

---

Subject: Alnico verses ferrite verses neodymium  
Posted by [Ralph](#) on Tue, 24 Aug 2004 21:37:22 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Speakers with alnico magnets are known to have better distortion properties than ferrite, excluding ones with Faraday rings. How does neodymium stack up?

---

---

Subject: Re: Alnico verses ferrite verses neodymium  
Posted by [Adrian Mack](#) on Fri, 27 Aug 2004 12:50:10 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

This page is exactly what you want:<http://ldsg.snippets.org/appdx-b.php3#MAGNETS>

---

---

Subject: Re: Alnico verses ferrite verses neodymium  
Posted by [Ralph](#) on Sun, 29 Aug 2004 22:46:37 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Thanks Adrian. I didn't see anything mentioned about speaker properties using different magnet types. Have you discovered what properties neo gives?Ralph

---

---

Subject: Re: Alnico verses ferrite verses neodymium  
Posted by [Oberon](#) on Tue, 07 Sep 2004 18:17:42 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Ragnar Lian, co-founder of Scan-Speak, said that speakers with alnico magnets had 10x less distortion than ferrite and neodymium had about 20x less. If a copper ring is added to a ferrite magnet, it can approach neodymium specs but only above a certain frequency, below which the ring becomes ineffective.

---

---

Subject: Re: Alnico verses ferrite verses neodymium  
Posted by [Ragnar Lian](#) on Thu, 18 Nov 2004 18:37:12 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Sorry, I have not noticed this group. But here I am, still alive. Of economical reasons I have changed from loudspeakers to medical actuators, but the same physics are ruling. I do not know the reason for previous question, but I guess it is caused by an old JBL slogan "the alnico sound". The sonic difference alnico-ferrite is caused by more parameters. The physical shape of the normal ferrite magnet system is close to whorst case, causing many distortion mechanisms. Also ferrite magnets are relative "soft". When you put a current through the voice coil, it acts at an additional magnet, modulating the main magnet. Alnico have a sharp break point, at the right side magnet are "stiff", and on the wrong side, it is demagnetized. This was the main problem when we had the first generations of high power audio amplifiers (Dynaco Mark 3 and Stereo 120). Either it was OK, or the speaker was significantly and permanently degraded. For ferrite, sound was normal more or less bad, but speaker was not demagnetized. I have made tests and simulations on 3 different magnet systems having same linear movement and same  $B_{xl}$ , locking the coil in mid position, applying 10 amp current, and observing force in + and - direction. Result can vary, but the mentioned numbers is representative. Of course, this is static properties, and dynamic properties may be different. I have not had time for further investigations, but I am an old guy, and there shall also be lot of work and fun for younger people, come along !OOPS ! I do not yet know this forum, and have to find its form. I like to play ping-pong, and will now see if something happens

---

---

Subject: Re: Alnico verses ferrite verses neodymium  
Posted by [Wayne Parham](#) on Fri, 19 Nov 2004 05:38:03 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

I agree with your reasoning. I was talking with an M.E. yesterday about a cooling valve. He's working on the flow rates so we know what sizes are needed. That has absolutely nothing to do with this but while I was there, he showed me a little "toy" he put together. It is nothing more than an aluminum pipe and a neodymium magnet. When you drop the magnet into the pipe, you might expect it to fall at the rate of gravity. But the current induced into the pipe generates a magnetic field that provides "magnetic viscosity." The magnet falls very slowly through the pipe, as if it were falling through a thick liquid. This is exactly the same principle as the shorting ring on a loudspeaker used to counteract flux demodulation. It is also used as a damping mechanism on electrical assemblies such as meter movements. Magnetism and electro-magnetism is interesting stuff.

---