Isophon Vescova

“Extravagant floor-standing loudspeaker equipped with ceramic drivers and high-efficient crossover filters. Sounds crystal clear and devoted, beats even more expensive competitors” (stereoplay 08/08)

Ranking: 61 stereoplay-points (absolute world top-class),
price-performance-value: outstanding

What do you think will insiders answer when asked for the biggest existing problems in loudspeaker design? Two problem zones will all of them have on their radar: diaphragm materials and the far field of frequency crossovers.
Thus it is no surprise when Isophon located in the region of Stuttgart/Germany exactly focuses on these two items with German thoroughness. Isophon has a clear opinion to diaphragm materials: as stable as possible sustaining the complex form of all signals. Besides Beryllium (toxic as dust and therefore hard to handle) and artificial diamond (extremely expensive) only ceramics can offer a piston-like movement over a wide frequency range. Ceramics is not quite as expensive but by far superior to paper or aluminum.
The top-models Arabba and Cassiano own the ceramic drivers already and now the Vescova is following with a price lower than two predecessors. Almost the same loudspeaker drivers are used by companies like Avalon or Lumen White but which have different opinions due to building cabinets or frequency crossovers.
While Beryllium and diamond only are available as tweeters from ceramic materials also big and hard diaphragms can be made promising high signal fidelity. According to Dr. Roland Gauder the already low distortions show a distortion distribution which is comparable to extraordinarily good sounding amplifiers.
The extreme stiffness and hardness are in practice not without problems. When touched during motion the ceramic diaphragms burst into pieces like plates of china. Protection grids are therefore obligatory. Next sticking point: depending on shape and weight ceramics is only enjoyable in a certain frequency range. The 7”-diaphragms used in the Vescova resonate at around 7000 Hz without filtering. An efficient limitation of the range of operation by means of steep-slope filters is therefore inevitable.
So Isophon bids on a self-developed, recently refined filter typology which combines smart high-pass and low-pass filters with selective resonance circuits to get an extremely steep slope. While normally filters of 24 dB/octave are maximum the German technology results in a sensational steepness of more than 50 dB/octave (see lower detail section). So problems outside the pass-band are eliminated and the critical overlap zone of the drivers shrink to a minimum considered hardly possible so far. Thus errors in frequency and phase are decreased strongly.
A horizontal plank inside separates the cabinet into two parts. The upper, smaller volume is closed and completely filled with specially-selected damping materials. These are optimal conditions for the upper ceramic cone driver which receives low frequencies and the sound-sensitive mids.
The lower volume is less damped allowing the use of a bass-reflex vent which increases the efficiency in the deep bass region. The vent is hidden in the bottom plate (see photo).
By using an extremely sophisticated circuitry including a high-pass filter for higher power capability and the room-equalization jumper for three positions the unusually complex structure is brought to perfection.
While nearly all known loudspeakers get more and more diffuse with increasing sound density the Vescova was totally unimpressed due to this item. Whenever more instruments

played or the listening level was increased the Vescova show the additional sound sources. Veil or sound-masking? Not with this speaker!
The reviewers went through all human emotions listening to the Vescova, from heartbeat via goose-bumps to big consternation when listening to long-know favorite tracks. The shockingly free clarity remained until the mechanical limits of the drivers suddenly turned into hardness – a clue that many loudspeakers compress much earlier. Apropos power handling: It was only seldom that the reviewers had had the opportunity to enjoy such a voluminous, powerful and though precise bass even in much higher price-classes. The impression of phenomenal stability and certainty was coupled with a holographically precise imaging which helped to unmask recording errors or caused astonishment how crooked and diffuse some speakers sound. While competitors in the same price-region sounded similarly confident and neutral they were without any chance as soon as music got more and more complex. Even the high-ranked loudspeaker „Ambiance“ from Audiodata sounded lethargic and irritated compared to the Isophon. Without any doubt the Vescova is an exceptional sound-transducer of highest class. Besides this it looks really beautiful!

Anyone who is addicted to loudspeaker design knows that wish and reality are far apart each other concerning the function of frequency crossovers. Everything looks pretty easy and simple. From a theoretic point of view two components (a capacitor and an inductor) are sufficient to create a filter of second order which is the by far most often used application. In every sophisticated construction manual you can find the necessary formulae to calculate the components` values. Butterworth- or Bessel characteristics is only a matter of mathematics.