Subject: Re: Motors
Posted by Adrian Mack on Sat, 05 Jul 2003 04:51:39 GMT
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Hey Wayne,I think I understand now. So to sum things up:Mechanical Q = Mechanical DampingElectrical Q = Electrical DampingTotal Q = Total Q (lol) or total damping. Motors with heavy cones and loose suspension (relation to Cms?) have High QMS, and are less damped (but lower Fs being the benifit). Generally higher Qms = higher Qts and it will have less cone control which is bad. But we can dampen the cone by "electronic motor damping" from amplifiers with high damping factor (therefore low output impedance, ~0.1ohm). We can only do this if Qes is low, and because Qes is the ratio of series motor circuit resistance to the square of BL, that means the motor will have low DC resistance too. This will lower Qes and hence lower Qts. The amp will have like 0.1ohm output impedance, so the amp will barely change Qes. Now the amp can control it because of Back EMF. A strong magnet also should be used. So in this case a High Qms with Low Qes will offer pretty good dampening for the driver if used on an amplifier with high damping factor. It would also be right to say a lower Qes will offer better dampening for the driver by the amplifier. If the woofer had high Qes (hence higher DC resistance) and also a high Qms, then basically, it is a piece of sh*t and has very poor damping, and theres not much we can do about it at all. It also has a poor magnet. If the amp was a tube amp, then Qes would increase heaps (therefore Qts as well) because of the amplifiers high output impedance. On semi-conductor amps (these are the normal ones?) output impedance is so low that Qes is barely affected. Qts is the combination of Qes and Qms. So when I asked before that low Qts doesn't always mean good motor control was wrong - lower Qts does mean better motor control, how it is damped is just different though in the example in my previous post. Am I grasping the situation right?Oh yea, just a quick question on the PiAlign program - I've been muckin around with it heaps, but for the Alpha 10 I got some rather strange results. It gave me an Fb of about 32Hz, and Vb of about 48L. Fs on Alpha 10 is 50Hz, I would think PiAlign wouldn't recommend tuning below Fs. Why is that, is there any advantage/disadvantage tuning below Fs? Thanks for all your help!Adrian