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Subject: Re: 12pi bass horn plans

Posted by [Wayne Parham](#) on Wed, 06 Oct 2010 23:21:06 GMT

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I was recently awarded a patent on the cooling system used in this basshorn. I'm really proud of it - it brings three powerful technologies together to make what I think is the worlds best prosound subwoofer. 1. Horn loading reduces excursion and increases efficiency, so distortion is low and SPL is high. 2. Push-pull drive further reduces distortion, particularly at low frequencies where the horn begins to unload and can no longer damp the diaphragm(s). 3. Cooling plugs reduce motor temperatures, wicking away heat in the core.

Direct heating from induction and indirect heating from voice coil radiation and convection heat the motor core to temperatures high enough to cook on. Diaphragm motion is limited because of horn loading, which is a good thing, but it reduces the ability of the woofer to generate sufficient forced air convective cooling through the vent. The cooling plug approach helps remove heat from the motor core, augmenting the woofer's ability to cool itself. This is particularly important on horn loaded subwoofers, because the cooling vents are partially stalled due to horn loading.

12pi push/pull benefits

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