

# Open Baffle Loudspeakers (DIY)

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*Figure 1 - 18" Woofer with Slot Loading*

At La Dolce Audio (LDA) our motto is “**If it sounds good, it is good.**” LDA has developed an open-baffle loudspeaker design that solves many of the traditional problems associated with open baffle speakers yet retains the benefits of the no-box architecture. And although we don’t sell finished speakers, we do sell all the components necessary so you can build your own.

## OPEN BAFFLES

Open baffle, dipole speakers are renowned for their openness and transparency but are often criticized for their lack of bass. At La Dolce Audio, we’ve reimagined the open baffle design to preserve its celebrated strengths while eliminating its traditional weaknesses. The result is a new generation of open baffle speakers, available in kit

form from LDA, that deliver stunning sound.

Building on the pioneering work of Hawthorne Audio, we’ve combined foundational research with insights gained from developing open baffle speakers with our current drive amplifiers. This has led us to a breakthrough in addressing a major challenge in open baffle design: room interaction. Most open baffle systems are approached using principles inherited from closed-box design—seeking to isolate the speaker from the room. We took a different path. At La Dolce Audio, we treat the room as part of the instrument itself. The room is the box—so why not design it that way?

## SLOT LOADING

An effort to maintain phase coherence led to one of our most important innovations: replacing much of the traditional electronic crossover with a mechanical crossover - a technique known as slot loading. By slot loading our custom woofer, we control cone excursion mechanically rather than electronically, dramatically reducing distortion and extending low-frequency response. The result is deep, articulate bass that reaches below 30Hz - yes, from an open baffle - while maintaining exceptional sensitivity of more than 100dB W/m, measured in free air.

Beyond its impressive bass performance, slot loading also functions as a natural first-order low-pass filter, allowing for a far simpler electronic crossover. A simpler crossover means greater efficiency and improved driver sensitivity - typically adding about 3dB of sensitivity across the usable frequency range. Our specially designed drivers are built specifically to maximize the benefits of slot loading, producing a smoother frequency response with higher efficiency, lower noise, and minimal power compression. The result is extraordinary clarity—revealing musical details often masked by the interaction between amplifier and speaker.

## MULTIPLE DRIVERS

Our LDA designs employ multiple drivers to achieve superior transient response across the entire audible spectrum. It's well established that a driver's transient response diminishes as its frequency range increases. Even with the presence of a whizzer cone, greater moving mass inevitably slows the voice coil's reaction time. By using a multi-driver configuration, we minimize moving mass in each frequency range, preserving speed and accuracy. Combined with our slot loading approach, our driver design allows us to maintain a remarkably simple crossover—addressing one of the traditional weaknesses of multi-driver systems.



*Figure 2 – The effects of slot loading on a bass driver. The various curve traces show frequency response as the area of the slot is increased and decreased. The slot acts like a 1<sup>st</sup> order electronic filter, attenuating high frequencies (12dB at 1,100 hz for example)*

Additionally, each driver is selected to operate strictly within its optimal frequency range, avoiding the breakup modes that often cause harshness, edge, or fatigue in single-driver designs. The result is a sound that is smooth, natural, and free from the characteristic “shout” associated with many full-range systems. Eliminating these breakup modes not only improves tonal balance but also increases low-level detail typically lost when heavy cones struggle to reproduce higher frequencies.

## LDA - SPEAKER DESIGN FOCUSED ON THE LISTENER

Open baffle speakers don't have to be a compromise. With careful attention to design details, custom drivers engineered specifically for slot-loaded open baffles, and a simple crossover—you can achieve astonishing performance. True full-range sound reproduction, expansive soundstage, and precise imaging, all free from the coloration of box resonance. Every first-time builder is struck by the clarity and realism of this design. We provide the design and the drivers; you bring it to life. The result is sound that is natural, dynamic, and remarkably lifelike—unlike anything you've heard before.