
Subject: horn types?

Posted by [scp53](#) on Sun, 19 Dec 2004 16:48:36 GMT

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ok, im not going to buy a pi kit at the moment. size is the biggest problem but so is money. so, im thinking of building center and surrounds(probably 4 surrounds) to use with my klipsch rb25s. what are my options for horns and compression drivers? i d like something that blends reasonably well with the rb25s timbre wise. obviously not perfect but id like it close. are there basic titanium compression drivers for \$25-45 that can go on a 5x5 horn(not sure about angles). what horn type is best for mains, center, surround,etc. im not looking for a really complex answer- i know horns are complex. and what would be good for the drivers and crossovers(these are going to be two way. so one woofer). id like to build a center for \$300. the surrounds not sure about how much money. i dont want to skimp. thanks- i really appreciate help. these are not easy Q's to answer. scp53

Subject: Re: horn types?

Posted by [Wayne Parham](#) on Sun, 19 Dec 2004 17:20:36 GMT

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Compression drivers aren't cheap. You can get an Eminence PSD2002 for \$45.00, and I don't think you'll find a good part any less expensive than that. Maybe you'll be able to find some good used drivers for less money, but then again, I'm always leery of used speakers. Recones and freshly replaced diaphragms are fine, but that pushes the price back up. As for the rest of the speaker design, you know what I'd do 'cause it's in the plans.

Subject: Re: horn types?

Posted by [scp53](#) on Mon, 20 Dec 2004 04:15:39 GMT

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ok, so what should i use for surround speaker HF drivers? no horn at all. a tweeter. i think ill wait on these and just build my center first. for the center i think im going with a psd2002 or a SELENIUM D210TI 1" TITANIUM COMPRESSION DRIVER Part Number 264-235. which one do you think is better. this selenium caught my attention because it said movie theater use. where as other comp drivers are for strict pa use or so they say. so id use one of those comp drivers mounted on a horn with a 8 or 10 inch woofer. could you help me select a driver to match one those comp drivers? not sure how to match them. and the horn im not sure of either. this is for center channel use. i figure i can have a excellent center for less than \$300 when its all finished. my only fear is it swamping my klipsch in every way. and this also brings up another Q. how do i match a 105-107 db driver to a woofer with only 90-95? thanks a lot scp53

Subject: Re: horn types?

Posted by [Wayne Parham](#) on Mon, 20 Dec 2004 10:21:11 GMT

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too large.

Subject: Re: horn types?

Posted by [scp53](#) on Mon, 20 Dec 2004 14:11:14 GMT

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could you answer my other questions. i already have surround speakers that will be sufficient. i need a good DIY center first. thanks, scp53

Subject: Re: horn types?

Posted by [Chris R](#) on Mon, 20 Dec 2004 15:28:41 GMT

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scp53,Here's what I made up for a center channel speaker.<http://cerchaos.homeip.net:1280/woodworking5.html>Its doesn't go super deep, but for this center, it doesn't have to.The Fostex are shielded [sp?], and the pieso doesn't have a magnet at all. If you have a CRT TV, you'll have to worry about this.If not, you don't. Its sounds rather nice to me. The drivers were less than \$100 total.If you use a real horn, Wayne's crossovers have a padding circuit to get the output levels in line with the low end. Of the standard Pi drivers, the 10" Eminence Alpha's are really nice, but you'll have to shield them somehow (maybe), and the box is going to be 12" high or so.Chris

Subject: Re: horn types?

Posted by [scp53](#) on Mon, 20 Dec 2004 22:26:59 GMT

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any cheap horn designs though? id rather stay away from tweeters. how about a apt150 eminence horn/comp driver with a 8" driver? this would better match my klipsch. i think the selenium and the psd2002 would be too potent for my setup. at least for the moment. suggest yours? scp53

Subject: Re: horn types?

