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Subject: Re: Comparison of alnico and ferrite magnets, with and without shorting rings

Posted by [Wayne Parham](#) on Sun, 30 Jan 2005 05:13:15 GMT

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Hi Duke, I think that most home hifi systems probably don't require as much power, but I'm working on a cooling system to reduce compression and increase power handling for systems that are pushed hard. There are some illustrations at the link below for proposed ways to cool the voice coil and magnet. Basically, I propose a system that makes the speaker more effective as a pump. Right now, most speaker vents basically just move the same hot air back and forth, hoping for some turbulence and convection to carry heat away. It works a lot better than earlier unvented speakers, but it isn't very efficient. What I'm hoping to do is to make the speaker a better pump, and to use this to carry heat away. The trick is introducing unidirectional flow without introducing pneumatic asymmetry. I'm working with an ME, and he has come up with excellent schemes that make the speaker a very good pump. The problem is that the obvious pump configurations basically use single-cycle valves that introduce uneven pressure. That makes 'em great pumps, but increases even harmonics so that's not a good solution. One way to get around that involves reworking of the speaker motor itself to seal the vent and voice coil gap from the rear of the speaker cone. But I'm interested in making a device that can be press fit into existing vents and ducted to an intercooler. We have a proposed solution, and we're working on the details now. I am confident it will provide improved cooling over a non-ducted vent and that it will not introduce pneumatic asymmetry. I am making this an open project and posting my results so that any interested DIY builder can do the same thing. Wayne

Loudspeaker Venting and Cooling Techniques

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