

# BUDGET SUBWOOFER COMPARISON

## Arc, Crossfire, Phoenix Gold and Scosche Battle It Out!

BY CHRIS YATO + PHOTOGRAPHY BY JEFF GILLETTE



The four 10" subwoofers in this comparison retail for under \$150, but while they're relatively close in price, in terms of performance there was some significant disparity.

The test mule was my 1999 Honda Accord outfitted with an Alpine CDA-7977 source unit with Alpine SPX-177R component speakers for the front stage powered by an Alpine MRV-F540 amplifier. An Alpine MRD-M501 mono subwoofer amplifier provided the power for the test

subjects. (An all-Alpine setup, imagine that!) The front stage highpass crossover was set at 100Hz at 12dB/octave. The subwoofer crossover was set to 80Hz with a slope of 12dB/octave. All other features and processing were bypassed during the auditioning.

Each dual 4-ohm woofer was wired in parallel to present an optimal 2-ohm load to the MRD-M501. To provide a level playing field for this comparison, identical 0.9ft<sup>3</sup> sealed enclosures lined with 0.5 lbs. of polyester stuffing were built for each subwoofer. This enclosure size was chosen because it is the optimum recommended sealed enclosure volume for the EFX and Phoenix Gold woofers and within the recommended range for the Arc Audio and Crossfire woofers. Each enclosure was placed in the rear passenger side corner of the trunk for optimum loading within the cabin of the vehicle during the evaluation.

## Product Profiles

### SCOSCHE EFX HDW1044

The HDW1044 is a basic entry-level subwoofer with a "metalized" polypropylene cone, rubber surround and black "crinkle finish" stamped-steel basket. It features a 2" voice coil wrapped around a kapton former and nickel-plated spring-loaded binding posts for easy speaker wire connections. Upon visual inspection of our test sample, the build quality level of the HDW1044 was lower than the others in this comparison. The most obvious flaw was the surround, which was not glued concentrically with the basket. The front gasket was also glued unevenly around the outer perimeter of the basket. The stamped-steel basket has a rather thin 0.45" mounting lip with the mounting holes at the very outer edge of the frame. **MSRP: \$89.95**

### PHOENIX GOLD OCTANE-R10D

The R10D's cosmetics are directly targeted at the "import" crowd with an "aluminized" polypropylene cone with "carbon fiber" inlay and a cool blue LED backlight. The butyl rubber surround is wide but has a shallow cross section compared to the other woofers. The black "crinkle finish" stamped-steel basket is identical to that of the EFX. The R10D has hybrid screw-on and slide-on spade connector terminals for connecting the speaker wires. While this is a solid way to make a connection, it is less convenient than the

Scosche  
EFX HDW1044

Phoenix Gold  
Octane-R10D

Crossfire  
DB310D

Arc Audio  
KAR10D





## Scosche EFX HDW1044

binding posts found on the other woofers because a connector must be crimped or soldered onto the wire before connecting it. The connection for the blue LED backlight is a pair of bare 24-gauge wires protruding from the edge of the well-detailed and shaped rubber magnet cover. **MSRP: \$100.00**

### CROSSFIRE DB310D

The build quality of the DB310D is the most impressive of the group with a chrome-plated basket and backplate. If you don't like chrome, this subwoofer is not for you. Even the mesh material on the sides and bottom of the woofer are chrome, which is a nice touch. In contrast to the shiny backside, the front of the woofer is all black with the exception of the Crossfire logos. The

DB310D features a polypropylene cone, 2" voice coil wound around a kapton former, nickel-plated spring-loaded binding posts and rubber surround. The Crossfire logos molded into the rubber front gasket and magnet cover are nice details. As an installer, I appreciated the foam gasket that was already attached to the 0.625" wide mounting flange. **MSRP: \$135.00**