Posted by [ToFo](#) on Tue, 21 Dec 2004 01:14:34 GMT

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Hi scp53, Don't be fooled by the size of the APT 50. It is actually just as loud as it's bigger brothers and might make the bones in your ears click. Why not use a Klipsch rc-25 to match. Not to ignore your obvious intention of incremental upgrade, but a 104 dB sensitive supertweeter is an unusual place to start. The APT 50 may be cheap but it is a serious supertweeter for a dialog speaker. if you are going to match up everything sometime soon that's different. Your 8" has to go up to about 4K with smooth response. spl below 94 would be a shame, but then spl above that isn't that common in a cheap 8". You can pad the horn all you want, but for me, smaller resistors are cheaper than bigger amps. Cheap, good 8"? Alpha 8! but then just go with 1 Pi's. unless the piezos are all gone by now, or do an APT variant of it. As far as timbre matching, my guess is no dice. Different cutoff, different flare shape and crossover frequency, and a different diaphragm material. I can't think of many more ways to change the character of a high frequency horn. Not to mention the paper 8". My bet, it isn't going to sound like the Klipsch, but it would probably be very nice sounding. You can't really hope for timbre matching whilst doing incremental upgrades to a roomfull of speakers. But if you went around the room with these and made some incredible subs it would really put the adrenallin in action movies. ...and you would get to meet all the police at one time or another Thomas

Subject: Re: horn types?

Posted by [scp53](#) on Tue, 21 Dec 2004 02:52:04 GMT

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the only reason im not going that direction is because it cost more money than its worth. im mean the klipsch center is great as are many other consumer centers. but since ive looked into diy i cant justify paying more and getting less. i do agree to get an exact match the same horn/woofer config is necessary. maybe ill order the parts from klipsch and do it my self. id get the un revised one. but im not real sure. do you think having them timbre matched is a must? ive compared klipsch bookshelves of different series and they sound different. i suppose a completely different manufacturer center is going to have even more difference. any ideas where to buy a good rc25? the dealer wants \$265 for a center with a 5" square horn and two 5.25" aluminum woofers. i can get much better than that going diy. what if i bought 3 apt drivers with lenses and got some \$60-80 dollar 6.5" woofers and mad 3 identical speakers? in other words redo my lcr speakers and move the klipsch to the back. or the cheapest option would be to use a klipsch sb3 for a center. its a different series but maybe i could tweak it. the most drastic difference is it sounds a little muffled compared to the reference one s i have. i could lay it on its side and turn the horn 90 degrees. then id just have to get different surrounds- i got cheapo rca. my sub is fine- dayton titanic mk3 10". not ungodly bass but sufficient. and i have a yamaha 5.1 receiver to power it all. ok, so if i scrap the center idea for now what should i get for surrounds? dipole? bipole? i want it immersing. im really sorry for this long post. thanks for all the advice. scp53

Subject: Re: horn types?

Posted by [ToFo](#) on Tue, 21 Dec 2004 21:38:43 GMT

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Not only did I sell all of this stuff at one time, I also worked in service and installation. I hear you about value and quality. I decided all my stuff would be as DIY as possible after seeing some of the stuff that goes on. Not to mention the mark-up and seeing the insides of the speakers. If you are going as high as 60-80 per midwoofer you can get some great stuff for that. Sure there are all sorts of exotic drivers out there, but many of them are difficult to properly implement and many of the most successful designers have largely ignored the tweaky stuff, so I guess that tells you something. I am not saying you shouldn't do the center. I think it will be fine. What I think is very specific to what I am building and why I build it. I think that goes for all to some degree. We audio lovers all have our particular bent. The ones who haven't got one yet have a fascination of the week while they find out what they really like. I urge anyone to not take us too seriously. The guys with the most help to offer also tend to be further entrenched in their topology of choice. I like 2 channel good old stereo. I like solid state as zealously as tube guys go nuts for triodes. Some go nuts for vinyl or horn only systems (even giving up bass, couldn't do that). To me it's the more the merrier, and I want to hear all of this cool stuff, but I know what I want to come home to. Anyway, the center may be a great place to start. It will be cheap, and you can have a simple project that will get the bugs out of your building process. When you have it where you want it, make a few more. The one thing that gets a lot of DIY HT guys is the skewed up TV tube from stray flux. A lot of great drivers have no shielding. I have had friends glue bucking magnets on with good results, but no experience of my own. Since you are doing smallish speakers, I would have all clones. You could put an APT driver on a beta 8-CX and have a coax that would be a good main, surround or center. I am sure someone could point you toward figuring out the crossover so you had good phasing and summing at XO freq. I have thought about making some of these for studio monitors for my computer, Maybe I will get around to it after Christmas. Thomas

Subject: Re: horn types?

