



# Børresen 02 SSE: Super loudspeaker for 68,000 euros



With his 02, Børresen has one of the most ambitious (living room friendly) floorstanding speakers on the market. But with the Silver Supreme Edition he puts the crown on everything. A journey into the micro-structures of magnets and other components

**T**he last few percent of sound improvement are always the most expensive. This bitter realization can also be applied to the 2.5-way floorstanding loudspeaker Børresen 02 SSE (i.e. in the Silver Supreme Edition), because at just under 69,000 euros, it already plays at the upper end of what the common hi-fi fan is still willing to spend on his hobby. But in addition to this clear luxury character, the Børresen 02 SSE convey another very good feeling: namely, that the electrodynamic loudspeaker principle has been raised to the currently highest possible level here.

2018 was something like my audiophile year of destiny, because I discovered at the North German HiFi Days the Danish brand Børresen, which was unknown to me until then, because also still quite young (but not inexperienced). In one of the small hotel rooms of the [Holiday Inn Hamburg played the model 01](#). Small two-way passive speakers in Scandinavian noble design with Italian borrowings. It was enough to stick my head through the door to detect an exceptionally clear and somehow inert sound. After a few minutes of intense listening in the sweet spot, I was sold. The rest is history.

After the extensive [test of the Børresen 01](#), I plundered my bank account and invested in the one size larger sister model 02. The still quite petite 2.5-way floorstanding speakers have served as my top listening reference ever since. A separate test report on the 02 has not yet been published. This is now to be made up, because there is an ideal opportunity: Børresen has the already crazy technical effort in its top series once again pushed to the extreme. I just couldn't keep my feet still and had to order the upgrade to the Børresen 02 SSE version.

Chief developer Michael Børresen is the creative head at Børresen and a tinkerer who leaves nothing to chance and questions everything. Here he poses in front of model 03



(Photo: F. Borowski)

## Petite, slender, elegant ... and a wolf in sheep's clothing: the Børresen 02 SSE

Visually, it is a (for my taste) grandiose mix of Italian lute form with borrowings from Sonus faber and a typically clear and reduced Scandinavian look.

A clever three-dimensionally milled front panel, attached to the front like a fabric cover, conceals the screws, the frame and the inverse beads of the drivers. The honeycomb carbon sandwich cones, which do without a dust dome, and

the approximately 3 x 7 cm foil tweeter, which sits behind a recess in the front panel shaped as a sound guide, form the even face of the Børresen 02.

Speaking of tweeters. Its foil has a better area-to-weight ratio than almost any other design. The diaphragm is many times lighter (less than 0.01g) than even the lightest beryllium or diamond domes. The neodymium drive, on the



**Slim and elegant:** The relatively small floor-standing loudspeakers Børresen 02 SSE do not show their high-tech character.

other hand, is quite massive and husky. In the SSE version, the tweeter remains unchanged. Here are some more impressions of the Danish noble speaker:

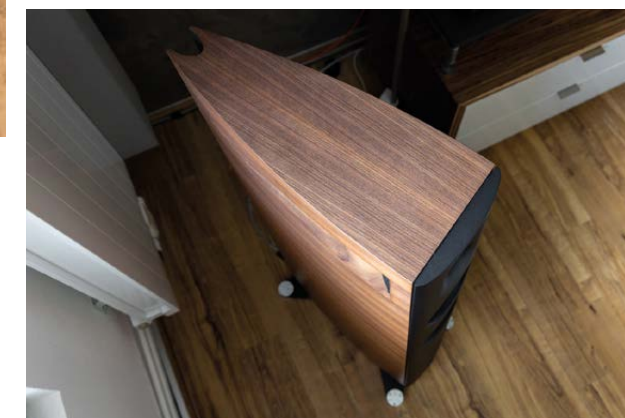
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The large and extremely light ribbon tweeter is supported by the sound guidance of the attached front panel



The lateral flow openings are part of the complex housing design



**View from above:** The housings are narrow but comparatively deep, with a shape that tapers sharply toward the rear

(Photos: F. Borowski)





The base plate is milled from a solid aluminum block and is decoupled from the housing with an additional layer. The multi-layered and with spheres decoupled silver Darkz feet are a successful anti-thesis to spikes (Photo: F. Borowski)

The housing, which gently tapers in depth, is clad in a gorgeous walnut veneer as standard. For an additional charge, however, Børresen also fulfills special requests, such as for exclusive high-gloss finishes. Noticeable on the sides are the typical Børresen aerodynamic milled grooves at the height of the tweeter. These are part of the tuning and complement the two tuning ports found on the thin rear, which in turn are equipped with special diffusers against flow noise.

