

A MONUMENT TO MUSICALITY



THE PQS - 402



THE PQS - 402



The Challenge

The design brief for the PQS - 402 was to reproduce the sound of our Loreley model in a smaller loudspeaker using similar technology and so make our reference performance level products available to a wider audience. Because we wanted to cross over the DDD driver to the woofer in the region between 220Hz and 140Hz, we had to find a way to build a very fast bass system that could match the speed of the DDD driver in the crossover region and also work down to 30Hz.

The Problem

To reproduce low bass at high levels requires that a lot of air be moved. This requires either a driver with a large surface area, which will be heavy and therefore not easy to move at the speed necessary to match the DDD, or a driver with a long excursion, which again will be heavy due to the rigidity required to withstand the necessary acceleration. Most speaker designers solve this problem by producing a 3 way system. However, in a loudspeaker the size of the PQS - 402, a 3 way solution would have been worse than a 2 way solution, due to the difficulty of making 3 drivers appear to be a single source. This is especially difficult with the mid and treble drivers, where the ear's ability to locate position is very acute.

The Solution

Our solution was to build a bass cabinet using a fast and powerful 10 inch driver and two 8 inch passive drivers. The 10 inch driver integrates flawlessly with the speed of the DDD and the passive drivers extend the bass response smoothly down to 30Hz as required. The final system comprises 2 bass cabinets that are mounted one on top of the other and stand between a top and a bottom plate. None of these components is attached to each other using screws or any other form of hard connection. Instead they are held together by system of interlocking collars. This combined with the fact that the two cabinets have different weights, as do the top and bottom plates, means that resonances are reduced to negligible levels compared to a solid structure. This arrangement is also very difficult to topple, which is a useful safety feature for customers who live in earthquake regions.

The DDD Driver

One of the keys to the high level of performance achieved by the PQS - 402 is our unique DDD driver. It operates over an extremely wide frequency range and in the PQS - 402 covers the range from 215Hz upwards. This produces excellent stereo imaging with a very strong sense of the true size of the musical instruments. In a conventional design this frequency range would be covered by 2 or even 3 drivers and there would be a cross over point in the mid range, where our hearing is most sensitive. The DDD driver keeps this vital area pristine. It also has exceptional impulse and phase characteristics allowing it to reproduce both the attack of the music and resolve low level detail very accurately.