Posted by [scp53](#) on Wed, 22 Dec 2004 03:42:36 GMT

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ok, do you think that coax driver with a comp driver will have a good sound stage, disperassion(spelling), etc? im still thinking a regular 8 and a seperate horn. but what the heck, if you KNOW it will work ill do it maybe. can you think of any other configs? thanks, scp53

Subject: Re: horn types?

Posted by [ToFo](#) on Thu, 23 Dec 2004 00:47:46 GMT

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Perhaps not. I forgot you probably have a limited choice of x-over frequencies on the surround

processor, so the beta might not go low enough. You might get away with 80Hz but you would want a high order slope when running a Beta that low. I guess 75Hz 2nd order is standard. It's just my poor stereo brain in a big surround world. I know the 1Pi (Alpha 8) is great. I helped a friend build some 1Pi kits and he uses them for main, center and rear with a retail sub, very nice indeed. I was very impressed and will recommend to anyone looking at this size and power class of speaker. It is interesting that he did not have issue with the magnet under his TV, but I can not say if yours will be the same. All considered, My first thought the other day was 1Pi and That is still what I think. Wayne has everything you need, and probably has a good idea how to pad down the apt 50 to work in a 1Pi, since I know you want a horn on top. Thomas

Subject: Re: horn types?

Posted by [scp53](#) on Thu, 23 Dec 2004 03:32:15 GMT

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ill wait for Wayne to drop his ideas. id like this center to play down around 60-70hz well. thanks scp53

Subject: Re: horn types?

Posted by [Wayne Parham](#) on Thu, 23 Dec 2004 14:18:10 GMT

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Sorry I didn't jump in sooner, but it looked to me like you guys had things pretty well covered. As I are. They're simple designs, the drivers blend nicely, and they sound very good. Or if you have nice. I've already done the design work on each of these, and I'm pleased with their performance.

Subject: Re: horn types?

Posted by [scp53](#) on Thu, 23 Dec 2004 17:06:59 GMT

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ok, is there a way to use a different hf driver? i doubt a piezo will match my small compression drivers in the klipsch. id like to use the apt150 or something similar. and could i just turn the cab on its side for center channel use? scp53

Subject: Re: horn types?

Posted by [Wayne Parham](#) on Thu, 23 Dec 2004 21:25:47 GMT

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You could certainly pair an APT tweeter with an Alpha 8 or 10 speaker, and I'd expect good results. You'll need to pad the tweeter down to match, and you'll want a crossover slope that blends well. Very do-able. I've used a handful of successful arrangements for speakers like these.

a smaller tweeter crossed over higher. For many years, I used the KSN1038 piezo tweeter and I could count on very good performance from that part. But it looks like I'll be switching to the Vifa DX25 soon because the KSN1038 has been discontinued. The KSN1038 is a compression horn driven by a small cone diaphragm. Performance is good particularly for the money. But supplies are nearly exhausted, and I'm not sure if and when CTS will find a buyer for the tooling. So I've redesigned to use a Vifa DX25 dome tweeter, which is silky and smooth. They're more expensive, but they do sound nice. I considered using the APT tweeters when making the change, but I decided on the Vifa DX25 instead. I used a first-order filter on the Vifa, and I suppose that might work on the APT too. But unless a person is very careful with input power, I'm not a fan of first-order crossovers on compression drivers. It's too easy to over-drive them and send the diaphragm into the phase plug.

Subject: Re: horn types?

Posted by [scp53](#) on Fri, 24 Dec 2004 20:35:30 GMT

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ok, could i buy your thermionic Eight pi Kit and turn the horn 90 degrees so the cab can lay on its side? and also could the horn lens be altered for up to 20khz response? my klipsch play to 20khz. that would sound odd i think. i might consider a alpha 8 with that same compression driver- input on that? thanks, scp53

Subject: Re: horn types?

Posted by [Wayne Parham](#) on Sun, 26 Dec 2004 03:45:56 GMT

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You could certainly make the cabinet short and wide or deep, just as you say. Just a suggestion - Give the tweeter and its circuit a try as-is, and in fact, the entire loudspeaker. I think you'll be pleased.