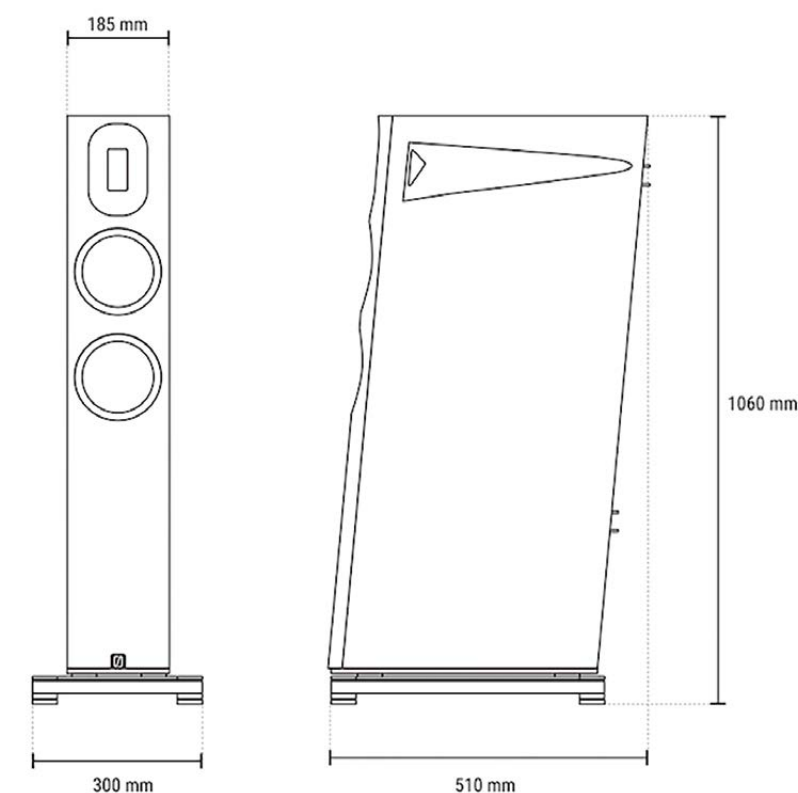
The attention to detail also continues in the base construction. The case rests on an aluminum base milled from the solid. The feet used are the height-adjustable Darkz feet from sister compa-

ny Ansuz Acoustics, which provide the „mechanical grounding“ favored by Børresen. One advantage of these feet is that, unlike spikes, they are very floor-friendly. Optionally, the coupling can be further optimized with additional Darkz, which are simply placed under the existing ones. This construction alone could fill a long report, but would also make the bill longer and longer...

As a terminal, a pair of - of course self-constructed - banana jacks can be found near the bottom at the rear.

## Technical specifications

The Børresen 02 is a 2.5-way floor-standing speaker with dimensions of 105.5 x 30.5 x 51.0 cm (H x W x D) and a weight of 30.5 kg per speaker. At first glance, anything but spectacular, right? (Drawing: Børresen)



### Borresen 02 SSE

<b>Technical concept:</b>	2.5-way floorstanding speaker, ventilated
<b>Equipment tweeter:</b>	1 x planar ribbon
<b>Equipment mid / bass:</b>	2 x 16 cm carbon honeycomb
<b>min. received amplifier power:</b>	> 50 watts per channel
<b>max. received room size:</b>	up to 40 square meters
<b>Particularities:</b>	ironless magnetic drive
<b>Dimensions H x W x D:</b>	105.5 x 30.5 x 51.0 cm
<b>Weight:</b>	30.5 kilos

[Link to all technical data](#)



## Silver Supreme Edition (SSE): What's behind it?

To use one of the popular car analogies: In racing, a lot depends on eliminating frictional resistance and inertia at all possible sources. So less rolling resistance, lower friction losses in the engine and transmission, better drag coefficient. There's also the reduction of moving masses and so on. This makes for better acceleration, more top speed, more agility. It's quicker to decelerate (brake)... and so it ensures better lap times in the end.

