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Subject: Re: Alnico verses ferrite verses neodymium  
Posted by [Ragnar Lian](#) on Thu, 18 Nov 2004 18:37:12 GMT  
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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 worst case, causing many distortion mechanisms. Also ferrite magnets are relative "soft". When you put a current through the voice coil, it acts as 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  $B \times l$ , 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 a 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

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