
Subject: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring
Posted by [Adrian Mack](#) on Tue, 16 Nov 2004 05:53:43 GMT

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Just thought I'd post this here. Was browsing through the Peerless website a few days ago and saw their new XXLS subwoofers. Its similar to the XLS series, but with a higher Qts so it doesnt need EQ when used in ported box or passive radiator box. Main features of XXLS series is emphasized on reducing distortion and power compression: has aluminium shorting ring, aluminium spacer, 8-hole vented cone and 2-inch black anodized aluminium voice coil. Comes in both a mid-Qts and high-Qts 10" and 12" version. The mid-Qts 12" version (qts=0.36) models very similar to what LAB12 needs in a vented box. 12" mid-Qts version has $F_s=21.8\text{Hz}$, $Q_{ts}=0.36$ and $V_{as}=144.2\text{L}$. Full T/S specs of drivers at: T/S specs for XXLS Mid-Qts 10" (vented box suited) T/S specs for XXLS High-Qts 10" (sealed box suited) T/S specs for XXLS Mid-Qts 12" (vented box suited) T/S specs for XXLS High-Qts 12" (sealed box suited)

A. Aluminum Spacer The aluminum spacer serves as heat sink for the coil to reduce power compression.

B. Black Anodized Voice Coil The 2-inch voice coil is wound on thick black anodized aluminum for improved heat dissipation.

C. Stacked Magnet System The twin stacked magnetic system is optimized by FEA (Finite Element Analysis), to create a symmetric powerful magnetic field in the air gap, and provide space for the 50 mm max excursion of the voice coil.

D. Distortion Reduced Motor A long multi layer voice coil normally results in high self induction and impedance varying with excursion. Its many ampere turns react on the magnetic field in the air gap. These two main factors causing motor distortion in subwoofers are practically eliminated by the combined impact of the Aluminum Short Circuiting Ring (D) and the Aluminum Spacer (A) on the pole piece. At the same time they both contribute as heat sinks for the voice coil, reducing power compression. The result is unbelievable clean bass reproduction.

E. Vented Cone To eliminate compression under the dust cap the cone is vented by 8 large holes. This way the coil is cooled and there is no need for a bore in the pole piece.

F. Nomex® Spider The spider is made of high tech Nomex® material. This material is chosen for its high rigidity and long term stability. The suspension will stay in shape for a very long time under heavy load.

G. Rubber Surround The surround is made from SBR rubber because of the wide operating temperature, low creep and long term reliability.

H. Fiber Composite Cone The cone is molded from a propriety air dried wood free pulp with a blend of Nomex®, Kevlar® and glass fibers bonded together by deep impregnation with polymers. The blend also contains special material in order to make the cone Waterproof. This creates an ultra stiff and relatively light cone that will stay stable even under very large sound pressures.

I. Rigid Cast Aluminum Basket The rigid cast basket with an aerodynamic profile provides the necessary sturdy base for the magnet structure and suspension and allows for the 50 mm max excursion of the cone. The spider is ventilated to achieve the lowest possible compression and allow air to flow freely to create a cooling effect for the voice coil.

Tech notes: http://www.d-s-t.com/main/tech/xxls_intro.htm 12" pics 10" pics

Quickly ran it through Hornresp too, seem to work well compared to older XLS series which need huge horn - XXLS series might be something worth looking into for a small low distortion bass horn.

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [Wayne Parham](#) on Tue, 16 Nov 2004 08:13:39 GMT

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Hi Adrian, Thanks for the post. It's a great reference. I wrote to DST about a month ago asking them to look into building the B12. They said they'd look into it and get back to me. Lots of interest in that driver or one like it these days. Wayne

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [Adrian Mack](#) on Tue, 16 Nov 2004 08:36:09 GMT

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Hi Wayne Did DST get back to you about the B12? What did they say? Maybe your request about having them build the B12 got them the idea to make a higher Qts version of their original XLS 830500 12". I mentioned to you ages ago I used to use the XLS 12" as my home sub in a dual passive radiator alignment, was a great low distortion sub but needed EQ to get the low end up because it had very low Qts of 0.20. XXLS looks exactly the same as XLS except with higher Qts and slight change in other parameters to suit, similar specs to the LAB12 really. Perhaps it was so more people could use it without EQ, but main factor probably was so required box volume is larger (XXLS 12" best in 80-90L ported box) as basically the older XLS series had to have passive radiators as required box volume was between 35L and 50L for the 12" and meant no sane port size would fit in! Adrian

