Stereo+

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IMPONERENDE

Børresen Z1

RIBBONS ARE NOT JUST FOR DECORATION

A ribbon is typically used as a decorative element for tying up gifts, where of course it is the gift itself that is the 'main event'. Having listened to the Børresen Z1 ribbon tweeter, however, I think it might be time for a discussion about the need to have a ribbon on all loudspeakers.

Words and photos: Roy Ervin Solstad

The man behind Børresen loudspeakers is – needless to say – Michael Børresen from Denmark. If the design seems somewhat familiar, then you need look no further than Danish Raidho loudspeakers to find something similar. And indeed, Michael Børresen was also involved in this case.

Although Michael Børresen is a veteran of the Danish hi-fi industry, the company that bears his name is a relative newcomer to the market. Børresen Acoustics was founded as recently as in May 2017, with Børresen himself, Per Mortensen and another very familiar face from the Danish hi-fi industry, Lars Kristensen, as equal partners in the company.

Incidentally, Børresen Acoustics is a company under the umbrella of Upperlevel Aps, along with Ansuz and Aavik, two other Danish hi-fi producers in which Børresen and Kristensen have a stake. All three brands are imported to Norway by Mala Audio.

Børresen

Today, Børresen has two loudspeaker series in its range. The 0-series is the best – and most expensive – whilst the Z-series is the 'entry level' series. Both series have a stand-mounted model and three floor models. The test model, Z1, is the most reasonable in terms of price, costing NOK 109,000 (plus stand), whilst 05 is the most expensive at around ten times the price. What all Børresen loudspeakers have in common is that the drivers are own design, not simply bespoke drivers produced by some of the major factories such as SEAS and Scanspeak, in addition to the fact that the tweeters are of the ribbon type.

The weight of the tweeter is in fact just 0.01 grams and is of the planar ribbon type, similar to that which Magnepan bases many of its drivers on. Børresen's version is a closed design, and it has an efficiency of no less than 94 dB. This means that not much force is required to set the driver in motion.

The bass and mid-range drivers are, on the other hand, a composite structure, with carbon fibre on each side of a 4 mm Nomex honeycomb core. This material is used in Formula One racing cars because it is extremely light and stiff. The bass/mid-range diaphragm for Børresen weighs just 5.5 grams.

The Z-series was developed after the 0-series, and has taken design ideas and technology from its more expensive sibling. The difference includes a simpler cabinet which is not as elaborate as the wooden cabinets in the 0-series.

Z1

The smallest of the Børresen loudspeakers, Z1, is a 2-way design. This means that it has one driver for the treble range and one driver for the rest of the frequency range, i.e. bass and mid-range. The tweeter handles signals higher than 2500 hertz. Everything below this frequency is taken care of by the 4.5-inch Nomex/carbon driver. Børresen states a frequency response of 50 to 50,000 hertz. On paper, it might suggest a little weakness in the low frequency range, but in small rooms, in particular, the bass will often receive an extra boost, which will result in more clout in the bass range. Furthermore, the specifications published by speaker manufacturers are often measured in rooms without reflections of any

kind. In other words, completely different to where you would place a pair of loudspeakers on a stand in an ordinary home.

It is also worth noting that the stands for these loudspeakers should really be seen as an integral part of the loudspeakers. Although many aficionados swear by heavy stands, the stands for Z1 are pretty light. In fact, they weigh no more than 3.3 kilograms each. They are made of high-density fibreboard (HDF), but have an appearance akin to anodised metal. The connection between the loudspeakers and the stand is via four steel spheres. If you are concerned about stability, however, you can also screw the speaker to the stand.

The bass reflex port is at the top of the rear face of the cabinet and has a somewhat unusual appearance. It is rectangular and has a sound-absorbent surface on the inside. In addition, there are two perforated metal rails that run vertically across the reflex opening. This creates turbulence in the airflow, such that any resonances are broken up. PMC does something similar with its Laminair patent on its Twenty5i and Fact series.

The loudspeakers require both a little help from the amplifier, as well as next to nothing – which needs further explanation. It is a common belief that a speaker's sensitivity reflects how heavily driven a speaker is. This is not correct, but the sensitivity does say something about whether the loudspeakers require a lot of watts in order to play at high volume. The Z1 loudspeakers have a sensitivity of 86 dB.

This figure is not particularly high, so if you wish to play extremely loud, you would require a lot more power than if your loudspeakers had a sensitivity of 90 dB. More important, however, is the impedance, i.e. the electrical resistance the amplifier meets in the loudspeakers. In fact, it is low resistance, in particular if there are large variations and dips in the resistance down in the bass range, which will cause the amplifier to run out of steam.

