



ARC AUDIO ARC 12D4

A FIRST LISTEN TO A GREAT SUB

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Whatever happened to the "Made in the USA" speaker? Well, this month we are looking at one. It comes from Arc Audio, that small, home-grown, American-based company that still makes products like this here in the good ole US of A.

Fred Lynch, Arc Audio's director of marketing, was the go-to guy who provided me with the inside scoop on the ARC 12D4 12" subwoofer, the subject of our test. Lynch told me that the design principle of this series was to create a great all-around subwoofer line—one that would be good for "bumpin'" and "bangin,'" but that would still be enjoyable for listening to smooth jazz and classical. That's a stiff set of goals to achieve, but Arc has bridged the gap pretty well.

For the retail price of \$269.00 that Arc Audio is asking for the ARC 12D4, its build design is pretty

basic fare. It uses a stamped steel frame of moderately heavy-gauge steel that has rolled edges. The latter radically increases the stiffness of the frame, which is a good thing in subwoofer design.

The ARC 12D4 uses a polymyca cone that has a curvilinear shape to increase stiffness and lower distortion. Its outside edge consists of a one-piece MDR butyl rubber surround/gasket assembly that is reasonably lightweight to help lower the moving mass of the cone assembly. All of this is driven by a 2 1/2", 4-layer, dual 4-ohm voice coil on a black anodized aluminum former. The black anodizing of the aluminum helps dissipate heat so that the ARC 12D4 can achieve an impressive 350 watts of power handling.

The magnetic structure uses an impressively large single magnet slug and a heavily bumped

backplate with extended pole-piece. The large progressive rate poly-cotton spider is mounted on a raised ring. But the two most compelling features for why you should buy this subwoofer are that it sounds really good and is made in the USA.

INSTALLATION

The installation manual gives you all the important information you will need and want to get the ARC 12D4 up and running. I also like that they make the attempt to explain why having too small of an amplifier is a bad thing and the physics behind clipping and heat generation with a voice coil. The manual and Lynch recommend using a sealed enclosure design of 0.90ft³, so I had my installer at Speaker Works build the enclosure and wire the subwoofer in parallel for a 2-ohm load. While loading the speaker in the enclosure, my installer noted that the ARC 12D4 fit into a standard-sized cutout and uses chrome-plated, spring-loaded, push-button terminals on opposite sides of the basket, making hook-up quick and easy.

Once the ARC 12D4 was securely in its enclosure, I headed out to my Scorched-Earth Black Ford F-350 truck to finish up the installation and setup for the listening test. The ARC 12D4 worked best with the enclosure on the floor of the cab between the front and back seat. I faced the subwoofer toward the rear of the cab where I let it play for four hours at high volume to fully break in the suspension.

To power the ARC 12D4, I installed a Zapco C2K-9.0XD amplifier. The 9.0XD features a 24dB per octave crossover and will pump out a throbbing 2,000 watts of power at 2 ohms mono. The front half of my reference speaker system consists of a pair of USD Audio B-72pro WaveGuide separates. I power these with a Zapco C2K-6.0X amplifier at 150 watts per channel. The built-in highpass crossover filter was used to block the bass to the component system. These amps are fed via Zapco's Symbilink balanced line driver SLB-U. There are no other signal processors in the signal path.

LISTENING

After breaking in the ARC 12D4, I listened to Diana Krall's *Love Scenes* album.

The opening string bass was boomy and overblown in the upper notes. To verify what I was hearing, I listened to a couple of other tracks and found that the ARC 12D4 exhibited the same irregularities on them. Disconcerted, I checked in with my go-to guy at Arc Audio and asked about going to a larger enclosure to get the system "Q" a bit lower. Lynch suggested I try a 1.25ft³ enclosure with loose fiberfill, so my guys at Speaker Works

SPL in car measurement at 2.83 volts, 1 meter—with Bruel & Kjaer Type 2231 Level Meter set to: Un-weighted, SPL and Fast.

20Hz	96.6dB
40Hz	97.4dB
80Hz	98.0dB
Max SPL	130.2dB

zipped up another enclosure for me.

Back to Diana Krall. My first impressions were much more positive. The upper frequency bass notes were a great deal smoother, with better control, while the extension on the lower frequencies had significantly improved. The note-to-note definition was very good with minimal overhang and no blurring of the notes. The bass plucks were punchy and taut and not at all one note-ish. The body tone that affects the realism of the sound reproduction was apparent and the image was up front, solid and did not pull to the rear. Some of the upper bass notes were still just a touch fat, but not objectionable.

Going from acoustic bass to electric bass, I inserted Usher's *Confessions* album. At 0:23 seconds into the "Intro" track, the ARC 12D4 hit solid, hard, well-defined bass notes. I had to move my glasses case and garage door opener to stop the rattles. The Arc was giving impressive impact response for sure.

On the next track, "Yeah!" the bass jumped out as the Arc delivered the pounding rap bass line. Even here, the bass image was up front and no suggestion of pulling to the rear. The bass was tight, solid and loud! Check out the SPL number—this thing has some output!

I then moved to rock and roll with Lenny Kravitz' "Believe in Me." This track has a great opening bass line and a tightly recorded drum kit that really exercises subwoofers. The upper bass

frequency hump that I heard earlier in the Diana Krall track was more notable with this genre of music, although going to the larger enclosure made a huge improvement. Playback was very tight and punchy. The upper frequency blooming would be easily controllable with an equalizer or by lowering the crossover frequency, if you listen to rock all the time. Musically speaking, the Arc sounded just great.

Finishing up, I played "Boxenkiller" off the *Focal Demonstration Disc* °4. "Boxenkiller" is this crazy drum and bass guitar track by Cyrill Lulzelschwab and Martin Hess, and it kicks butt! The ARC 12D4 really energized the interior of my Ford. It had wonderful impact response and was fun—I really wish I had two of them so I could use all of the available 2,000 watts! The bass drum and the big toms were killer. The impact response was impressive.

CONCLUSION

Wow... the Arc Audio ARC 12D4 outperformed my expectations by a large measure. I really enjoyed its sound quality, especially after we installed the larger enclosure. It is more money than I thought it would be too, at \$269 each, but the performance and the fact that it is made in America have shown me that it is worth the price they are asking. The ARC 12D4 is a great subwoofer that excels at reproducing almost every musical genre out there and well worth looking into as your next subwoofer purchase. —Eric Holdaway