All efforts in the design of the ironless Børresen magnetic drive ([see test of 01](#)) ultimately boil down to a similar goal, namely to minimize „resistances“. These arise in loudspeakers due to, among other things, the mass of the membranes and voice coils, the centering, the bead, but also due to electrical phenomena such as inductances. An important first step, according to Børresen, was the development of the first ironless magnetic drive for loudspeakers. This is research work that the Danes usually do with university support (Aarhus University).

One of the properties of the ironless magnet design with a copper or silver ring (SSE version) between the neodymium magnets is that the voice coil moves in a largely homogeneous magnetic field over its entire travel path. This is not the case in conventional magnetic drives, which is why, for example, the impedance changes depending on the position of the coil in the magnetic field. As a result, the drive power varies. Moreover, in ironless drives, inductance is reduced to a minimum not previously possible. Inductive resistance is one of the so-called „sources of friction“ that are to be

reduced as far as possible. Even the drive of the normal version of the Børresen 0x series, which is equipped with a copper ring, is said to have an inductance of 0.04 mH (millihenry), which is about ten times lower than conventional loudspeaker magnet systems.

For the SSE version, the copper rings in the drive are now replaced by those made of pure silver - because silver is the best electrical conductor even before copper. To this end, Børresen has set up a precious metal forge at its main plant in Aalborg, where the silver rings are cast by hand, finely finished on the lathe and then subjected to a special surface treatment with high-energy particles in a [sputtering](#) facility at the University of Aarhus. We have already described this in detail [in this news report](#). The silver rings of the SSE version reduce the inductance a bit further, as does the cryo treatment.



A solid, cast silver ring replaces the otherwise copper „core“ of the ironless drive in the SSE version

(Photo: Børresen)



Pure understatement:  
From the outside, the  
Børresen 02 SSE is only  
recognizable by a sticker  
on the back  
(Photo: F. Borowski)

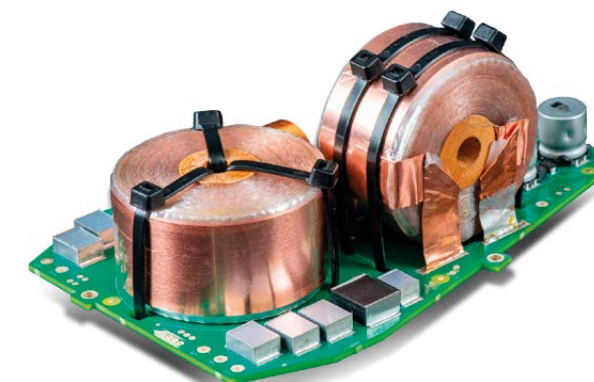
### VIDEO:



In [this video](#), Michael Børresen himself explains what he thinks makes the Børresen drives so special.



The complete driver then looks like this  
(Photo: Børresen)



The extremely elaborate crossover of the 02.  
(Photo: Børresen)

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## Cryo-what? The speaker that came in from the cold

A fixed component of the SSE update of the 0x series is the so-called Cryo Edition. A special cold treatment is used for all relevant metal parts in the speaker. The process takes three full days. Within the first 24 hours, the metal undergoes a cooling process from room temperature to cryogenic temperatures. This refers to temperatures below about -150° Celsius. During the second 24 hours, the metal parts are kept at temperatures around -196°C before the temperature gradually returns to room temperature within the next 24 hours.

