Subject: Subwoofer port design question
Posted by PDee on Tue, 28 Feb 2006 00:38:43 GMT
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I am making subwoofer boxes for my boat. I am installing Blaupunkt PCW1200 speakers. There will be 2 on the boat.The box measures 9"x20"x22" for 1.6 ft3 or 45.311l. It has a 2" port. I made the first port 3 3/8" long which according to this site(http://www.bcae1.com/spboxnew2.htm) tuned to 34 Htz.. In testing the port wistled badly below 40 Htz.Speaker Specs:I have made another port at 5 1/4" and I think it works better. It is tuned(by software) to 29.5 Htz. I does wistle but not till down at 28 Htz.Any body know what the disadvantages of tuning lower are??
http://www.blaupunktusa.com/NR/rdonlyres/A836F9A4-C803-41C0-8957-0905208B025C/5710/ProComponentSubwooferSpecs.pdf

Subject: Re: Subwoofer port design question
Posted by Wayne Parham on Tue, 28 Feb 2006 14:53:19 GMT
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Tuning lower shifts the alignment. If a bass-reflex box has flat response and you tune lower, it tends to develop an EBS response.
Response curves of closed vs. vented systems

Subject: Your port's too small in diameter
Posted by Duke on Tue, 28 Feb 2006 14:59:03 GMT
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That woofer you're using is a 12" unit with an 11 millimeter x-max, and the air velocity through the port is so high that you are getting turbulence (whistling). I would suggest either adding a second port, or replacing the 2" port with a larger diameter port, or going with a flared port. Of course if you change diameters you'll have to recalculate the length.Precision Ports' flared models have smoother airflow at the ends and so can play louder than a non-flared port of the same diameter before becoming noisy. I like them and use them. Switching to a 3" diameter flared port should help quite a bit. There's an online port length caluclator at their site which should help.Getting back to your original quesiton, lowering the tuning as you have done will change the shape of the bass response, raising the -3 dB point but lowering the -6 dB point (by how much is hard to say from here). Depending on your room, this may or may not be an improvement. Duke
high quality flared ports

Subject: Re: Your port's too small in diameter
Posted by PDee on Wed, 01 Mar 2006 17:02:40 GMT
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Going to a 3" port increases the length too much. 5 1/4" is the longest port I can use. Also this is for a pontune boat, so I am using it outside basicly. This is why I am using 2 subwoofers.

Subject: A few possiblities
Posted by Duke on Wed, 01 Mar 2006 18:45:34 GMT
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Cut to 5 1/4" long, a 2.5" diameter would tune your box to 34 Hz, and a 2.75" diameter port would tune it to 37 Hz. Parts Express sells 2.5" and 2.75" diameter ports.The minimum length for a 2" diameter flared Precision Port is 5" long due to the length of the flared sections, and that would tune your box to 31 Hz. This would probably be the lowest noise route, but of course it's also the most expensive.Duke