

Loudspeaker B99

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Loudspeaker B99

The loudspeaker B99 ranks together with the B97 as a flagship of our speaker line. The design of the B99 has been inspired by airplane building and its shape and material are a reminder of the riveted wings of large turboprops. The model designation underlines the similarities by incorporating the first letter of the designers name and the last two digits of the year, 1999, in which it was introduced. The design goal was to create an acoustically ideal speaker system so beautiful in its appearance that it would easily fit into any living environment, despite its imposing size.

The B99 is a three-way full-range loudspeaker with built-in passive crossover. Bass-, mid-range and high-frequency drivers are arranged in a d'Appolito configuration. As with the B97 the cabinet of the B99 is double-walled.

Design goals and construction features:

The B99 has been designed and constructed for natural musical reproduction even at very high volume levels. Nothing will faze this

speaker weighing almost 110 kg, not even hurricane-like sound pressure levels of around 115 dB. This is due to a double-walled cabinet which is one of the most sophisticated constructions ever to be undertaken in the field of high-end loudspeakers (see also B97). The inner chamber is made of one inch thick ultra-stiff MDF board and sports a complex internal bracing system. The compartments for mid-range driver and tweeter give additional stiffness. The outer housing and inner chamber are insulated from each other by a layer of damping material which absorbs all vibrations radiating from the inner chamber. The veneer panels can be changed, thus making it possible to change the color of the B99.

Like all Burmester speakers, the B99s are not dampened by wool stuffing but by felt-like mats of various thickness on the inside of the speaker walls. The thickness of these mats has been calculated precisely in relation to their placement. This special procedure by Burmester gives the B99 its deep yet extremely fast and well-defined bass. Even at quiet listening levels the bass is fully present due to low damping of the bass driver.

The crossover of the B99 has been designed for high performance and transfer of the signal to the various drivers with minimal loss. With a weight of app. 25 kg it is one of the most sophisticated designs on the world market today. The crossover sits in its own completely sealed enclosure at the bottom of the speaker cabinet. The binding posts are located invisibly on the underside of the speaker. The crossover allows bi-amping as well as bi-wiring.

The overriding goal behind this very generous use of materials was to create an extremely low-resistance crossover allowing the high internal damping of the amplifiers to pass to the drivers with minimal loss. Only then are the amps able to tightly control the various drivers. The crossover's circuit board is coated with a 105mm layer of copper. Connections with the bass drivers are made with 10mm² high-purity copper cables. Mid-range drivers and tweeters are wired to the crossover with our new Burmester pure silver speaker cables.

What is so special about Burmester loudspeakers?

Music - unchained from the speaker

Combined with a perfectly tuned system of high-quality electronics and top-notch cables our loudspeakers are capable of filling a whole room with music, whereby the music doesn't seem to emanate from the speakers but, instead, to be performed live in the room.

Loudspeakers applauded by musicians

Musicians are critical listeners because they compare the sound of a stereo system with the original sound of the instruments. In their judgement our speakers seem to virtually explode with music when fed material like large orchestras. Yet, even then they let single instruments shine through with substance and authority.

Loudspeakers that reproduce all octaves

Despite their comparatively still moderate size our loudspeakers reproduce all octaves down to the deepest bass foundation. Particularly the bass output is indispensable for bringing across the power and the "goose bump" impact of great music.

Loudspeakers for quiet listening

Often, one likes to listen to music late at night to pleasantly conclude the

day. At that time, most people will no longer be able to listen to high volume levels approximating the original performance. Our loudspeakers are designed in such a way that even at low listening levels the music will not lose naturalness and and correct tonal balance.

Loudspeakers for full-volume listening

As a musician, Dieter Burmester enjoys the thrill of listening to music at full volume. With our loudspeakers it is possible to listen to very loud music without loss of precision and tonality and without strain.

Loudspeakers built with attention to detail

A superior concept requires corresponding care in its execution. Every single driver, custom- made to our specifications, is burnt in by us before their technical parameters are measured. Only then are they computer-matched in pairs to very tight tolerances. This procedure guarantees mating tolerances between speakers so low as to be considered impossible to reach - until now. Since we save all technical specifications each driver can be replaced with an identical driver should this become necessary.

Loudspeaker with an attractive appearance

Loudspeakers should not only sound good but also be easy on the eyes. They should be an addition, not a subtraction, to the living environment. This requires perfect design and highest-quality materials. The B99 comes in three standard finishes: rowan berry/aluminum laminate, maple/aluminum laminate and silver/aluminum laminate (other finishes are available as an option). Despite their size the B99s can be easily integrated into a living environment without being overly sensitive to placement.

Technical specifications of the B99:

- Power Rating: min. 400 watts (pink noise)
- Sensitivity (2.83V): 90 dB
- Impedance: 4 ohms
- Output range (+/-1dB): 45Hz-20kHz
- Output range (+3/-8dB): 32Hz-28kHz
- Crossover frequencies: 180 Hz, 1800 Hz
- Slew rate:
 - 12 dB tweeter
 - 2x12 dB mid-rangedriver
 - 12 dB bass driver
 - all filters have Linkwitz characteristics

Crossover circuit arrangement:

- Woofer: Low pass 12dB/oct. with impedance correction of the upper bass reflex maximums so that the crossover works without interacting with the impedance of the woofer.
- Mid-range driver: Highpass 12dB/oct. and low pass 12db/oct.; impedance correction of the resonance frequency and the magnetic coil inductance so the crossover works without interacting with the impedance of the mid-range driver.
- Tweeter: High pass 12dB/oct..
- Galvanic separation of the woofer and mid-range section for bi-wiring/bi-amping.

