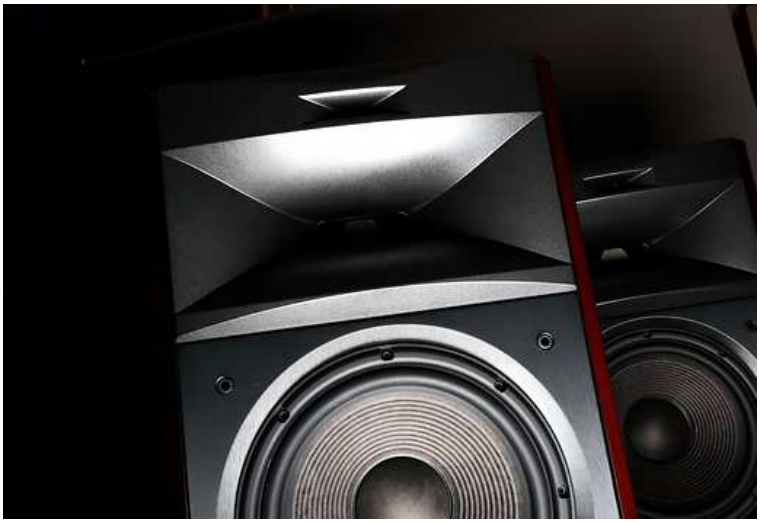
Floorstanding loudspeakers

JBL
S3900

Manufacturer: **Harman International Industries, Inc.**
Price: **44 900 zł/2 pc.**

Contact:
HARMAN International Industries
400 Atlantic Street |15th Floor
Stamford | CT 06901 | USA
tel.: 1.800.336.4525

Country of origin: **USA**
www.jbl.com



REVIEW

Translation: Andrzej Dziadowiec
Text: Wojciech Pacuła
Photos: Wojciech Pacuła | Harman

JBL

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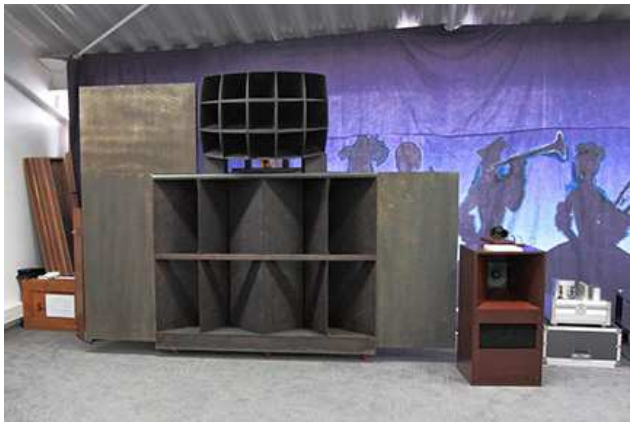
I spent nearly six years working as a sound engineer in Juliusz Słowacki Theatre in Krakow. Never in my wildest dreams did I imagine that this rather short period of time would change my way of thinking so much, and turn out to be so enriching. And that even a dozen years later I would still draw on these experiences.

Above a powerful analog Soundcraft mixing board in the sound control room, there hang three-way, absolutely normal-looking American speakers from Altec/Lansing. The theatre stage and auditorium was equipped with speakers from the same manufacturer, as well as JBL speakers in the side towers. While the latter looked absolutely normal, with horn loaded tweeters but otherwise classic looking cabinets, the main speakers were unlike anything that was used at that time. They were powerful two-box designs. The subwoofer unit sported four 300 mm woofers in a sealed enclosure, and the other unit was equipped with a midrange driver loaded into a massive horn over a meter long, and a tweeter loaded into only slightly smaller horn. What's more, stage monitors used 360 mm drivers with a centrally placed horn tweeter. Such designs were absolutely unique at that time, because most PA systems were based on small, integrated units, like those from JBL. As it happens, both Altec/Lansing and JBL share a common history.

Although I went with them through most of the musical genres that interest me, I could not help but start the auditions by playing an album that features double bass in the leading role. Double bass, like two bass drivers in front of me – perhaps not the closest possible association, but one that turned out quite accurate. I bought the album *None But The Lonely Heart* by Charlie Haden and Chris Anderson, released in 1997 on Naim label, straight after its release, on the wave of enthusiasm for the hit (if it may be so called) disc *Beyond The Missouri Sky* on which Haden played with Pat Metheny.

