power amplifiers using two sets of speaker cables for each speaker.

A. Connect the black marked connectors to minus (-) pole **1** and **2** on the speaker, and the white marked connectors to plus (+) pole **3** and **4** on the speaker.

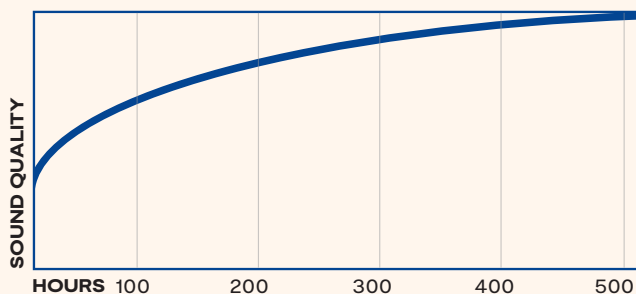
B. Connect the other ends of the speaker cables to the speaker output on your amplifiers. Ensure the amplifiers are switched off.



BURN IN

All new high quality loudspeakers need a certain period of burn in time. As Børresen loudspeakers uses long-stroke bass driver with natural rubber surrounds, the loudspeakers needs at least 50 – 100 hours of actual music playing at decent sound level.

You will notice a gradual improvement in sound quality. No particular precautions need to be taken during those hours.



RECOMMENDED PRODUCTS

Ansuz loudspeaker cables

Børresen recommends using high-end Ansuz speaker cables with the M6 speaker. These cables are designed to deliver pure signal flow, reducing resistance, induction, and noise floor for an authentic soundstage. As Børresen speakers and Ansuz cables are developed and designed by the same team, they share the same DNA and a unique synergy that ensures a seamless and exceptional sound reproduction experience.

Ansuz PowerBox

For clean power delivery to the speakers, Børresen recommends using the Ansuz PowerBox. This device reduces noise and controls resonances, resulting in an expansive soundstage with enhanced musicality and detail.

Ansuz Darkz resonance control

The loudspeaker stands are prepared for using the Ansuz Darkz resonance control devices. Ansuz Darkz absorb vibrations that are not directly related to the signal path. The absorption results in an audible vibration feedback, which affects the sound quality. It is the natural and authentic sound that Ansuz Darkz devices are designed to preserve. There is no alteration of the authentic sound reproduction which, when using conventional grounding materials, often make the sound unnaturally cold and harsh.

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