Patented Crossover Design

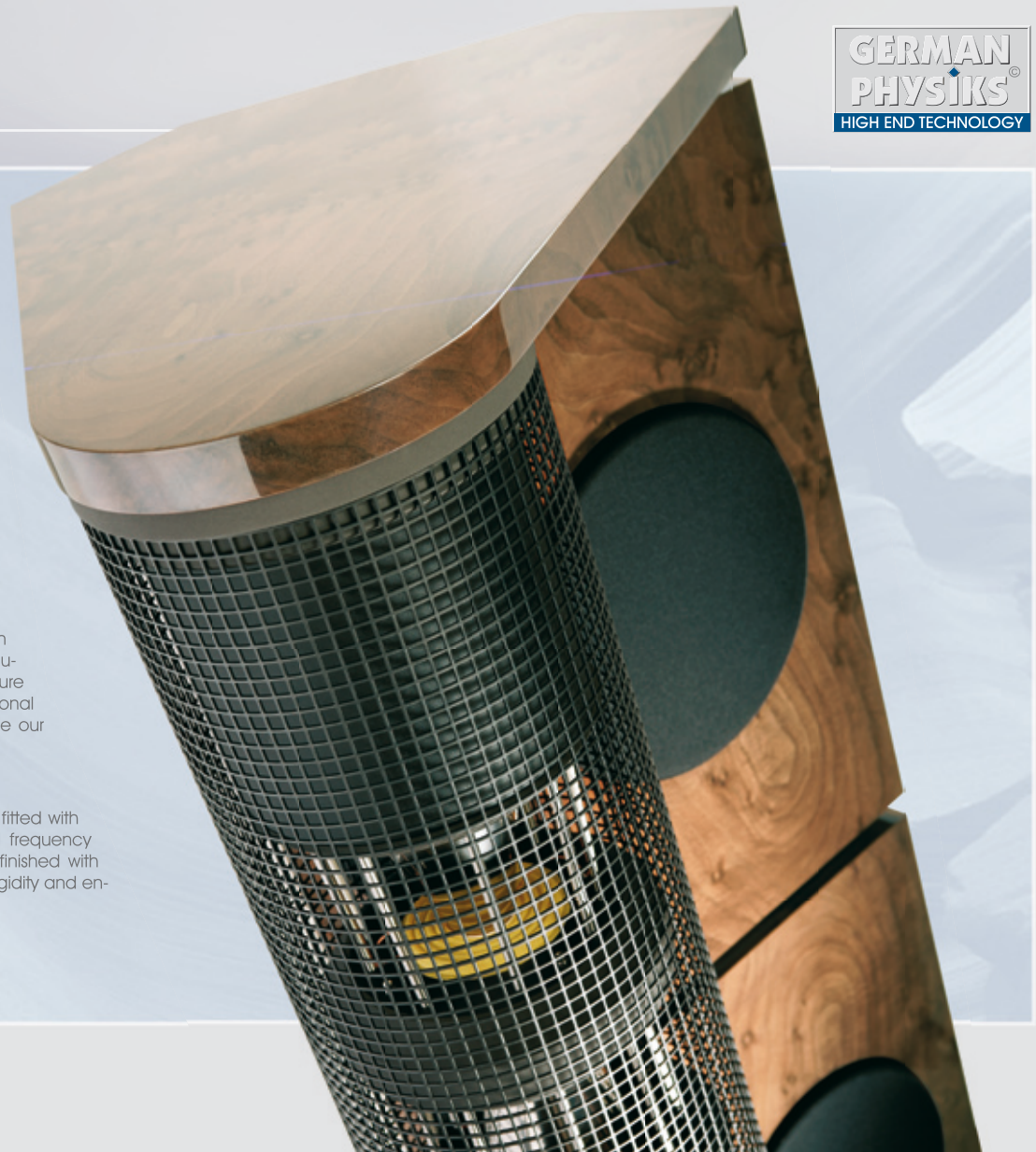
The crossover provides a wide range of adjustment to allow the PQS-402 to be optimally set up to suit the user's listening room. The high frequency level may be adjusted over the range -2dB to +4dB in 4 steps and the low frequency level may be adjusted over the range +10dB to 0dB in 3 steps. The low frequency control has no effect above 100Hz and we have applied for 2 patents to cover the novel approach that we developed to achieve this.

Hand Finished Cabinets

The PQS-402 is available in the customer's choice of select, hand matched hardwood veneers. These are carefully applied to the MDF panels prior to the construction of the cabinets. This method results in some wastage of material and thus adds to the manufacturing cost, but results in the finest possible furniture grade finish. A high gloss finish is available as an optional extra. For details of the available finishes please see our separate Finishes brochure.

Special Order Version

A special order version of the PQS-402 is available fitted with carbon fibre DDD drivers, which give an extended frequency response and improved dynamics. The cabinet is finished with carbon fibre re-enforced panels, providing greater rigidity and enhancing resolution.



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THE PQS-402 Specifications

| | With Titanium DDD Driver | With Carbon DDD Driver |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Impedance | 2.2 ohms at 1,200Hz | 2.2 ohms at 1,200Hz |
| Frequency Response | 25 - 21,500Hz | 25 - 24,000Hz |
| Power Handling | | |
| Nominal | 450W | 450W |
| Short term | 750W | 750W |
| Amplification required | One power amplifier per channel Minimum power: 200W/4 ohms or 2 power amplifiers per channel DDD section: minimum power 140W/4 ohms Sub-woofer section: minimum power 200W/4 ohms | |
| Crossover frequency | 215 Hz | |
| Crossover slopes | | |
| DDD section | 12 dB/octave electronic & 18 dB/octave acoustic | |
| Woofer section | 18 dB/octave electronic & 18 dB/octave acoustic | |
| High frequency adjustment | -2 dB, flat, +2 dB and + 4 dB centred at 8,000Hz | |
| Low frequency adjustment | + 10 dB, + 5 dB or flat centred at 65 Hz | |
| Sensitivity | 88.4 dB for 1W at 1m | 88.4 dB for 1W at 1m |
| Maximum output level | 112 dB | 118 dB |
| Operating principle | 2 way speaker with 360° surround radiation using the DDD Bending Wave Converter | |
| Input connectors | 2 sets of binding posts allowing bi-amping or bi-wiring | |
| Drivers | 2 x Titanium DDD drivers 2 x 10 inch woofers 4 x 8 inch passive radiators | 2 x Carbon DDD drivers 2 x 10 inch woofers 4 x 8 inch passive radiators |
| Dimensions | 620 mm W x 1,560 mm H x 750 mm D 24.4" W x 61.4" H x 29.5" D | |
| Weight (depends on model) | Approx 165 kg Approx 363 lbs | |
| Warranty | 5 years | |