While I absolutely loved *Beyond…*, Haden and Anderson's duo seemed to me downright boring in comparison. I had a problem both with album's length, about 30 minutes too long, and track selection. Some ten years later my musical preferences made a U-turn and it is now the album with Metheny that I consider to be flashy and empty musically. It also turns out to be far inferior in terms of sound production to the album recorded by Ken Christianson, chief sound engineer for the Naim label. The JBLs confirmed my assessment and showed even more explicitly than most very expensive speakers what the power of piano and double bass duo is.

The lows were strong and dense. At the same time they also had high resolution – high enough to leave me with no doubts that Christianson had recorded Haden's instrument using only two microphones visible in the pictures, in stereo configuration (they look like the AKG C414B-ULS, though I'm not sure), although the sheer bass power could indicate a third close-in mic, picking up



PREHISTORY

The company's founder, James Bullough Lansing, was born James Martini on January 14th, 1902, in Macoupin County (Millwood Township), Illinois. From young age he showed interest in DIY and radios. Little did he know, however, that his life would be associated with transducers, and his initials would for many become synonymous with speakers. It all started in 1930 when Western Electric created a department to provide support and to design speakers and electronics for use in movie theaters, which was the beginning of Electrical Research Products Incorporated (ERPI). In 1938, WE sold its shares in this department, and a year later they were bought out by a group of engineers from that company who gave it a new name – Altec Service Company (Altec as in "all technical"). The company was doing well, however, in order to grow it needed production facilities to manufacture its own products. For this purpose, in 1941 it purchased Lansing Manufacturing Co., which was on the verge of bankruptcy, and changed name to Altec Lansing. In a short time, it was awarded a government contract for the development of magnetic detectors for U.S. submarines. The research in that field resulted in creating Alnico V magnet material for speaker use.

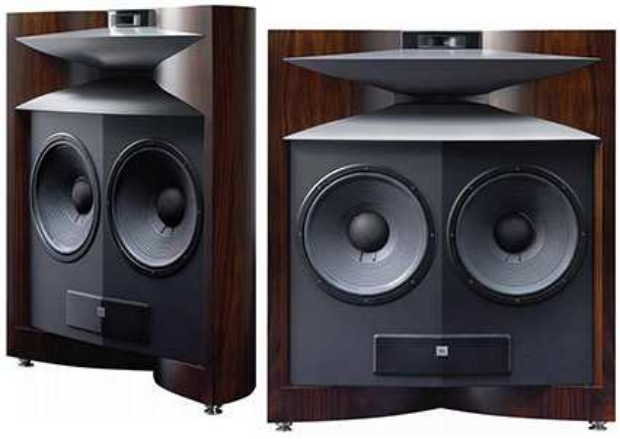
After his mother's death in 1924, James Martini moved to Salt Lake City, where he founded Lansing Manufacturing Company, producing car speakers. In order to grow, the company was moved in 1927 to New York.
October 6 of the same year saw the premiere of *The Jazz Singer*, the first ever feature-length movie with sound made by Warner Brothers, which became a tremendous success. The history of high-quality loudspeakers also started from the same year. Since the existing PA technology and systems were rather primitive, MGM decided to do something about it. Douglas Shearer, chief sound engineer at Metro-Goldwyn-Mayer, contacted James Lansing and between 1933 and 1935 they both developed basic design ideas of horn loaded speakers, which became a standard for the entire industry. In 1936, Lansing and Sharer's sound system received an award from the Academy of Motion Picture Arts and Sciences. Everything was going great until the military maneuvers in 1939, during which Ken Decker was killed in an accident. He was a businessman dealing with Lansing Manufacturing financial matters. An attempt to find his replacement failed, and in 1941 the company was on the verge of bankruptcy. What helped it to survive was the acquisition of its shares by Altec Service Company.

