Subject: Design choices
Posted by Wayne Parham on Sat, 05 Jul 2003 14:44:05 GMT
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The Eighteen Sound woofers use shorting rings like the JBL's. They act as a shorted secondary and decrease harmonic distortion and reduce inductive reactance at high frequencies. JBL has been doing this for about 25 years, starting when they replaced alnico with ferrite. Eminence has introduced this in their Magnum line and others have begun to use this technology as well. It is often referred to as a Faraday ring.

As you've mentioned, good HF performance is another important requirement of a woofer used in a matched-directivity two-way speakers like this. The cone flex must be well damped so that resonances across the cone are controlled. We need the crossover point to be set fairly high in order that the midwoofer's directity matched the tweeter horn's horizontal pattern. So the crossover point cannot be lowered without adversely affecting off-axis response.

Check out the the post called "Coverage angle" and also the paper called "Improvements in Monitor Loudspeaker Systems," published in volume 31, number 6 of the AES Journal by David Smith, Don Keele and John Eargle. This paper illustrates features of two-way horn monitor

speakers and other similar designs. Most notable are the discussions of frequency division between components, passive compensation networks for compression horn tweeters and on-axis and polar response.