As part of our process of continually improving our products, we reserve the right to change specifications without notice.



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Flat +2 dB
- 2 dB +4 dB

High Frequency Level

Reduce
Low Frequency Level

- DDD +

- WOOFER +

GERMAN PHYSIKS
Handmade in Germany



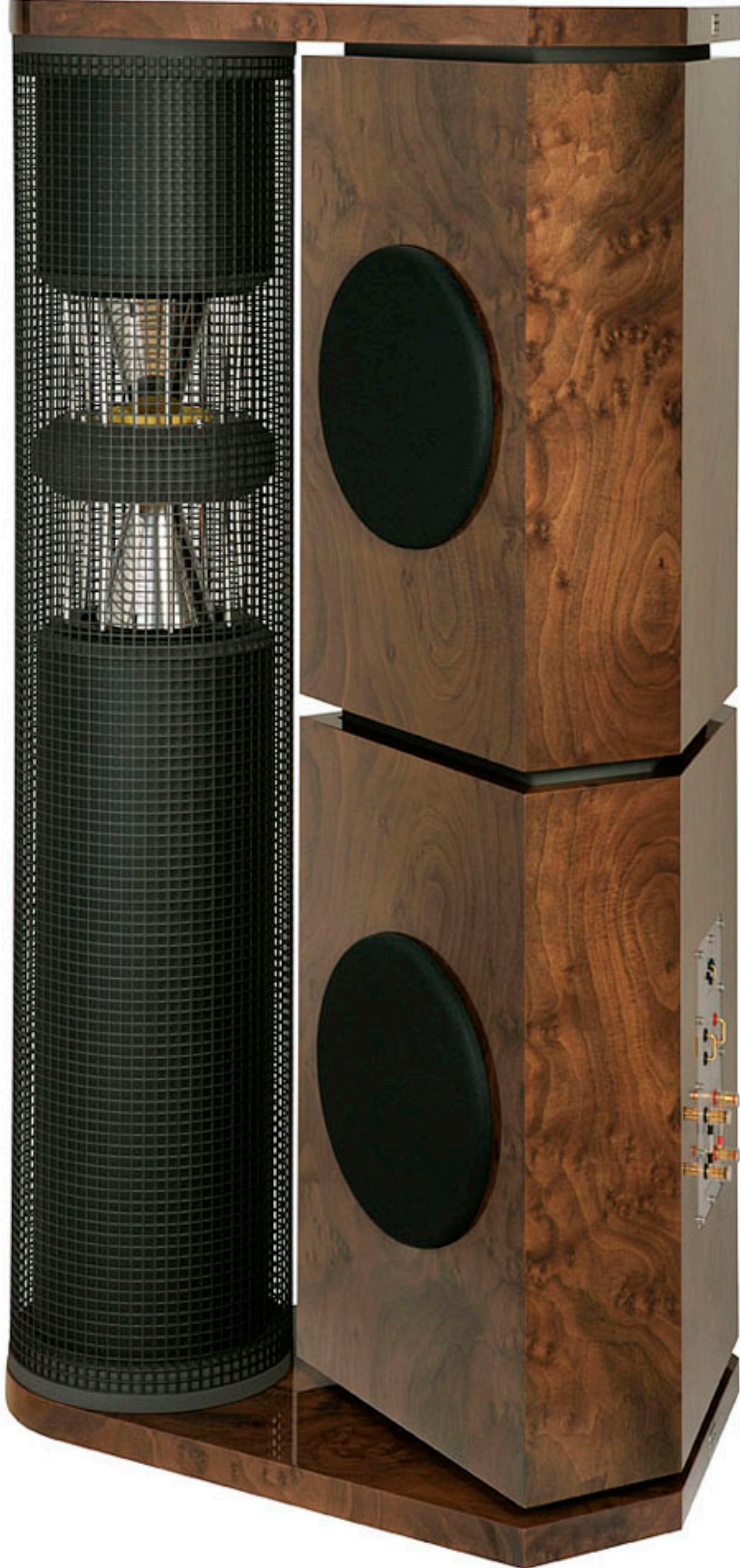


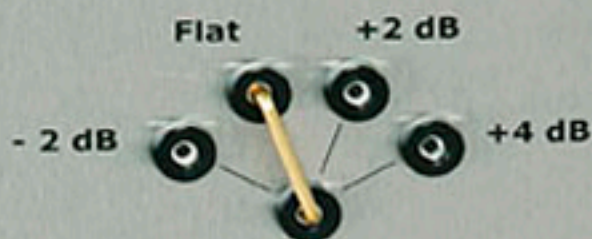




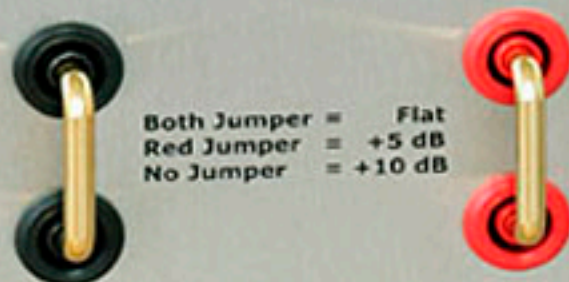