JAMES B. LANSING SOUND, INCORPORATED

Jim Lansing became vice president of the new company, Altec Lansing. In those years he developed the A-4 theater system that became the cinema standard for many years. Unaccustomed to work under someone else's leadership, after his five-year contract expired in 1946, he left Altec Lansing and on October 1 of the

direct sound. That's not the case here, though. This recording is in Naim's patented True Stereo technology, and it was the JBL's slightly stronger and more resolving bass, which was heard immediately. The piano was shown by the S3900 as it should have been, that is from a distance yet with great definition and beautiful acoustic environment. The horn loaded mid-high and ultrahigh-frequency driver proved great as complementing the low and upper bass, without sounding detached and without attracting attention. It's actually most unusual, because the horns are always audible. They generate specific distortion, usually on the edges of the acoustic range. The JBLs are not free from that, but it does not attract our attention on most recordings. The duo's album sounded thick and dark, in the sense that the treble could be "deduced" from the sound, rather than being heard as something separate. Superb!

Speaking about distortion, I would like to mention how the use of horns affects the S3900's sound. Let us not have any illusions that it doesn't. Part of the crossover range, around 800-900 Hz, is emphasized. This frequency range is responsible for midrange body and the so-called 'presence'. The JBLs did not sound aggressively, in that they did not irritate with the attack. Yet the lower range of female vocals, part of the violin sound, especially if recorded slightly higher, as on Deutsche Gramophone CDs, will sound stronger and somewhat nasal. There's no trace of brightening, "ticking", or glassiness: the American speakers sound absolutely coherent and well thought out, with which they embarrass many other expensive horn speakers.
The change in tonality I am talking about translates into emphasizing the violin, enlarging it and accenting its nasal sonic characteristics. This was what happened with Gil Sham's instrument on *Paganini For Two* and with Hilary Hann's on her *Bach. Concertos*, even though the former was released by JVC as XRCD24, and the latter by Universal Japan as SHM-CD (in other words, as theoretically top current CD formats). In part, it is the result of certain recording techniques used by DG, but also of the speakers' character that happen to deviate from neutrality in this particular sonic range.



It was different with stringed instruments whose sound is located lower, like on the album *Lachrimae or Seaven Teares* performed by Jordi Savall and his Hespèrion XX. The latest Alia Vox release sounded equally thick, with accent on the lower midrange, as the Haden's album. This was due to another characteristic of the JBLs, namely their ability to build a full, mature midrange, particularly with male vocals and instruments having a tonal center in that range. Playing Nat "King" Cole or listening to Dominic Miller's *Fourth Wall*, or even Mike Oldfield's *Tubular Bells* on the latest Platinum SHM-CD release, should be convincing enough. If you do not have these albums, use others that are characterized by a saturated lower midrange, "opened up" by the top end not allowing

same year started a new company, Lansing Sound, Incorporated. The principals of this company were James B. Lansing, Chauncey Snow and Chester L. Noble. Since the name Lansing was commonly identified with the former company, Altec Lansing lawyers objected to it being used in the new company name. It was finally agreed that the new company change its name to James B. Lansing Sound, Incorporated, or JBL for short. Although its first designs were very promising, the company headed for financial disaster. James Martini may have been a brilliant engineer-designer, but he was a lousy businessman. Devastated by rising debts, as a result of depression he committed suicide on September 24, 1949.
The death of JBL's founder, paradoxically, brought a cash injection to the company. Jim Lansing secured a high life insurance in the name of his company and the payment of this policy helped save the business. It was the company treasurer, William Thomas, who reactivated James B. Lansing Sound, Incorporated, and after buying one-third share of the company from Lansing's wife, became its sole owner.
In 1969, JBL was purchased by Jervis Corporation, part of Harman Kardon. As a result, Jervis Corporation changed its name to Harman International Industries, Incorporated, and Arnold Wolf who was the creator of the Paragon industrial design, became the president of JBL. It is worth noting that Wolf is also credited with the JBL logo design.

PROJECT EVEREST

The Paragon, mentioned above, the iconic product of the early JBL years, was referred to as company's second "Project" speaker. The first one was the Hartsfield. In 1980s there arose an urgent need to develop a new flagship system, or the third "Project" speaker. The Project Everest was the brainchild of Bruce Scrogin who was the President of JBL International. Since the Paragon, whose production ended in 1983, was sold almost exclusively in Japan, it was decided that the new flagship speaker would be targeted exclusively at that market. Keizo Yamanaka, one of the best-known Japanese audio journalists, was hired by JBL as a consultant (such co-operation between audio journalists and manufacturers is quite common in Japan and almost every prominent editor has a contract with one of the big companies).
The project, which was originally meant to be only an upgraded version of the already existing design, consumed a lot of time and money. However, its extensive evolution led to the final configuration based on a new concept, and was unlike anything created before: the DD55000 Project Everest. The DD stands for "Defined Directivity", originally Don Keele's concept, intended to provide a wider optimum imaging area by using asymmetrically positioned speakers.