The following should happen during this process: The crystal structure of the metal contracts more and more due to the extreme cold. This displaces alloying elements from the grain structure of the metal, which now becomes very similar to a [single crystal](#). These structural changes in the metal are said to result in a 6-8% increase in conductivity and have a profound effect on audio properties

According to Michael Børresen, „The process strengthens and densifies the grain structure of the metal components and reduces inherent residual stresses that occur when metal solidifies from its liquid phase to a solid phase.“ Similar cryo processes are also used quite successfully by some high-end cable manufacturers or pickup suppliers. And the world's oldest loudspeaker company - Tannoy - also cools some components of its top lines to cosmic minus degrees.

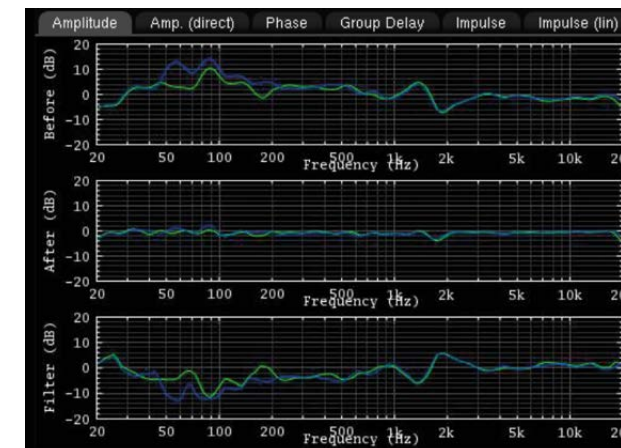
With the Børresen Cryo Edition, however, almost everything that is somehow metallic is thrown into the freezer. Including all cables, the crossover, of course the magnetic system, up to the chassis baskets. Exceptions are only made for a few parts that would be destroyed by the extreme minus temperatures, such as the extremely thin and sensitive foil of the tweeter with its vapor-deposited conductor paths. Michael Børresen also explains the whole thing in [this video](#). The cryo treatment is also available for Børresen's Z-series for an additional charge.

### VIDEO:



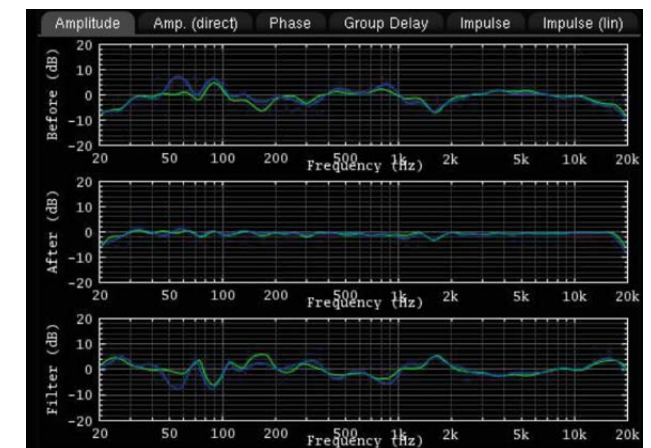
Michael Børresen explains the whole thing in [this video](#). The cryo treatment is also available for Børresen's Z series at an additional cost.

## Crossover modification



Measurement of the „old“ 02 in my room with the Trinnov Amethyst. The upper curve shows the measurement before room correction (Before). Noticeable is the wave between 1 and 3 kHz. The Trinnov correction has ironed this out to a large extent (middle diagram).

As part of the upgrade, my pair of 02s also underwent a crossover modification. This is not basically part of the SSE tuning, but was appropriate for my 02 from the first series in the course of continuous development. The tuning especially in the midrange was thus minimally changed. During my room measurements with the Trinnov Amethyst I noticed at that time already in the range between 1 and 3 kHz a strange seeming ripple. This was clearly reduced with the change of the crossover. Overall, the SSE version now measures more balanced in my room.



The upper diagram (Before) shows the amplitude response of both speakers in the room after the SSE upgrade and with the crossover modification. The ripple between 1 and 3 kHz is not completely gone, but looks completely different. There remains only a „dip“ at about 1.7 kHz, which is probably due to the room acoustics. The response is somewhat more balanced over the entire frequency range than before the upgrade (measurements: F. Borowski).

