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Subject: Effect of flare on port dimensions

Posted by [AudioLapDance](#) on Tue, 28 Aug 2001 16:35:23 GMT

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Hey Wayne et al, For my speakers you suggested a port of 4" diameter by 4" length. I found the Parts Express 260-403, a very nice 4" by 4" flared port. Problem is, the 4" diameter part of the port is really only 3.5" long and then the flare starts and continues for the remaining 0.5". So is this really a 4" diam by 3.5" long port, a 4" x 4" port or something in between? Thanks, Jeff

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Subject: Different Helmholtz frequency

Posted by [Wayne Parham](#) on Tue, 28 Aug 2001 21:30:12 GMT

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The flare at the end serves to reduce turbulence at high airspeeds. If the airflow through a port gets high enough, it will start to make a chuffing sound, and the flare helps to reduce that. This particular application doesn't need a flared end, because the port is large enough for the woofer's displacement so airspeed never gets high enough to cause any problems. The flare will tend to raise the Helmholtz frequency. If it's 4" long overall but flared at the end, it will act like it's slightly shorter, which will raise the Helmholtz frequency a little. On some speakers, this might be a problem. It might be best to know the exact tuning frequency on speakers with tight tuning tolerance requirements. In this case, the speaker is slightly overdamped and tuned low, so it is pretty forgiving of minor changes in tuning. I like them this way because it makes them forgiving of environmental factors and electro-mechanical parameter shift. Overall, I don't think the flared end is going to help anything in this speaker because airspeed is low. On the other hand, it probably won't hurt anything either because the cabinet alignment is fairly tolerant of minor changes.

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Subject: Re: Effect of flare on port dimensions

Posted by [James W. Johnson](#) on Tue, 28 Aug 2001 21:57:44 GMT

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Carpet stores usually have a bunch of 4" diameter cardboard tubing laying around, it is very strong and would make a great port, just paint it whatever color you like.

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Subject: Thanks guys, I do have other ports  
Posted by [AudioLapDance](#) on Wed, 29 Aug 2001 10:45:12 GMT  
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Thanks for the input James and Wayne, Hmmm so flares are pretty complex; I had a feeling they were. I have some 4" diameter PVC cut to 4" long so I think I'll just use that. No need to reinvent the wheel. Thanks again guys, Jeff

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