
Subject: Re: Heat sink, Heat exchange for driver/cabinet
Posted by [Wayne Parham](#) on Tue, 29 Oct 2013 15:56:45 GMT
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The vent through the center pole has to have consistent diameter for best contact with the cooling plug. The only way to know is to measure it. But if the center pole hasn't been machined - and most aren't - you can assume that the diameter isn't consistent. How much inconsistency is there is really the question, and whether or not it is good enough to make an adequate thermal interface. Still, the best approach is to machine the pole piece to make it true.

The depth of the cooling plug should be the same as the depth of the center pole. It doesn't have to be precisely the same length though. In fact, my loudspeaker designs allow the cooling plug to "float", in that the position of the cooling plug can change depending on the position of the dissipation plate it is attached to. This is because the plate serves double purpose as an access plate. I allow 1/8" movement in or out in the design of my cooling plugs to allow for changes in access plate gasket thickness (squish) and other loudspeaker assembly tolerances.

The goal is to have as much surface area between cooling plug and center pole as possible. So it is desirable that the plug be as long as required to extend all the way into the vent. It can even extend beyond the pole piece, into the cavity behind the dust cap. However, be careful not to extend so far that the center cap might strike the cooling plug at full excursion.

As for the magnetic effects, the cooling plug acts weakly as a shorting ring. It does have an affect, similar to the ones used to counter flux modulation. But it isn't a strong electro-magnetic modifier because of its position in the motor, and in my experience, I haven't see any measureable changes other than those due to thermal effects.