



What is “infinite baffle” and will my speaker work that way?

Infinite Baffle:

An infinite baffle is not necessarily an enclosure but it can be. It can be a very large sealed enclosure. Or it can be as simple as a board with the woofers mounted to it. That board is then attached to back of the seat of a sedan. Since they don't have an enclosure, they will not take up as much room in the vehicle. If you have a sealed box and the airspace is too large, there will not be enough air pressure to limit the movement of the speaker cone at high power and low frequencies. Another example of infinite baffle are speakers mounted in the rear package trays of most sedans. You will generally see the back of the speaker from inside the trunk unless there is a cover over them. In this type of mounting, the trunk becomes a very large enclosure. Many vehicles have subwoofers mounted in the rear package tray without an enclosure. Most speakers mounted in the doors, dash, headliner, and rear package trays of cars are also infinite baffle. The exceptions are if there is a specific sealed or ported enclosure within the door or rear package tray for the speaker.

Infinite baffle mounting is often considered the best overall sounding by some people. They will have a very smooth roll off of the lower frequencies and they usually have a smooth frequency response. They do not have an enclosure that will change the way the woofer naturally sounds.

When mounting woofers in an infinite baffle configuration, there are a few things you will have to know. You must have a woofer that is able to be used in an infinite baffle. It is recommended, and sometimes required to have a subsonic filter. This filter will limit the lower frequencies that may damage the woofer at high power. Some woofers are specifically designed to work infinite baffle. Most are not. Many speakers will do a good job infinite baffle if you know the limitations of the woofer. Check with the manufacturer of the woofer to see if it is compatible. They should be able to tell you if there are any restrictions such as maximum power and what frequency and slope of subsonic filter you will need. Manufacturers will generally have a computer program they can put in the parameters of your application to see if it will work. There are several factors that you will need to know to verify your woofer will work properly infinite baffle. You will need to know the maximum power you will be sending to the woofer, the frequency, and slope of the subsonic filter you are using. These three factors are very important for the manufacturer determine if that specific speaker is compatible for your application. Failure to follow the guidelines will result in a damaged woofer.

When making an infinite baffle board, you will need to make sure that you seal the mounting baffle edges as much as possible to the vehicle. This is so that the sound waves from the front of the speaker cannot reach the rear of the speaker to cause cancellation. Any areas not sealed will allow the pressure waves to pass around the baffle and will decrease the amount of bass. An ideal infinite baffle mounting can be a challenge due to the potential difficulty of sealing off the front and rear of the baffle in a vehicle.



They do have some limitations. Since they don't have an enclosure, there is nothing but the suspension of the woofer to control cone movement. That is why it is important to have an amplifier that has a subsonic filter to eliminate any damaging frequencies to the subwoofer. Infinite baffle mounting can often limit the output of the woofer and its power handling. That is why it is best to use a woofer specifically designed to be used in this type of mounting configuration.

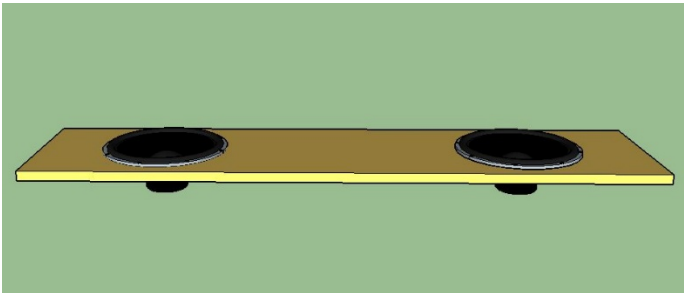
Pros-

- Easy to construct
- Smooth frequency response
- Does not take up much room in trunk
- Uses speakers' natural frequency roll-off

Cons-

- Limited power handling
- Limited output
- Require specific crossover capabilities from amplifier for best results.
- Rear side of the driver is exposed along with the wiring and it may not be a clean looking installation

Simple infinite baffle mounting board:

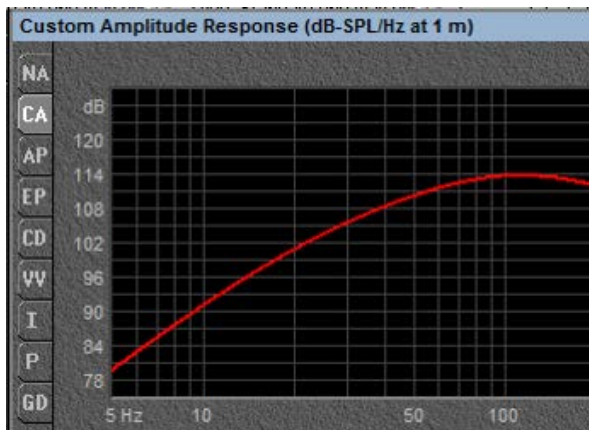


Actual installation example:

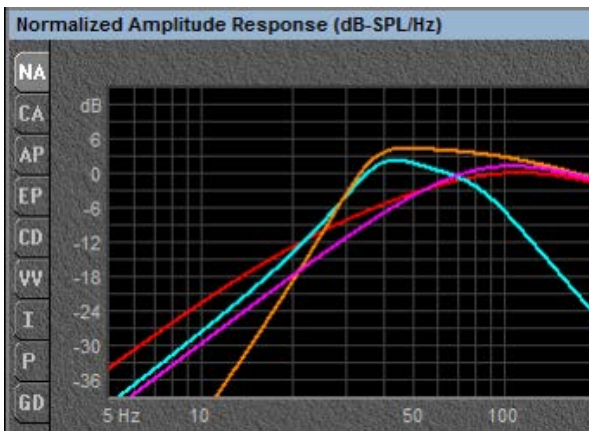




Frequency response example (your woofer will vary):



Frequency response of the same woofer in different types of enclosures with one watt of power.



Red – infinite baffle

Violet – sealed

Orange – ported

Teal – band pass