### ARC AUDIO KAR10D

The cosmetics of the KAR10D are the simplest and cleanest of the group. This subwoofer also uses a stamped-steel basket, the largest rubber surround of this group and nickel-plated spring-loaded binding posts. The top plate and extended backplate are chrome-plated and the side of the magnet is wrapped with chrome metal mesh. While the build quality is not to the level of the Crossfire, the KAR10D seems to be well designed and built. The size of the voice coil is not specified in the owner's manual or Arc Audio's website, but using my trusty digital caliper to measure the base of the cone, I verified that the KAR10D also uses a 2"

voice coil with kapton former. The technical specifications on their website list the KAR10D as having a "one-piece injection molded cone," but upon inspecting the woofer, I noticed the construction actually consists of a stiff treated paper-type cone mated to a one-piece "metalized" polypropylene dust cap. The 0.6" wide mounting flange is wrapped with a molded one-piece front and back gasket, which is convenient for both front and rear mounting of the woofer. **MSRP: \$119.00**

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## Phoenix Gold Octane-R10D



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## Evaluation Tracks:

### “Boxenkiller” by Cyrill L. and Martin Hess from Focal’s *Test CD #4*

This track is an excellent drum track recording with strong kick drum beats at 0:32 that quickly reveal a woofer’s dynamics, mechanical limits and power-handling ability.

### “Le Temps Passe” by Michel Jonasz from *La Fabuleuse Histoire De Mister Swing*

Although I don’t understand a single word that Michel Jonasz is singing, this is an incredible live recording with deep bass synthesizer notes that challenge a woofer’s musicality at high volume levels.

### “Dos Ninos” by Café Tacuba from *Yo Soy*

This is a great rock español track that tests a woofer’s ability to distinctly reproduce drum beats and deep bass notes simultaneously.

### “Take the Power Back” by Rage Against the Machine from *Rage Against the Machine*

The intro to this track showcases a subwoofer’s speed and tonality. In a mediocre system, this track sounds like a regular rock track, but an excellent sound system will push you back in your seat and put a smile on your face.

### “Confessions, Pt.2” by Usher from *Confessions*

This is a clean R&B recording that has tight and strong bass notes that many readers may be familiar with.

### “Naima” by Thom Rotella from *Thom Rotella Band*

A great modern jazz track that tests a woofer’s low end extension and clarity.

### “Fanfare for the Common Man” by Aaron Copland from the *IASCA Test CD #2*

The kettle drum strikes in this classical reference track simultaneously test a woofer’s dynamics and low end extension.

## Crossfire DB310D



## Listening

### SCOSCHE EFX HDW1044

Starting off with “Boxenkiller,” the HDW1044 started to do a decent job of reproducing the kick drum at lower volumes, but quickly showed its lack of power handling at higher volumes and ran into distortion from reaching the mechanical limits of its motor structure. The relatively high resonant frequency of the HDW1044 is evident in the boomy overtones heard with each beat of the kick drum. The Michel Jonasz track further emphasized the boominess of the EFX. On Café Tacuba’s “Dos Ninos,” the combination of drums and bass synthesizer were blurred and distorted. The HDW1044’s performance on “Take the Power Back” was limited to moderate volumes due to distortion. Switching over to Usher’s R&B hit “Confessions, Pt.2” proved to be more suitable to the HDW1044’s character as it produced strong bass synthesizer notes. Slight resonance could be heard with each note and its inability to reproduce lower notes compared to the other subs was revealed. The deep bass notes on “Naima” and “Fanfare for the Common Man” were unable to be faithfully reproduced and sounded hollow and inaccurate.

### PHOENIX GOLD OCTANE R10D

“Boxenkiller” is a great way to immediately assess the strengths and weaknesses of a woofer. The impact and tonal quality of the R10D is impressive at moderate volumes, but unfortunately runs into audible distortion at its mechanical limits at higher volume levels similar to the EFX. The deep synthesizer notes were smooth with only slight boominess on the Michel Jonasz track, but could not be played at the same volume levels as the Crossfire and Arc Audio. It was somewhat difficult to differentiate the drums and bass synthesizer on “Dos Ninos,” but it exhibited less distortion than the EFX. The intro to the Rage track was relatively strong but slightly hollow. The Phoenix Gold woofer may want to visit a church, as Usher’s “Confessions Pt.2” proved to



be right up its alley. The R&B-style bass synthesizer notes were strong and deep without sounding boomy. The overall tonal balance of the R10D was good and second only to Arc Audio. It was unfortunate that the lower synthesizer notes on Thom Rotella’s track and the kettle drum strikes on “Fanfare for the Common Man” proved to be a little out of the R10D’s reach, since everything else sounded good.

