Subject: Re: Diaphragm Mass
Posted by Wayne Parham on Sat, 30 Aug 2003 18:44:35 GMT
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I think Adire combines an underhung voice coil with something very similar to the symmetrical field geometry design, don't they? Wasn't that the thrust of their "XBL2" design approach? It seemed to me that they were also using a flux stabilization ring, but if not, that would probably offer additional improvement.At any rate, I scanned the link and while I haven't read it thoroughly, I'd like to comment on the few things I noticed. There are several companies that promote high-mass woofer designs, and this is clearly a good way to make the system tuning lower and get extended bass response. There is merit in this design choice for low frequency applications.But it also means that back-EMF will be increased because the motor must be stronger to have control of a heavier cone. This means that total system damping requirements go up. The motor can be made stronger only if the drive circuits are too. So the use of such a design requires larger and larger current sources, i.e amplifiers and cables, since the system includes the drive circuits.This discussion isn't related to transient response. Nor is the subjective "speed" thing related to cone mass. But what is at stake here is system damping, which determines the response curve. The mass/motor system has a balance of strength to weight, and strength is not only a function of the voice coil and magnet, but also the drive circuit that sources and sinks current for it.In other words, the choice of amplifiers becomes more significant as the mass of the woofer goes up. High-mass woofers aren't suitable for low-power amplifier designs. This is really important for SET and other tube amplifiers, but not necessarily limited to them only. As the woofer is made more massive, the list of suitable amplifiers and sound systems will begin to shrink to only those with very high current sourcing and sinking capacity.