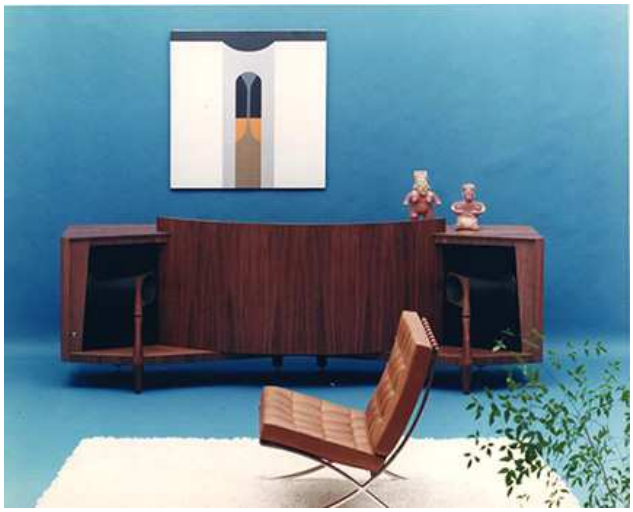
The Project Everest was a giant success: over 500 pairs of these speakers were sold, which, given their price, is a staggering number. It remained in production until the launch of the smaller K2 in 1989. Design work on the latter began a year earlier, as it was planned to introduce a flagship speaker every four or five years. While the Everest was a single speaker system, the K2 was designed as an entire series of speakers. The basic premise was a two-way speaker looking similar to the Everest, but with a simpler design. The top-of-the-range model was the K2-S9500. The concept for the K2 came again from Bruce Scrogin who assembled a team of engineers and designers, almost the same as before, to execute the design. All the drivers and crossovers were designed from the ground up for this project, unlike the Everest that used already existing drivers. The K2 featured Bi-Radial horn design. The K2-S9500 and K2-S7500 were presented to the press in 1989. In 1993, they were joined by the smallest K2-S5500. I happen to perfectly remember its European debut at the IFA show in Berlin. Harman Kardon rented the entire Berlin Opera to hold demonstrations, concerts and associated events. It was the one and it to close off in a thick pulp. What you'll get is something that happens with best warm tube amps and fast speakers: the unity of tonality and micro-dynamics, tangibility and soundstage depth, and most of all instruments/vocals.
Talking about Haden's album, I mentioned that it conveyed interior acoustics with great taste. This was possible thanks to a very careful tonality setting of the horn drivers and the fullness of woofers. The latter sound strong but without exaggeration, in the context of the speaker design idea. We will never run out bass. It will extend very low, although will not be particularly selective at the very bottom. However, at a few hundred Hertz its resolution will be well above average, as good as that of the Amphion Krypton3 that are fantastic in this respect, at the same time providing a larger (and therefore better) sense of its physical presence than the Finnish revelations.

It proves beneficial to calm instrumental and dynamic vocal music, but also to electronica. That is why I've mentioned Oldfield. The JBLs offer a very large, intensive sound. They perfectly convey spatial aspects, including those around the listener, at least when we talk about the foreground. What is further up is of less importance; the foreground takes a clear preference. Hence the fantastic Cole's vocals, but also the thick sound of electronic instruments and the sense of fullness with this type of albums.
Thickness, fullness and coherence are characteristic features of that design. Admittedly, these are not the kind of sonic aspects we look for in horn speakers. I'll go even further to say that they are often sacrificed on the altar of other advantages. We tend to "give up" on them in good faith, believing that remarkable speed, selectivity and dynamics will make up for them. Hence, the S3900 seem very special to me. They do not lose anything from the above list, while adding to it something more on their own.
An example of that is their clean treble capable of showing the size of instruments in this range. The horn drivers work together so well that I couldn't identify the spot where they are crossed over, or even notice any sonic artifacts that usually indicate the crossover point. There's detailness and resolution, supported by "meat." That is true not only with small ensembles, but also with a big band. Wind instruments are customarily horn speakers' "favorites", which is due to a similar way of sound reinforcement in both. With the speakers under review they will sound strong and resounding, but not aggressive. The latter is key for me, as that is what distinguishes speakers with aspirations to sound well from those that are really suited for that. And you can never be sure with horns.

