

LOUDSPEAKER CABINET

Quality loudspeaker should not imitate any instrument but be completely acoustically neutral, not adding or taking anything from the original signal.

It is seldom that construction of loudspeaker cabinet gets due attention. The completion of such a project is slow, complicated and costly. During the course of my career I haven't come across the quality that would be satisfactory. In the mass production the main concern is the reduction of cost. Quality is always compromised and maximum is never given. Better solutions (which they are often not) are kept in store, so that when the competition comes up with a new product the answer is ready. And this goes on and on. An example of this is one notable loudspeaker manufacturer who, when asked why they had built a woofer speaker into the cabinet of lesser volume than it was ideal, said that they were ahead of the competition anyway so they could play a little bit. You could have the best available loudspeaker components, crossovers, cables, terminals. Build everything into an inadequately elaborated cabinet and the results will be disappointing.

This is a very demanding task which is handled by the designers from different angles. There are many of those who manufacture loudspeakers that color the sound on purpose, thus trying to impress the inexperienced listener with overemphasized mainly upper bass range, the lower bass range reproduction being muddy. If a loudspeaker is not capable of reproducing low bass range, then it is better not to reproduce anything but create something of its own. Vibrations and resonance of the cabinet walls can distort reproduction so much that you will not be able to distinguish between bass drum and bass guitar. Everything sounds tiring and at higher volumes you feel uneasy. When you are listening to a live performance without the amplification, no matter how loud the orchestra is playing you will not feel unpleasant.

Some, on the other hand, manufacture loudspeakers with gaps in frequency response thus creating an overly sweet sound, appealing at the first listening, but lacking any connections with the real sound.

The majority of loudspeaker cabinets on the market today are classically built. Flat boards with bigger or smaller surfaces are subject to vibrations and resonance, thus creating unwanted coloring, distorting sound picture and degrading tone balance.

This problem can be solved by using bigger mass, thicker sides. They can eliminate the resonance of the sides by integrating the supporting construction in the cabinet, by lining the inside of the cabinet with materials based on rubber, tar, lead boards, ceramics, by sandwich constructions and filling with sand and so on. In the mass production very little of this is applicable due to poor cost effectiveness.

The idea is to either eliminate resonance altogether or move it to the area outside of bass or mid-bass speakers. How a specific woofer will perform when built into a cabinet depends exclusively on the quality of the cabinet, provided that the calculation of the cabinet has been correctly done.

Even a superb woofer will sound poorly in an inadequate cabinet. The importance of the choice of the speaker components is exceeded by the importance of the actual cabinet into which they will be incorporated. The design and construction of a very high quality loudspeaker cabinet is a very complex, slow and costly task.

N.N. Acoustics attaches importance to solving this problem. Since these are exclusive loudspeakers done in very small series, only the best solutions are acceptable, notwithstanding the cost or time needed.

CERARD

N.N.Acoustics uses a unique method to make loudspeaker cabinet sides more rigid and non-resonant by lining them with Cerard. The thickness of Cerard depends on the dimensions and on a particular place in the cabinet where it is placed. Thus all N.N.Acoustics loudspeakers have a significant weight in comparison to their dimensions.

In practice, the biggest part of energy received by bass speaker in the cabinet is being spent in the structure of the sandwich. In this way some resonances of the cabinet sides are eliminated completely and some are being moved upwards and away from the working area of bass and mid-bass speakers. Of course, full effect is achieved by synergic performance of cabinet sides, Cerard sandwich and bracing. In some cases, like with the model MASTERPIECE, apart from Cerard, other materials are being used as well.

The lining is possible to do only manually and requires utmost attention and precision. Cerard is much more costly than any top quality basic material used for a wooden cabinet (beech plywood, birch plywood, solid wood).