To illustrate this point, we can compare it to what you need from a car engine. If the road you wish to drive on is straight without lots of hills and bends, and the car is not heavily laden, you do not need lots of horsepower to get the car to drive fast. In this case, the engine does not have to work particularly hard either – just like an amplifier does not have to work very hard if the loudspeakers have high sensitivity and smooth and high impedance. The situation worsens if the road has a lot of rises and bends and the car is heavily laden. Then it will need more than horsepower: it will need torque. In an acoustic amplifier, the current capacity is equivalent to the torque, and an amplifier with a large current capacity can drive difficult loudspeakers better than one with smaller current reserves, even though the output power is the same.

Børresen Z1 requires a bit of horsepower to drive fast, but the loudspeakers are the equivalent of a straight road without bends, as they never dip below 5.8 Ohm. Børresen thus claims that amplifiers of 25 watts and upwards are sufficient to drive Z1 in a satisfactory manner. There is no reason to doubt this claim, even though it certainly does no harm to have greater capacity at your disposal. I have used a much more powerful amplifier, and the loudspeakers have certainly thrived on this power.

The loudspeakers cannot claim to be a design icon, unlike Børresen's 0-series. In this case, the powder-painted cabinets are either grey-black or matt white. Incidentally, the front baffler has the same grey-black finish. However, an effort has been made in terms of the shape of the loudspeakers, so they are certainly more attractive than loudspeakers that appear to be simply shoeboxes with speaker elements inside, but they still have an industrial appearance that may not appeal to all interior designers.

Sound

I know some people who would shake their head at the thought of paying out more than NOK 100,000 for loudspeakers that do not play deep bass, but judging Z1 according to criteria regarding deep bass would be just as unfair as asking a jazz puritan to review a pop album.

Z1 is not a speaker designed to play deep bass, but to play the rest of the frequency range as well as possible. Now deep bass does not only provide a better foundation in the music; deep bass is also the chief sinner in terms of acoustic problems when listening to music. Among the reasons for this is that deep bass is not directional, whilst the deepest tones have a longer wavelength. This means that the deepest bass tones can quickly 'saturate' a room, particularly rooms that are not very big. Many people will therefore find that there can be too much bass in small rooms with loudspeakers that have a deep bass. The disadvantage of this is that a booming bass also affects the mid-range, which will result in a mushy sound.

There are of course solutions to such problems: Digital room correction is one; bass traps and other acoustic aids are another; whilst subwoofers that can be configured to play in inverted phase in problem areas are a third.

The simplest solution, however, may simply be to find loudspeakers that have been designed to work in small rooms

and which use the room itself to help create a greater bass foundation. It is here that stand-mounted loudspeakers come into the picture, and it is in this context we should judge Børresen Z1 in terms of sound.

My new listening room is just 12.5 square metres in size, but I have a double sliding door opening out to an adjacent room of around 40 square metres, which means that I am not fully enclosed.

In this case, the Z1 loudspeakers function splendidly. Next to Vivid Audio Kaya45, I think that Børresen loudspeakers are the most open, lightest and most detailed loudspeakers in the top range of the sound spectrum I have had at home. They create an extremely large room, even in my small one. The QSound effects on Roger Waters' 'Amused To Death' are genuinely spooky, as they broaden the sound so far out laterally that the fact that the sound is only coming from two loudspeakers appears to defy reason. QSound is a technique that makes use of phase adjustments to create the illusion of surround sound. With Z1, the effect is absolutely fantastic. One thing is the size of the sound image, but I was also impressed by how accurately instruments and vocals are placed within this image. However, you should be aware that if you slightly misplace the loudspeakers, precision will suffer. Shortly before I was due to deliver the loudspeakers back to the importer – and after I had put my own loudspeakers back in place in the listening room – I put Z1 back in. This time, they stood between my own PMC loudspeakers, although pulled slightly forward such that the front of Z1 was 20-25 cm in front of the front of the PMC. The lightness was certainly still there, but now it almost sounded as though I had introduced a phase error into one of the loudspeakers. Instead of an extremely precise positioning of instruments, there was a degree of spillage. If you try them at home and do not get it quite right holographically, then you may find that you have to put in a little effort in terms of positioning in order to get the sound just right.

However, when you do get it right, then the sound is exceptional, and this also applies very much in terms of mid-range and bass. All in all, there is an extreme responsiveness in this speaker that is very impressive. This has a positive effect on the dynamics, not least at a micro level. There is more snap in the dome mid-range on my PMC, but Z1 still manages to be excellent. Vocals have good clout and because of the responsiveness there are lots of details and a richness of sound that is limited only by what you feed it with in terms of signals. On 'Rise' by Dominique Fils-Aime, there is such a snap in the drums that I sat there agog, whilst on Malia and Boris Blank's (from Yello) album 'Convergence' so much air is moved that the wooden floor begins to vibrate. The fact that it came from a driver of just 4.5 inches in size was slightly shocking, but great fun. Some people may forget that the drive in the music which gets your feet tapping is not in the deep bass range, but in the mid-range from around 70 to 150 hertz. This is well within what Z1 is able to handle. The lower limit of the range is specified at 50 hertz and in my listening room no fall out could be heard, even though the loudspeakers begin to exhibit some roll-off at low frequency. It is not a question of it playing excellent bass at 50 hertz, and then nothing below that, but you can hear that the deepest bass tones on a double bass have slightly less gain than when the bassist plays slightly higher tones. This particular point is strictly speaking my only complaint. As I am so keen on acoustic jazz, I would have liked the loudspeakers to play a little deeper, in any case to capture the deepest tones on a standard double bass. On this instrument and also a Fender electric bass the deepest tone is 41.2 Hz, so if the Z1 had begun to exhibit roll-off at around 45 Hz – and not 50 Hz – it would probably have been absolutely fine.