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [Wayne Parham](#) on Tue, 16 Nov 2004 09:55:47 GMT

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Hi Adrian, Torben Sondergaard said he would forward the request to engineering. There seems to be a lot of interest in this kind of driver right now, so maybe we'll see a handful of manufacturers making them in the next year or so. I've changed my focus to a push-pull horn design, so I'm not as interested in the shorting ring woofer anymore. I mean, I always liked the sound better, so I'd love to see them made. But the push-pull arrangement does the same thing. You have to have two drivers, so for a small speaker, the shorting ring is still very attractive. But for a horn with two woofers, I'm looking at a few other things right now. An improved woofer can be used in a push-pull design, but the beauty is that it cancels harmonics so it actually matters less how symmetrical the driver movement is. I think it may prove to cancel harmonics at lower frequencies too. I'm just now starting to get things ready for testing. So we'll see. Wayne

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [Adrian Mack](#) on Tue, 16 Nov 2004 10:05:31 GMT

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Hi Wayne Yeah, I see what you mean - I think the P-P horn is a great idea too. Still, why not go one step better with B12 or similar driver? Just like you prefer JBL drivers in your Pi Cornerhorns Always fun to have the boasting rights AdrianPS: Just realized this thing has shortcuts to the emoticons! I was putting the smiley's in here before linking the pic directly

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [Wayne Parham](#) on Tue, 16 Nov 2004 10:33:15 GMT

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Hi Adrian,I agree with you about using better quality drivers, even in a push-pull horn. Better is better. It will be nice to have some measurements to quantify matters, but I've never heard of anyone doing worse by using a higher quality part.I was always doing the same thing as you to put in images; I would type in the HTML for the img src tag. But the emoticons make it much easier. Wayne

Subject: Re: New low distortion Peerless

Posted by [wunhuanglo](#) on Tue, 16 Nov 2004 11:26:48 GMT

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I think that these would also improve open baffle designs, a' la' the Linkwitz Orion.

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [mollecon](#) on Tue, 16 Nov 2004 12:15:37 GMT

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I think the reason for the original XLS' specs (low Q primarily) were that they were derived from car speakers. That meant they didn't go THAT low for home use. These new drivers are a lot better in that sense - at the cost of a somewhat larger box, but not at all big. Unfortunately, they are also more expensive than the original XLS series.

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [Adrian Mack](#) on Tue, 16 Nov 2004 12:25:29 GMT

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Would you happen to know how much the new XXLS series 10" and 12" are? (in US\$ I assume as you're in USA, Im in Australia). I cant find a price on 'em. Not sure about being derived from car speakers - there is also a car XLS line with much higher Fs, Qts etc so I imagine the XLS for home was aimed at home/HT as they describe... perhaps they were after small box size, maybe, and use EQ to boost up the bottom end a bit (what I did). I dont use it anymore though.... moved up to 18" ported sub.

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [Adrian Mack](#) on Tue, 16 Nov 2004 12:38:25 GMT

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I didnt read the Peerless site properly - there is THREE types of the 10" and 12" versions actually. The third type I did not post is supposedly for passive radiator applications - its specs however are almost identical to the original XLS series it doesnt need to be mentioned anyway. IE: Very low qts, very low Fs, high BL....

Subject: Re: New low distortion Peerless XXLS 10" and 12" Subwoofers w/shorting ring

Posted by [mollecon](#) on Wed, 17 Nov 2004 04:19:38 GMT

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I'm in Denmark, actually - I'm not even sure they're officially priced yet, but rumours have that they'll be about 60% more than the old XLS series. A quick in-the-head calculation suggests a price at US\$ 300+... So they're not gonna be exactly cheap. But a qualified DIY'er should still be able to build a kick *ss sub for much less than s/he would have to pay for a finished product at the same level