The drivers:

250mm custom designed woofer

- Custom-built with 245mm die-cast light alloy enclosure, very rigid, magnetically non-conductive, therefore, no magnetical loss
- Large vent hole in the pole core to vent the area behind the dustcap.
- Vented dustcap behind the centring bell avoids compression effects.
- Extremely rigid air-dried paper cone with resonance-damping coating, extremely stable and distortion-resistant, completely resonance-free response characteristic exceeding 2000 Hz.
- 50 mm Kapton coil frame, extremely heat-resistant und completely free of eddy-current loss.
- 25 mm high-wound magnetic coil responsible for very long linear cone throw, exceeds the travel of most woofer cones of this size by a factor of two, resulting in a dynamic gain of 6dB.
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140 mm mid-range driver

- Excel mid-range driver with extremely high load rating, modified to Burmester specifications.
- 135 mm die-cast light alloy enclosure, very rigid, magnetically non-conductive, therefore, no magnetic loss.
- Massive copper and gold-plated copper phase plug, therefore, no compression effects in the center of the driver where normally air collects behind the dustcap; extremely high load rating due to particularly good heat dissipation.
- Magnesium-cone diaphragm presently has the best rigidity-to-mass ratio of all known diaphragm materials with resonance-free response characteristics exceeding 3000 Hz
- Aluminum coil frame, extremely heat-resistant.

Tweeter

- Ribbon tweeter modified to Burmester specifications.
- Diaphragm foil made of highly heat-resistant Kapton, therefore, extreme load stability.
- Diaphragm foils are pair-matched and fixed in place by special drill holes.
- Silver connector wires soldered directly to the diaphragm foil.
- Magnetic coil consists of aluminum conductor rails on the diaphragm foil, this results in even movement of the whole diaphragm area.
- Best motion-to-mass ratio.
- Aluminum front panel of 20 mm thickness
- The app. 28 cm² diaphragm area is about ten times the size of conventional dome tweeters. This results in a very low crossover frequency of 1800 Hz and allows a d'Appolito configuration which guarantees very stable and transparent sonic images
- No compression effects as with dome tweeters
- Neodym magnets with very high energy density (app. 20 times higher than comparable ferrite magnets) allow magnets of smaller size and, thus, a more streamlined design.

Special feature: computer-matched drivers

All drivers are broken in at high signal levels by Burmester Audiosysteme non-stop for seven days (woofers and mid-range drivers with 10 Hz, tweeters with pink noise). Then they are measured very carefully over

their full frequency range and finally matched in pairs by computer. After the computer-matching process we guarantee that the overall frequency deviation between left and right speaker is less than 0.5 dB! With this procedure we can guarantee the technical specs of the speakers for a long time since they are broken in and, hence, do not change characteristics when used by the customer.

Cabinet Construction:

- Double-walled enclosure with extremely rigid inner housing and soft dampened outer enclosure to avoid undesirable resonances at the surface of the speaker cabinet.
- Bass-reflex woofer enclosure (2 x 60 l volume) with a lower critical frequency of below 30Hz.
- Sealed mid-range enclosure with volume of 2 x 4 l
- Symmetrical array of the two mid-range drivers above and below the tweeter (d'Appolito). Compared with an asymmetrical driver arrangement this configuration delivers a much more stable and precise sonic image.
- The two woofers are also arranged symmetrically in line with the tweeter to extend the d'Appolito concept into the bass region.
- Cabinet finishes and prices: see price list

Special features

The woofers of the B99 radiate from the side of the speaker cabinet towards each other. This configuration has the advantage that undesirable high frequencies emanating from the woofers (partial harmonics) do not reach the listener directly. Furthermore, facing the woofer cones towards each other produces an additional compression in the bass region without cancellation effect. Ideally, the distance between the speakers should be at least 2.5 m.

Damping

- Bass dampening system at the inside of cabinet walls, no sound deadening wool in the bass enclosure to absorb as little as possible of the back-radiating woofer energy.
- The dampening material consists of special felt.
- Dampening of the mid-range enclosure with a bit of cotton insulation to absorb the sound radiating from the back of the mid-range driver.

Other design features:

- Bi-wiring/bi-amping.
- Massive binding posts under the speaker cabinet ensure shortest possible distance to the crossover.
- Interior wiring of the woofers with 10mm² highest-purity copper litz, wiring of mid-range drivers and tweeters with pure 4mm² silver cable.
- Front panel made of solid 20mm thick aluminum plate, milled and enameled. It holds the tweeter and acts as a cabinet stiffener in the area of the tweeter and mid-range drivers
- Bell-shaped bass reflex opening to avoid air motion turbulences.
- Laminate, silver metallic enamel - rowan berry or Laminate, silver metallic enamel - maple or Laminate, both silver metallic enamel, other cabinet finishes upon request

Weight: app. 110 kg per speaker

Dimensions: 310 x 1495 x 620 mm (W x H x D)