Conclusion

In addition to small classical and jazz ensembles as well as electronica, the S3900 were also tested with Megadeth, Metallica, Depeche Mode, Portishead and old recordings from the 1930s. They were all very interesting and had proper "power". The sound was dynamic, big and strong. The first planes seemed to be most important, as the guitar, drums and vocals were shown slightly before the speaker line and had a large volume, i.e. size combined with body. These are speakers that do not pretend to be "correct". But neither do they make a "point" of their differences. They are not interesting just because they are different.
It is their advantages that make them a good counter-offer to classic speakers. Their dual woofers offer an even fuller sound than the 30 cm woofer in the Harbeth M40.1. They are not as agile and fast, but the difference is not large. Their treble, on the other hand, is better than that of their British "colleagues". I have no doubt that the M40.1 tweeter, no matter how fantastically combined with the rest of the acoustic band, is not one of the seven wonders of the audio world. What is surprising is that the most important sonic characteristic of the S3900 is its dense and coherent midrange. The speakers make it sound as if we were

only time when I spent full six days at an audio show… The K2-S5500 pioneered a crossover design referred to as "Charge-Coupled Linear Definition Dividing Network", which used a battery to maintain a constant biasing voltage. It was to help minimize distortion by keeping the music signal from crossing the dielectric zero-point of the capacitors. Although the smallest in the series, the speakers looked fantastic and sounded just as good.
At the beginning of the 21st century, in 2003, the world saw the launch of the K2 S9800, followed by the K2 S9900 a few years later, both based on the Project Everest. However, as early as 2002, the work began on the revitalization of the original Everest. The DD66000, planned for the company's 60th anniversary and presented in 2006, was destined for success. It received awards all over the world, especially from the Japanese "Stereo Sound" magazine, which similarly awarded all its previous incarnations.
The story ends with a broadening of the Everest series. A few years ago, JBL launched to the market the DD65000 and this year the most expensive DD67000, with a distinctive front baffle made of carbon fiber.



S3900

It just so happens that in the same year 2013, during the CES show in Las Vegas (USA) JBL presented one of the least expensive so far incarnations of these speakers, the S3900, a three-way design with a 250 mm woofer and a medium-high frequency driver covering the range from 850 Hz to 12 kHz. Jim Garrett, director of sales and marketing for HARMAN Luxury Audio Group and Loudspeakers says that one of design objectives was to create speakers that would be easier to set up and position than the S4700 introduced a year earlier, while maintaining the advantages of the Project Everest DD67000 and Project K2 S9900.
The new design uses dual paper cone woofers with very large 3-inch coils and the 175Nd-3 medium-high frequency driver with an AquaPlas treated titanium diaphragm and neodymium magnet, loaded into a Bi-Radial horn. The 138Nd ultrahigh-frequency driver with a pure-titanium diaphragm is also Bi-Radial horn loaded.

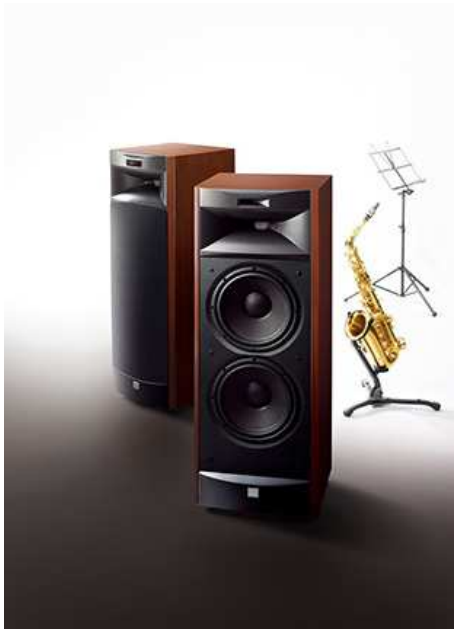
Sources

SOUND

Albums auditioned during this review

- *Paganini For Two*, Gil Shaham, Göran Söllscher, Deutsche Grammophon/JVC 480 246-5, XRCD24 (1993/2009).
- Black Sabbath, *13*, Vertigo/Universal Music LLC (Japan)