High Frequency Level



Both Jumper = Flat
Red Jumper = +5 dB
No Jumper = +10 dB

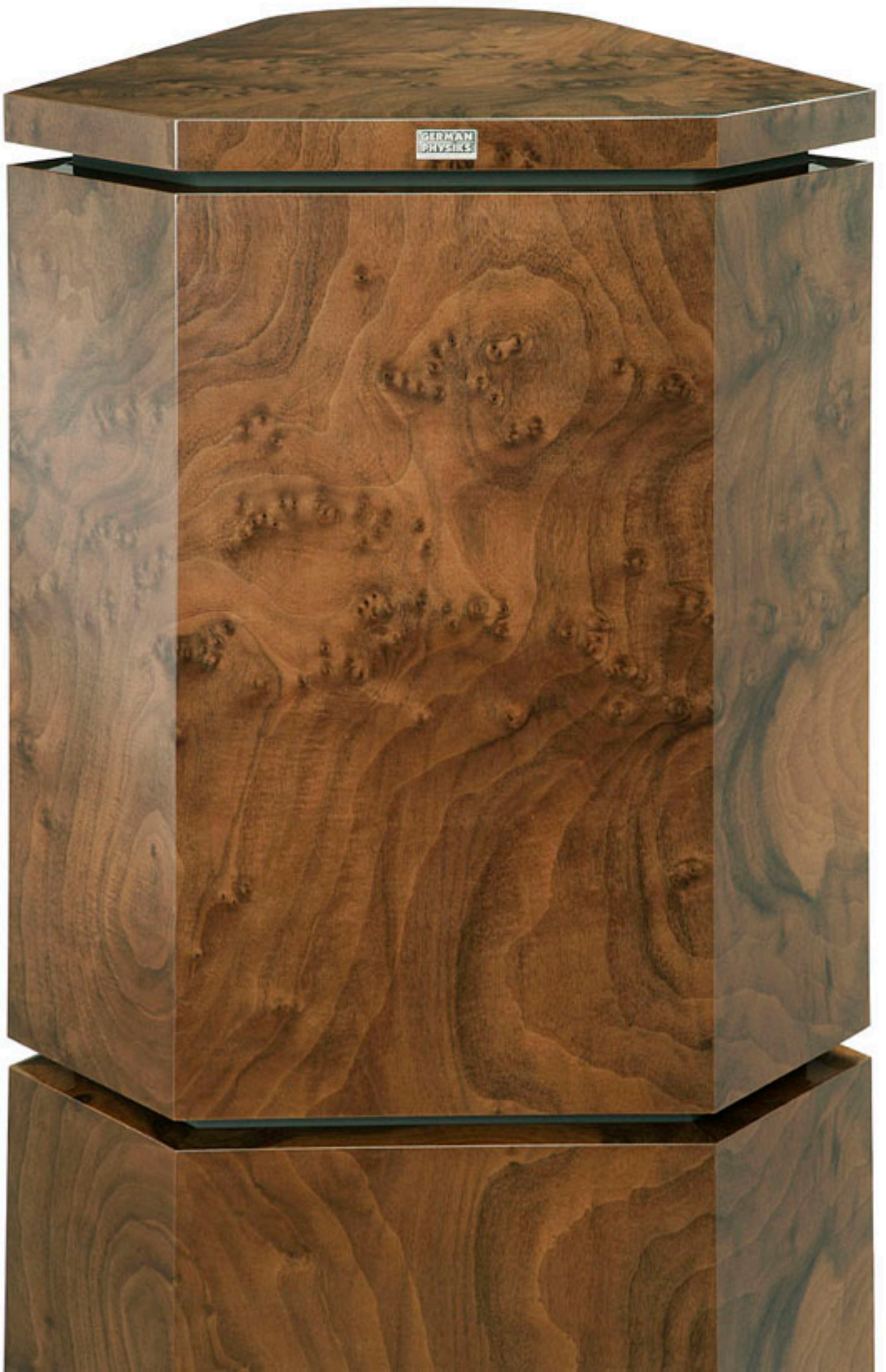
Low Frequency Level

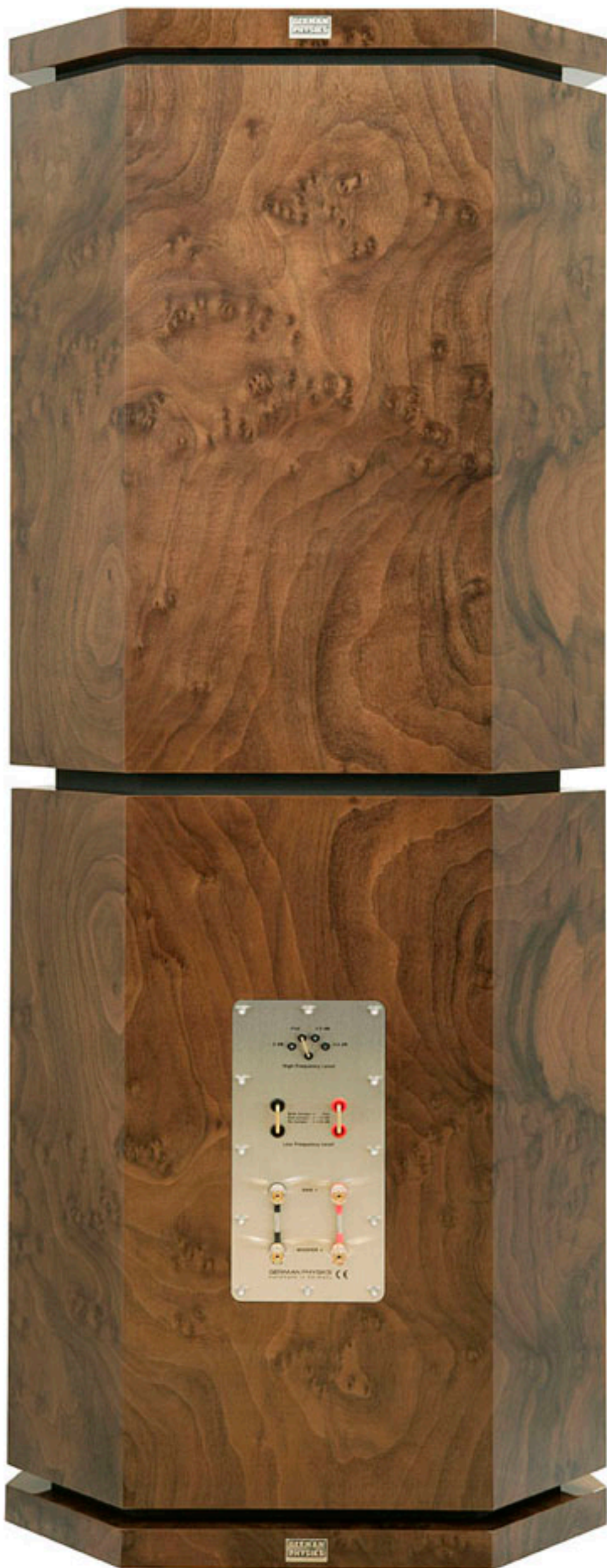
- DDD +

- WOOFER +