The change to the crossover makes it a bit difficult to classify the sound impact. What comes from the SSE/Cryo upgrade, and what from the modified crossover? But as it turns out, it can be classified quite accurately, because certain acoustic phenomena cannot come from the crossover, but are clearly due to the „signature“ of the drivers.

(measurements: F. Borowski)





## Listening test: goodbye acoustic footprint

My test equipment included the [Melco S100 LAN switch](#), the [Silent Angel Rhein Z1](#) as a Roon server, the Trinnov Amethyst with its outstanding room correction, which has become indispensable for me, as a streaming player, and the Aavik I-280 DAC and I-580 integrated amplifier. So the [bigger brothers](#) of the Aavik components tested here. The test of the I-580 will follow at a later date.

I was not able to do a direct A/B comparison between the normal version and the SSE, and the upgrade period was just under two weeks. However, since I listened to the 02 practically every day for over a year, their capabilities are deeply burned into my acoustic memory. That's why it wasn't difficult for me to assess the differences in the SSE version.

In my opinion, the Børresen loudspeakers combine the best characteristics of dynamic (piston stroke-) loudspeakers and large area radiators. Never before have I heard „speakers“ that leave such a small acoustic footprint, i.e. that do not imprint their own character on the music and sound so authentic.

It is exactly what I am looking for: hi-fi speakers that reproduce music as unadulterated as possible. So-called character boxes are therefore in the best case only tasteful imprints in a certain direction, which was not planned in the music at all. It's like spoiling an elaborate three-star menu with ketchup. Not that I don't like ketchup, but they don't call the red sauce a flavor rectifier for nothing.



The Børresen 02 SSE in the test setup  
(Photo: F. Borowski)

As an audio connoisseur, I prefer my musical fare as provided by the Maître de Musique and let myself be taken on an acoustic-culinary voyage of discovery. For this, the Børresen 02 are so far the best speakers that have ever stood in my listening room.

This is not easy to describe. The bass from the Børresen 02 seems more light-footed without lacking substance - even if it doesn't reach quite as low as some active subs at around

30 Hz in the room. This tends to remind me of excellent speakers with closed housings, such as the fabulous Magicos. Quality over quantity is the motto here. And: While most loudspeakers, even larger caliber, increasingly flatten with decreasing volume, the sound with the 02 is an absolute delight even at low levels. The full dynamic spectrum is always present.

In many test-reports you can read that you always want to listen louder with this or that

loudspeaker because it is so beautifully low in distortion and dynamic. This is also possible with the Børresens, but you don't constantly feel the urge to turn up the volume - simply because it sounds so fantastically good even quietly. Since I'm not a friend of brutal levels anyway, this is particularly convenient for me. But turning it up every now and then is just as much fun.



## Børresen SSE version: crowned with silver

These properties already apply to the „normal“ Børresen 02 in the highest degree. Upgraded to the SSE version, the speakers climb to an even higher level of fidelity. In addition, there is an extra portion of speed and explosiveness, which I had not expected. Kick basses are tighter and drier. Short, hard impulses, such as a drumstick struck on the edge of the snare or castanets sound crisper while revealing more of the characteristic sound of the material the instruments are made of. These are clearly characteristics that cannot be attributed to the crossover and can only come from the SSE/Cryo upgrade. In my opinion, the gain is enormous.

Clearly attributable to the crossover changes, however, is a certain and very welcome increase in body in the mids. This is exactly what I had wished for.

Another great strength of the 02, which it shares with its smaller and larger siblings, is its breathtakingly vivid spatiality. Clean placement results in a virtual stage at the sweet spot like in 8K resolution with huge HDR color space. As a consequence, it is possible to choose a larger base width than with conventional speakers without noticeably losing focus between the speakers. The 02 also allow a very small distance to the side walls with suitable angulation, which benefits room utilization as a side effect.

I don't have enough sound-related adjectives in my vocabulary to put into words the amazing capabilities of the Børresen 02 SSE without it sounding like exaggerated „superlativism.“ Therefore, at this point, I'll simply make

another car comparison. As we all know, comparisons always limp somewhere. But it helps for a better understanding, to make subjective experiences more understandable. So, even if some details don't fit, please just take it for what it is: a crutch for understanding.

