Subject: Mangum 12 HO as a midrange
Posted by Paul Spencer on Tue, 19 Jul 2005 15:17:26 GMT
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After searching the forum I'm confused re: Magnum 12. Is it suitable to be used as a midrange driver? From the datasheet it looks like an excellent driver with a response flatter than many hifi mids, yet I've heard comments that it's not suitable as a mid ... It appears the cheapest HE driver I can find that has a shorting ring and flat response. Comments?The Delta 12LF also looks good as a midrange (to me at least) ... any comments on how this driver compares?As I understand, the off axis response of a 12" is better ...

Subject: Re: Mangum 12 HO as a midrange
Posted by Wayne Parham on Tue, 19 Jul 2005 15:54:53 GMT
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Subject: Re: Mangum 12 HO as a midrange
Posted by Paul Spencer on Tue, 19 Jul 2005 16:59:53 GMT
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2 questions:1) when you posted that it's not a good mid, were you referring to another magnum?2) how does it compare to high end hifi drivers (Scan Speak, Seas, etc) in the fidelity department, excluding obvious advantages such as efficiency and output?

Subject: Re: Mangum 12 HO as a midrange
Posted by Paul Spencer on Tue, 19 Jul 2005 17:01:53 GMT
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Another question - it appears similar to the Delta 12 LF, which is a lot cheaper - is the shorting ring an advantage in the midrange as well and is the Magnum significantly better than the Delta as a mid?

Subject: Re: Mangum 12 HO as a midrange

Posted by Wayne Parham on Tue, 19 Jul 2005 18:52:25 GMT
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I don't think I ever said the Magnum 12HO was not good as a midrange. I've said several times that's what it is best suited for. Maybe you're thinking of the Magnum 15HO, because I've said it

Subject: Re: Mangum 12 HO as a midrange
Posted by Wayne Parham on Tue, 19 Jul 2005 19:15:39 GMT
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Shorting rings are most effective at midbass and midrange frequencies. At very low frequencies, they aren't usually large enough and at very high frequencies, harmonics are ultrasonic and can't be heard. So shorting rings are best in woofers and midrange drivers.I can hear the difference right away. I always prefer a woofer with a shorting ring to a similar one without. If you like SET amps, you may like a midrange without a shorting ring but you'll probably still like a woofer that has one. I've heard some amps that I liked the mid to have a shorting ring and some amps that seemed to be better without one. But I always prefer the woofer to have a shorting ring, if I have a choice. Perhaps the reason is the distribution of harmonics - A woofer's harmonics would be smack dab in the vocals and a midrange's harmonics would be shifted up into the overtone range or above.As for comparison of the two specific woofers, Magnum 12HO and Delta 12LF, there's another thing you should consider too. The Delta 12LF and the Magnum 12HO are tuned differently.The Delta 12LF is tuned to use medium to large cabinets and is made so that it has low f3 in suitable cabinets. It's a great woofer for the price, and is suitable for a variety of applicatons.The Magnum 12HO cannot be made to work at very deep bass frequencies. You could align a cabinet to squeeze deep bass out of it, but it's not made for that purpose. It is made to be used in relatively small cabinets that aren't required to go very deep. The designer will probably incorporate it with a bass bin that goes lower. You could also use it for a small monitor but f3 isn't going to be all that low.

Subject: Re: Mangum 12 HO as a midrange
Posted by Matts on Wed, 20 Jul 2005 04:08:36 GMT
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Wayne,When you talk about the shorting ring reducing harmonics, you just mean the harmonics created by the speaker "distortion", not those in the music, right?Matts

Subject: Re: Mangum 12 HO as a midrange

Posted by Paul Spencer on Wed, 20 Jul 2005 09:05:55 GMT
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Thanks for the quick and detailed response!My application: I'm looking for a mid to match up with my existing 12" subs. I'm considering 2 options:1) sealed box mid (Q.707) crossed actively at 80 Hz2) vented midbass getting down as low as 50 or 60 Hz#1 allows me to stuff the box and kill the back wave#2 will probably give me better bass as I don't think my subs are that great in the upper bassThoughts anyone?

Subject: Re: Mangum 12 HO as a midrange
Posted by Wayne Parham on Wed, 20 Jul 2005 11:56:15 GMT
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That's right.  Shorting rings aren't a low-pass filter.  They reduce harmonic distortion by making diaphragm motion more symmetrical.  The magnetic field of the voice coil adds to the fixed magnet in one direction and subtracts from it in the other direction, making a slight asymmetry of motion.  One way to correct for this is to use a conductive ring in the magnet structure, acting as a shorted secondary turn.  Induced EMF from voice coil energy creates an opposing magnetic field and with proper ring geometry, this field makes the forward and backward forces symmetrical.
 Magnet Structures

Subject: Re: Mangum 12 HO as a midrange
Posted by Wayne Parham on Wed, 20 Jul 2005 12:02:15 GMT
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As long as the mains go down past the sub, it doesn't really matter if you choose vented or sealed.  If vented, I would keep the crossover range above fh though.  That sort of defeats the purpose of going vented, but deeper f3 would allow you to use the mains stand-alone on occasion.

Subject: Re: Mangum 12 HO as a midrange
Posted by Matts on Wed, 20 Jul 2005 14:35:20 GMT
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Interesting article- also interesting, because it brings up intersection of music and engineering.  In most musical instruments and voice, "good" overtones are highly sought after, as they give color and projection. Leo Fender & Jim Marshall built their  amp companies on "pleasant" distortion.

Guess most would agree that the purpose of reprduction equipment is to reprduce accurately, not add or take away from what's in the mix, but like you say, in some instances in the mids, the speaker can help make the sound a little warmer and smoother if the harmonic distortion is truly "harmonic".