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Subject: Damping material

Posted by [Roland Gama](#) on Sun, 06 Apr 2008 11:41:57 GMT

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Hello Wayne, Eager to know whether the addition of dacron/polyfill sheets decreases the box volume. I understand fibre glass in effect increases the Vb. Thank you : Roland.

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Subject: Re: Damping material

Posted by [Wayne Parham](#) on Sun, 06 Apr 2008 16:46:05 GMT

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I've tried various products over the years but always come back to R11/R13. Some provide damping but some do nothing at all. Best way to tell is to measure the sound inside the box by putting a microphone in the port. Ideally all that would be inside the box is sound below 100Hz. The damping material that comes closest to that is what you want. You also want as little effect below 100Hz as possible so that the box doesn't become de-tuned. Easy way to measure tuning is to check impedance and look for changes in the impedance peaks.

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Subject: Re: Damping material

Posted by [dB](#) on Mon, 07 Apr 2008 12:47:54 GMT

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Hi Wayne, Roland, This link was posted today on the DIYAudioForum for the thread "Port calculations" and is also very technical, helping with the research that others are doing with this intricate subject. Regards.

Volume Filling a Reflex Box

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Subject: Re: Damping material

Posted by [Wayne Parham](#) on Mon, 07 Apr 2008 16:25:42 GMT

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Excellent link, thanks!

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Subject: Re: Damping material

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Posted by [Roland Gama](#) on Tue, 08 Apr 2008 05:09:16 GMT

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Thanks dB!

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Subject: Re: Damping material

Posted by [feket663](#) on Sun, 01 Nov 2009 17:22:18 GMT

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Dear Wayne! My 4PI speakers nearly complete. Here's a picture of them.

A single question is even: The damping material (about 3 inch thick fiberglass insulation material) is enough, too much or too small quantity?

I listened a lot, but I think a bass response a bit wavy. A deep bass is ok, but the 60-70 hz range is a slightly less. This can occur when an inadequate amount of damping material?

Can you send me a pic of 4PI's inside with damping material?

Thanks for help!

Istvan from Hungary

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#### File Attachments

1) [IMGP9019 \(Custom\).JPG](#), downloaded 11144 times

2) [IMGP9041 \(Custom\).JPG](#), downloaded 11566 times

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Subject: Re: Damping material

Posted by [Wayne Parham](#) on Sun, 01 Nov 2009 18:18:29 GMT

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Looks good. You put in the right amount of damping material, from what I can see.

How long have you had those woofers? I ask because 2226 woofers tend to be pretty stiff out of the box. They're underdamped at first. The alignment shifts to where it is supposed to be after several hours at moderate power. You can move some woofers back and forth by hand to do this "break in" process, but I prefer to let the motor do it for me.

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Subject: Re: Damping material

Posted by [feket663](#) on Sun, 01 Nov 2009 18:30:07 GMT

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Wayne! Thanks the fastr reply. The woofer is used, I think it's over the break-in procedure.

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Subject: Multisubs

Posted by [Wayne Parham](#) on Mon, 02 Nov 2009 03:43:45 GMT

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even without subs, but adding them puts them really over the top. It's really about smoothing the response as much as it is about increasing extension.

One thing that happens indoors is the reflections from the walls causes self-interference that is additive at some frequency/positions and destructive at other frequency/positions. These room modes are sometimes pretty noticeable all the way up into the lower midrange, to 150Hz or maybe even 200Hz or so. The end result is dead spots in the room - frequencies that are sucked out and can't be corrected with passive or active equalization.

The best way to fix this is to add bass sound sources in different positions in the room. I find having subs placed several feet from the mains usually helps a great deal. Again, it's about smoothing the response, filling in holes made by room modes. That's the goal. You can't even really tell the subs are on, but response is smoother. They do reach lower too, but when setup right (which is pretty easy to do), it sounds like all the sound is coming from the mains. You can't tell the subs are even on. The sound is just smoother.

Multisubs

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Subject: Re: Multisubs

Posted by [feket663](#) on Mon, 02 Nov 2009 17:12:56 GMT

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Which amp/x-over combo do you recommend for sub applications?

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Subject: Re: Damping material

Posted by [Wayne-o](#) on Mon, 02 Nov 2009 18:44:20 GMT

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Great pictures, And nice furniture.

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Subject: Re: Multisubs

Posted by [Wayne Parham](#) on Mon, 02 Nov 2009 20:21:14 GMT

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feket663 wrote on Mon, 02 November 2009 11:12 Which amp/x-over combo do you recommend for sub applications?

I personally use a Class A FET amplifier, the ProFet amp from Selectronic. This requires a

low-pass filter in front of the ProFet amp, and I have played with several types from passive line level filters to various off-the shelf devices.

The one I ended up liking best is kind of unconventional - I went through a cheap little car crossover, rebuilding it with all good capacitors and replacing the op-amps with Burr Browns. So it's kind of a fun little project thing that really sounds good. This unit allows me to select low-pass of 50-90Hz with a gentle slope (second-order) that's perfect for blending with the mains. Flanking subs (less than 10 feet from the mains) can usually be low-passed fairly high, say 90Hz or even 120Hz in some cases. Distant subs should probably be low-passed at 50Hz. That will still offer some blending up to around 75Hz because of the gentle second-order slope.

**Active Sub Crossover** Most people use a plate amp because it's easy and affordable. I see nothing wrong with that. Cut the hole in the back of your sub cabinet to fit, connect it up and bolt it on and presto, you have a powered sub. Most of them I've seen had fourth-order low-pass filters though, which means you'll probably set the frequency a little higher to get blending just right. Still, very do-able, just bolt it onto the back of the subwoofer cabinet. Something like this would work just fine:

**Dayton SA240 240W Subwoofer Amplifier** A person could also use a high-power chip amp, something like the National LM3875 or LM3886. All you need is a handful of passive parts and a power supply to build a good amp with one of these chips. The larger chip (LM3886) can deliver

enough to shake the house. The power supply can be anywhere from 20V to 80V, so you could even use a pre-made power supply board, something like this:

30V 5A Power Supply

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