If the standard version of the Børresen 02 is a Porsche 911 Carrera, which in itself is considered the epitome of sports car perfection, then the SSE version represents the Porsche GT3. Considerably more expensive, supplemented by elaborate and costly racing technology and thus a good deal more agile on the track, more precise around corners, more light-footed, more sprinty and in the end the decisive seconds faster per lap. - And yet still road-legal and suitable for everyday use.



Big sound elegantly housed in the living room:  
Børresen 02 SSE (Photo: F. Borowski)



## Conclusion

Just to avoid any misunderstanding: I am not claiming that the Borresen 02 Silver Supreme Edition are the ultimate best speakers in the world. There is no such thing simply because of the many different listening preferences. The perfectionist streak of the Borresen speakers with their purity reminiscent of the finest headphones is certainly not for everyone. Tube/horn fans or lovers of British speaker legends á la Harbeth or ProAC will not lose any sleep over the Borresens. On the other hand, that's what fascinates me about them: they don't imprint any „character“ on the music.

Purely rationally, the cost of these speakers is hard to justify. However, if you are looking for comparatively discreet, extremely living room-friendly ultra-high-end floorstanding speakers that can play fantastically even in smaller to medium-sized rooms, are among the most natural, clear, honest, inertia-free of their kind, and also do amazing things in the bass for their size, you can hardly get past these masterpieces.

That's actually already true of the regular 02, but the Silver Supreme Edition takes the cake. The extra cost may be high, but so is the increase in sound. Which is all the more sensational considering the capabilities of the standard versions.

The technical effort and depth of development is also really impressive. How many manufacturers dare to completely rethink the basic principle of electromagnetic speaker drive? Michael Borresen has achieved a real masterpiece with his ironless magnet system. And this is only one of many innovations of his loudspeakers.

Another look over the garden fence: for the price of the Borresen 02 SSE, there are larger and more spectacular super loudspeakers with considerably more kilograms per euro. But also finer, more realistic sounding ones? I can't think of any.



(Photo: Borresen)

### BØRRESEN 02 SILVER SUPREME

**LowBeats®**  
**VERY GOOD**

**4,2**  
RATING

### RATING

SOUND	★★★★★
PRACTICE	★★★★☆
PROCESSING	★★★★★
<b>TOTAL</b>	<b>★★★★★</b>

2021-06-03

The rating always refers to the respective price range.

### PRO & CONTRA:

- + Sounds outstandingly clear and precise, outstandingly good spatial imaging.
- + Impressively dynamic and bass-strong, especially at moderate levels
- + Fantastic workmanship in „Danish design“
- Very expensive

### DISTRIBUTION:

Børresen Acoustics Aps  
Rebslagervej 4  
9000 Aalborg, Denmark  
[www.borresen-acoustics.com](http://www.borresen-acoustics.com)

### PRICE:

(Manufacturer recommendation)  
**BØRRESEN 02 (NORMALVERSION) = 42.200 EURO**  
**BØRRESEN 02 CRYO EDITION = 46.200 EURO**  
**BØRRESEN 02 SSE (INKL. CRYO) = 68.870 EURO**





<https://www.lowbeats.de/test-standbox-borresen-02-sse-dank-silber-und-kaelte-tuning-ganz-weit-vorn/>

## Børresen 02 SSE: Super loudspeaker for 68,000 euros



Slim and elegant: The relatively small floorstanding loudspeakers Børresen 02 SSE do not show their high-tech character.

### TEAMMATES:

[Test music server Silent Angel Rhein Z1 - a secure bank for Roon music](#)

[Test Trinnov Amethyst: Digital dream preliminary stage with professional measurement](#)

[Test Melco S100: the audiophile network switch](#)

### MORE ABOUT BØRRESEN:

[Visiting Børresen Acoustics: Formula 1 racing team for loudspeakers](#)

[Test Børresen 01: Compact speakers from another planet](#)

<https://borresen-acoustics.com>