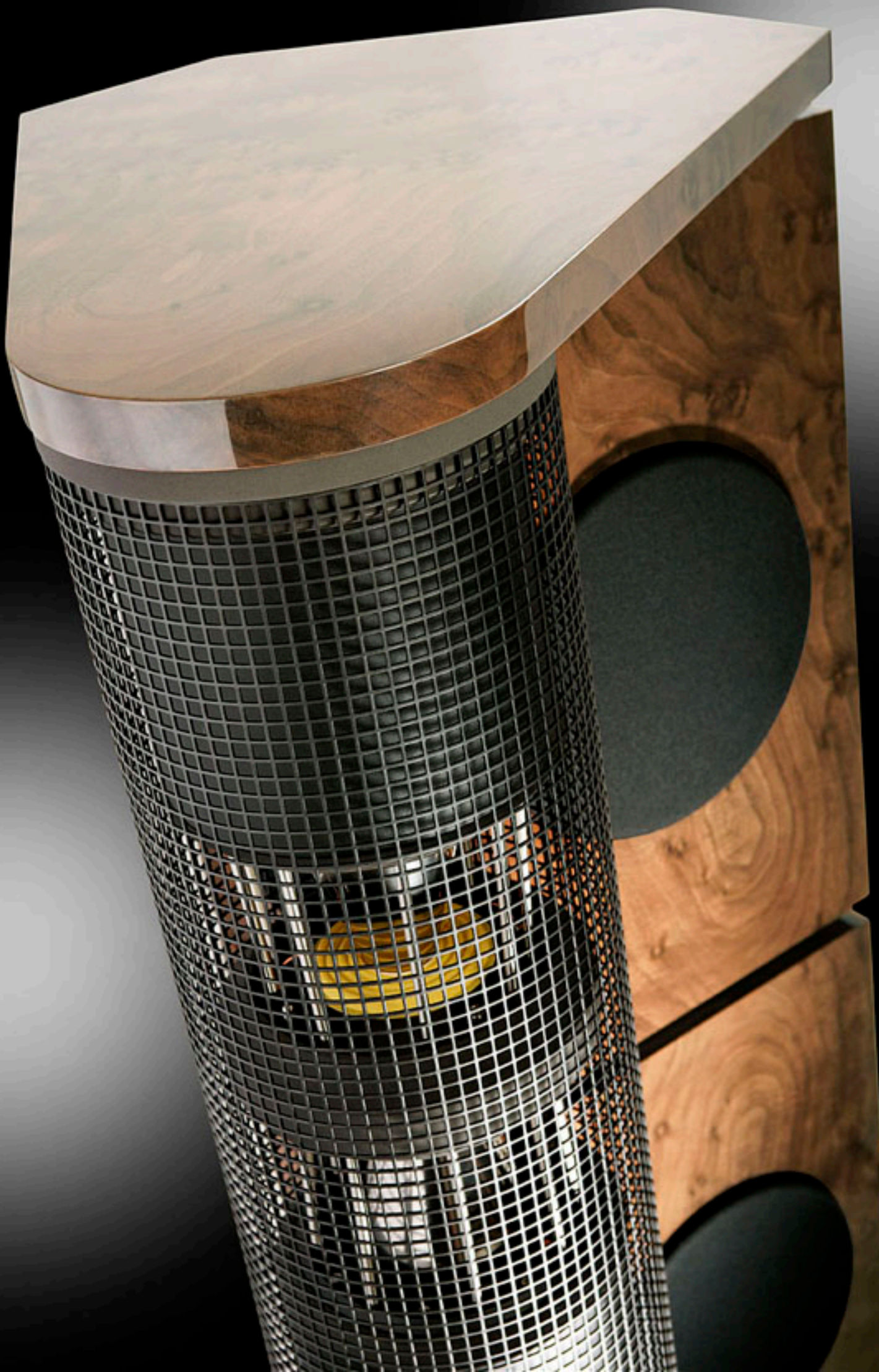
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Flat +2 dB
- 2 dB +4 dB

High Frequency Level

Reduce
Low Frequency Level

- DDD +
- WOOFER +

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