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Subject: Truncated horns

Posted by [Kevin Jordan](#) on Tue, 31 Aug 2004 12:44:20 GMT

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Can I make horns small for PA use if I always use them in groups? I ask this because it would be easier to carry several small horns. Rgs, Kevin

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Subject: Yes and no.

Posted by [Bill Fitzmaurice](#) on Tue, 31 Aug 2004 19:59:32 GMT

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The passband and sensitivity of a horn is based on its mouth area and length. While you can use a number of horns together to gain additional sensitivity, you won't be making them any longer in so doing, so make sure that you are getting pretty much down to the required F3 from a single unit.

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Subject: Bass in groups

Posted by [Kevin Jordan](#) on Wed, 01 Sep 2004 18:44:55 GMT

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Lets focus on the 'yes' part of your answer. I've come to understand that bass horns used alone will have less bass than when a group is used together. I've seen charts that show a horn have almost no bass when alone but in groups it gets good. You can tell it with your ears too, they have much more bass when 2 or 4 horns are used together than just one. It isn't just louder its deeper too. That's why I think I can make the horn smaller if I always use it in groups. That will make each one easier to carry. Rgs, Kevin

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Subject: Re: Bass in groups

Posted by [GraemeG](#) on Thu, 02 Sep 2004 07:21:00 GMT

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As Bill pointed out, just one of the factors is mouth area. A small bass horn can have a mouth area 1/10 of optimum size and therefore will have very low efficiency at the low end. The more of these horns you put together, the closer to ideal the mouth area becomes, and the more efficient the box becomes at the low end. However, just as there is an ideal mouth size, there is a minimum horn length for a given frequency. A short horn will not behave as a horn where the length is less than 1/4 wavelength. If you have a horn with say 1m path length, then even with a large mouth

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area the response will drop off below 80Hz. Increasing the length to 2m can get you to near 40Hz. Therefore, if you want to make small horns to be used in groups, make them small by reducing mouth area without sacrificing horn length. This is most easily achieved using small drivers (hence small throat to start with) such as 10". Cheers Graeme

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Subject: Exactly

Posted by [Bill Fitzmaurice](#) on Thu, 02 Sep 2004 11:11:00 GMT

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Couldn't have said it better myself. But what also should be noted is that horns can make very efficient use of drivers, and therefore are quite cost effective. If you make a horn so small that you need a whole bunch of them to work right, and thus a whole bunch of drivers as well, then you're losing out on one of the main benefits of having horns to begin with. You're better off just finding a self-standing design that is of a size that you can deal with.

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Subject: Scoops

Posted by [Kevin Jordan](#) on Thu, 02 Sep 2004 13:24:23 GMT

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I'll make the horns long and thin then. What confuses me is the scoops we always used couldn't possibly be longer than maybe 2ft long around the fold and they hit 60hz \_hard\_. I'd say they must have been good down to 40hz with the max from 60hz - 120hz, they definitely whallop that out. From what you say they need to be twice as long @ ~5ft~ to support this freq, what gives? Rgs, Kevin

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Subject: Re: Scoops

Posted by [Bill Fitzmaurice](#) on Fri, 03 Sep 2004 17:50:38 GMT

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What gives is that they didn't do what you thought they were. If by scoops you mean rear-loaded J horns if they were that short they were adding something to the bottom end beyond what a vented box would, but mostly the drivers were operating in a direct radiator mode.

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Subject: Re: Scoops

Posted by [Kevin Jordan](#) on Fri, 03 Sep 2004 19:18:39 GMT

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What causes the bass lift in scoops?Rgs,Kevin

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**Subject: Re: Scoops**

Posted by [Bill Fitzmaurice](#) on Sat, 04 Sep 2004 18:23:27 GMT

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The same as any horn: acoustic impedance matching between the driver and the air, and lowering of system resonance. Rear-loading is usually employed with high Fs high SPL low Qts drivers (which most MI drivers are, as are Fostex/Lowther style full-rangers) to get more bass from the driver rearwave. Most high SPL drivers in sealed or reflex boxes have F3s around 80-100 Hz; hornloading the rear wave can take that down to 40-60 Hz. That's good, but system SPL remains at the the raw direct radiating SPL of the driver, around 95-100dB/watt.Horn loading the front wave instead allows both lowering of F3 and raising of broadband SPL by 10 to 15dB on average. The downside to front-loaded horns is that to make them long enough to impact the bass they usually are folded, which can limit their high-frequency bandwidth, although that's not the case in my DR horns.

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**Subject: Re: Scoops**

Posted by [Kevin Jordan](#) on Sat, 04 Sep 2004 21:29:45 GMT

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Makes sense. Thank you for your time.Kevin

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**Subject: Re: Exactly**

Posted by [Kevin Jordan](#) on Sun, 05 Sep 2004 13:43:50 GMT

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What about something like your Auto Tuba basshorn? It must not be very large and fromwhat your website chart shows it goes down to 40hz. Why not use a group of these?We could use as few or as many as we need for the place we're playing, and onlycarry what we need.Rgs,Kevin  
Auto Tuba

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