listening to a small stand-mounter of the Sonus faber Guarneri kind (in terms of tonality). And we have a strong, low bass to boot. It is possible to point out the range where their horn nature becomes audible. Actually, it will manifest itself with the violin, but it is not a particularly unpleasant irregularity. Either we accept it and it does not constitute any problem, or we don't, and then we need to look for something else. Fortunately, it is not that we have to gnash our teeth and wince in pain only to "enter in", coveting what the S3900 really shine in. The arrangement is clear and good: after some initial acclimatization and accommodation to that sound, we listen to violin recordings with pleasure. Fully aware that it can be done better but also with peace of mind, knowing that other sonic aspects we get are truly unique.



TESTING METHODOLOGY

High sensitivity speakers, especially horn designs, are usually associated with small tube amps. There is lots of truth in that. Many such designs, especially speakers from the 1930-60s, work best with less than 10 Watts, preferably SET, amplifiers. Many modern speakers also sound better paired with low power tube amps. However, in my opinion, the JBLs sound best with powerful high-end solid state amps. It is with the latter that they can achieve their maximum capability and sound really magical. I was driving the S3900 with my Soulution 710 amplifier and it was an optimal pairing.
The speakers were carefully placed in the exact spot normally taken by my Harbeth M40.1 and were not particularly demanding in terms of positioning or toe-in. They will sound equally well almost everywhere, even in a small room.
The audition had the character of an A/B comparison, with the A and B known. Music samples were 2 minutes long. Whole album were also auditioned. It's worth placing the JBLs on good isolation boards. In my case, these were the Acoustic Revive RST-38H platforms with the SPU4 spike receptacles.

DESIGN

The S3900 is the distant heir of the Everest project, and a direct successor of the S9900. Slightly smaller than the latter design, housed in a simpler cabinet with smaller midrange driver and tweeter horns, they have two 250 mm woofers in place of a single

UICN-1034/5, 2 x SHM-CD (2013).
- Charlie Haden & Chris Anderson, *None But The Lonely Heart*, Naim naimcd022, CD (1998).
- Depeche Mode, *Should Be Higher*, Columbia Records 758332, SP CD (2013).
- Dominic Miller, *Fourth Wall*, Q-rious Music QRM 108-2, CD (2006).
- Eva Cassidy, *Songbird*, Blix Street Records/JVC VICJ-010-0045, XRCD24 (1998/2010).
- Hilary Hann, *Bach*
- *Concertos*, dyr. Jeffrey Kahane, Los Angeles Chamber Orchestra, Deutsche Grammophon/Universal Music LLC [Japan] UCCG-50058, SHM-CD (2003/2011).
- John Dowland, *Lachrimae or Seven Teares*, Jordi Savall, Hespèrion XX, Alia Vox AVSA9901, SACD/CD (2013).
- Mel Tormé, *The Legend of Mel Tormé*, Going For A Song GFS360, CD (?).
- Mike Oldfield, *Tubular Bells*, Mercury Records/Universal Music LLC (Japan) UICY-40016, Platinum SHM-CD (1973/2013).
- Nat "King" Cole, *Welcome to the Club*, Columbia/Audio Fidelity AFZ 153, SACD/CD (1959/2013).
- Patricia Barber, *Companion*, Premonition/Mobile Fidelity UDSACD 2023, SACD/CD (1999/2003).

Japanese editions of CDs and SACDs are available from cdjapan.co.jp

Horn speakers, regardless of whether all or only some of their drivers are horn loaded, have several features in common. It does not matter what company they come from, what design idea stands behind the that finally take the shape of these tubes - their sound is big, fast, and the sound waves seem to reach us in no time ; generated by the drivers seem to at the same time hit the eardrums of our ears. This is largely similar to listening through headphones, but with a tangible, physical bass and without any spatial location problems.
The S3900 add to this set of features a couple of their own, which position them slightly outside "horn mainstream". The JBL speakers play music that is saturated and thick, unlike many similar horn designs that thin out musical fabric, favoring attack and speed instead. The latter were of course present in the pair under review, but not for their own sake. The speakers' dense sound, large instruments' depth and fantastic tonal balance (as for horns, more about which later) meant that they always showed something good and interesting, no matter what kind of music I played and what the volume level was. They will certainly not be boring.