In spite of this, there is no getting around the fact that what makes these loudspeakers so good is that they have managed to combine the ultra-responsive tweeter and the bass/mid-range driver. This is in all likelihood due to two things: firstly, the 4.5-inch driver is also ultra-responsive; secondly the majority of the music's vibrations are transmitted to you as the listener from the 4.5-inch driver, since the boundary frequency is as high as 2.5 kHz. This means that in most of the mid-range and bass range it is this driver that rules. As it is here that all instruments and vocals have their fundamental tones, these are treated identically by the same driver. This can be heard, and at the same time the ribbon tweeter is able to excel where it is at its absolute best, i.e. at the top end of the frequency range. Overall, this results in an incredibly impressive and coherent sound quality where details, dynamics and tone maintain the same quality, and a tone balance that is completely neutral.

If you still find that you miss the deep bass, then why not buy a pair of subwoofers? Furthermore, it is important to note that these loudspeakers do not HAVE to be in a small room to sound good. They will also shine even if they are surrounded by more air.

Conclusion

Børresen Z1 is an incredibly impressive set of loudspeakers. They can be driven by the majority of amplifiers and play in a dazzling manner. The lightness and clarity that these loudspeakers exhibit will take your breath away. If it is indeed the ribbon tweeters that are responsible for this, then there is a case for having a ribbon on all loudspeakers.

SPECIFICATIONS:

- **Type:** 2-way stand-mounted loudspeakers
- **Tweeter:** Børresen planar magnetic ribbon tweeter
- **Bass/mid-range driver:** Børresen 4.5 inch in carbon and Nomex
- **Frequency response:** 50-50,000 Hz
- **Sensitivity:** 86 decibels
- **Impedance:** Minimum 6 Ohm
- **Finish:** Black or white satin
- **Dimensions:** 37 x 18.5 x 33.8 cm (HxBxD)
- **Weight:** 11.6 kg per speaker
- **Dimensions, including stand:** 101.5 x 28 x 36 cm (HxBxD)
- **Weight, including stand:** 14.9 kg

REFERENCE SYSTEM:

- **Amplifier:** Musical Innovation MI23.5
- **Power amplifiers:** Vera Audio Reference P150/600 (as monoblocks)
- **Room correction/DSP:** Trinnov ST-2 Hi-Fi
- **Loudspeakers:** PMC MB2 SE
- **Phonograph:** Bergmann Galder
- **Tonearm:** Bergmann Odin
- **Pickup:** Lyra Etna
- **Phono amplifier/RIAA stage:** Burmester 100
- **Network player:** Aurender N100C
- **SACD player/digital converter:** Esoteric K-01X
- **Home cinema receiver:** Anthem MRX-1120
- **Blu-ray player:** Pioneer UDP-LX500
- **TV:** Samsung Q90R (65 inches)
- **Centre speaker:** PMC Wafer 2
- **Surround loudspeakers:** PMC Wafer 1
- **Atmos loudspeakers:** OSD R82 and OSD R82A
- **Subwoofers:** Paradigm Millenia
- **Power filter:** In-Akustik AC-3500P
- **Signal cables:** Lilleeng
- **Phono cable:** Grover Huffman The Empress
- **USB cable:** Transparent USB Digital

· **Speaker cables:** Lilleeng and Van Damme

· **Power cables:** Supra LoRad

· **Tweaks:** Sonic Design component feet, A.R.T. Qdampers, Vibrapods, Audiophile Vibration Control isolation platform, Cable Tower cable lifters

· **Acoustics:** RPG Broadsorber sound absorptive panels, GIK Acoustics corner bass traps, Sound of Science sound absorptive panels

· **Rack:** USM Haller with bitumen-damped shelves

· **Other:** Own 16A rating for the system

WE LIKE:

· Fantastic big and open sound image

· Lots of dynamics and details

· Modest requirements in terms of amplifier power

WE DO NOT LIKE:

· Could play a little deeper in the bass range

· The industrial design will probably not appeal to everyone

· Some effort is required to find the right position

STEREO+ SAYS: Excellent loudspeakers for those who do not want or cannot have large floor loudspeakers.

RATINGS

User-friendliness	**9**
Quality impression/design	**9**
Performance/price	**9**

9.0

Børresen Z1

PRICE: NOK 109,000 (stand NOK 24,000)

IMPORTER: Mala Audio

LINK: www.malaaudio.no