### CROSSFIRE DB310D

The DB310D was able to handle “Boxenkiller” at moderately high volumes with good kick drum reproduction and a hint of cone distortion at full

volume. The impact of the Crossfire is the strongest of the bunch and has the most output in the 35-45Hz range. With the Michel Jonasz material, most of the bass synthesizer notes were strong, only tapering off on the low notes. The drums and bass are somewhat distinguishable on the Café Tacuba number with the DB310D, but the emphasis on the bass synthesizer overpowers the drumbeats. Switching over to the intro of "Take the Power Back," the DB310D exhibited good impact and tonal balance. The Usher track sounded clean and strong, revealing only a slight hint of boominess. When listening to "Naima," things sounded solid and defined with some tapering off of the lower notes. Playing "Fanfare for the Common Man" only confirmed that the DB310D's strength is above 35Hz and not below, since the kettle drum strikes were not particularly accurate.

## Arc Audio KAR10D



### ARC AUDIO KAR10D

Performance of the KAR10D was impressive right off the bat. It handled "Boxenkiller" at full volume without audible distortion. It was the only woofer in this test to handle the kick drum musically at full volume. Although the power-handling rating listed in the owner's manual was not the highest of the group, the KAR10D was clearly the leader of the pack in regards to it. The Michel Jonasz track sounded dynamic and very enjoyable with the KAR10D, since the bass synthesizer notes were solid with decent low-frequency extension. The Arc Audio entry had the best definition of the group on "Dos Ninos," able to keep the drum and bass notes somewhat distinguishable and balanced. The KAR10D's reproduction of the intro to the Rage Against the Machine song was also the most satisfying of the group. The kick drum was more solid and realistic in relation to the others. "Confessions, Pt.2" was a breeze for the KAR10D, proving that it could handle R&B as well as it handles rock. Arc Audio elevated itself above the others with its low-frequency extension and definition on the Thom Rotella track. The KAR10D's superior tonal balance and clarity was evident with all the music used in the comparison test. The Arc Audio's impact was second only to the Crossfire, but its combination of good impact and low-frequency extension made it the only sub in this comparison to do a decent job of reproducing the kettle drum on "Fanfare for the Common Man."

## Conclusion

Going into this comparison, I didn't know what to expect from 10" woofers in this price range. The power handling and output levels of the EFX and Phoenix Gold entries were a little less than the Crossfire and Arc Audio pieces, but perhaps that is to be expected at their lower price points. The EFX HDW1044 is clearly an entry-level woofer and did not have any qualities that stood above the rest. Auditioning the Phoenix Gold Octane R10D was



enjoyable, but it wasn't able to keep up with the rest of my reference system. The Crossfire DB310D was a strong performer, although it has a noticeable peak in its response curve, which is likely geared towards its SPL-hungry customers looking for the most boom for their buck. The Arc Audio KAR10D was a pleasant surprise, delivering good overall tonal quality and dynamics without giving up much ground in output to the Crossfire.

It's nice to see a good sound-quality woofer in a price range full of boomy, entry-level subs. The level of build quality and performance that the Arc

Audio delivers at its price point is impressive. This comparison proves that there is a difference between subwoofers, even at the lower price points, and that they should be auditioned before making a purchase. ☼

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### SUBJECTIVE SCORE CHART

Brand/Model	Points Possible	Arc Audio KAR10D	Crossfire DB310D	EFX HDW1044	Phoenix Gold Octane-R10D
Overall Sound Quality	20	17	14	10	15
Tonal Balance	10	08	06	04	07
Low Frequency Extension	10	08	06	04	05
Clarity @ Low Volumes	10	08	07	06	07
Clarity @ High Volumes	10	07	06	04	04
Impact	10	07	08	04	05
Build Quality	10	07	08	04	06
<b>Total Subjective Score</b>	<b>80</b>	<b>62</b>	<b>55</b>	<b>36</b>	<b>49</b>