300 mm unit. It is, however, still a three-way, partially horn loaded, ported design.
The 100F-12 woofers have pulp-fiber cones with characteristic concentric ribs to increase their stiffness. Unlike other low-frequency drivers used in high sensitivity speakers, like the Tannoy Kensington GR, their suspension is, however, rubber made, not textile. This brings their design closer to classic woofers. The chassis is made of very solid aluminum alloy cast, and the whole is equipped with a powerful magnet with magnetic flux linearization. The bass response is as deep as 33 Hz, but at -6dB which is worth noting. Usually the quoted frequency response is at -3dB.
High- and ultrahigh-frequency drivers are mounted from the rear to a die-cast section made of proprietary material called SonoGlass. It is a resin and glass fiber variant, rigid and vibration resistant. The cast features two characteristically shaped horns called Bi-Radial, opening up symmetrically in two directions.
The larger horn loads the driver that covers a very wide bandwidth, from 850 Hz to 12 kHz. Its 50 mm titanium diaphragm is coated with material called AquaPlas, which is a resin variant. Ultra-high frequencies are handled by a 19 mm titanium diaphragm driver. It reproduces frequencies up to 40 kHz. Both drivers feature powerful neodymium motor assemblies and quality chassis. The cabinet is made of 25 mm MDF reinforced from within with a few braces. The inside walls are lined with uncompressed felt. The crossover network is divided into two parts: the low frequency section, located at the bottom of the speaker, and the medium-high section mounted to the rear wall. They sport air coils and large polypropylene capacitors. The inside wiring is on stranded copper. The system is bi-wiring and bi-amping capable. The speakers have a high sensitivity of 92 dB and high nominal impedance of 6 Ω.

Technical Specifications (according to the manufacturer):

Frequency Response: 33 Hz – 40 kHz (-6 dB)
Recommended Amplifier Power: 25 – 250 W
Sensitivity (2.83 V / 1 m): 92 dB
Nominal Impedance: 6 Ω
Crossover Frequencies: 850 Hz, 12 kHz
Dimensions (H x W x D) 1001 x 370 x 368 mm
Weight: 86.3 lb. (39 kg) / pc.

Gallery Galeria
















Associated equipment

ANALOG SOURCES
- **Turntable:** AVID HIFI Acutus SP [Custom Version]
- **Cartridges:** Miyajima Laboratory KANSUI, review HERE | Miyajima Laboratory SHILABE, review HERE | Miyajima Laboratory ZERO (mono) | Denon DL-103SA, review HERE
- **Phono stage:** RCM Audio Sensor Prelude IC, review HERE

DIGITAL SOUCES
- **Compact Disc Player:** Ancient Audio AIR V-edition, review HERE
- **Multiformat Player:** Cambridge Audio Azur 752BD

PREAMPLIFICATION
- **Line Preamplifier:** Polaris III [Custom Version] + AC Regenerator, regular version review (in Polish) HERE

AMPLIFICATION
- **Power amplifier:** Soulution 710
- **Integrated Amplifier:** Leben CS300XS Custom Version, review HERE

LOUDSPEAKERS
- **Stand mount Loudspeakers:** Harbeth M40.1 Domestic, review HERE
- **Stands for Harbeths:** Acoustic Revive Custom Series Loudspeaker Stands
- **Real-Sound Processor:** SPEC RSP-101/GL

HEADPHONES
- **Integrated Amplifier/Headphone amplifier:** Leben CS300XS Custom Version, review HERE
- **Headphones:** HIFIMAN HE-6, review HERE | HIFIMAN HE-500, review HERE | HIFIMAN HE-300, review HERE | Sennheiser HD800 | AKG K701, review (in Polish) HERE | Ultrasone PROLine 2500, Beyerdynamic DT-990 Pro, version 600 - reviews (in Polish):