The Complete Guide To Bass Traps And Bass Trapping

Jesco Lohan | AcousticsInsider.com

“Which Bass Trap Do I Need?”

So you’re on the fence about bass traps for your studio. But you’re not sure which one’s the right one!

Too many options. Too much technical lingo! And damn they’re expensive.

How do you know if it’s what you actually need, and that it will solve the issue? How many do you need to get?

And where do you put them exactly?

This guide serves to answer those questions. See it as a no-frills encyclopedia to bass traps.

It explains and compares all the different types of bass trap you’ll possibly encounter.

Use it as a lookup guide as you’re out shopping for traps, so you know what you’re looking at, what you can expect them to do, and ultimately if you should spend your hard earned $$$ on one (or ten).

I’ll also include examples of designs that are sold as bass traps, but definitely do not work. So you can avoid them from the get-go.

How To Use This Guide

All bass traps work by absorbing sound pressure or sound velocity. That’s how this guide is split up.

If the trap is made purely from a porous material like foam or insulation, it’s a velocity trap. If the trap has some form of membrane or diaphragm, it’s probably a pressure trap. Some designs combine the two, you’ll find them at the end.

My recommendations for number of traps you should get assume that you are working in a medium sized room.

A word of caution:

Don’t obsess about different absorption coefficients!

The graphs shown do not represent actual designs or products. Use them instead to understand trends, and what each design does. In any case, both predictions and measurements are notoriously inaccurate. Tolerances of up to 20% are not uncommon[3].

If you are looking for a particular term, make use of the search function: Ctrl + F / CMD + F.

Contents (click to jump):

Velocity Traps

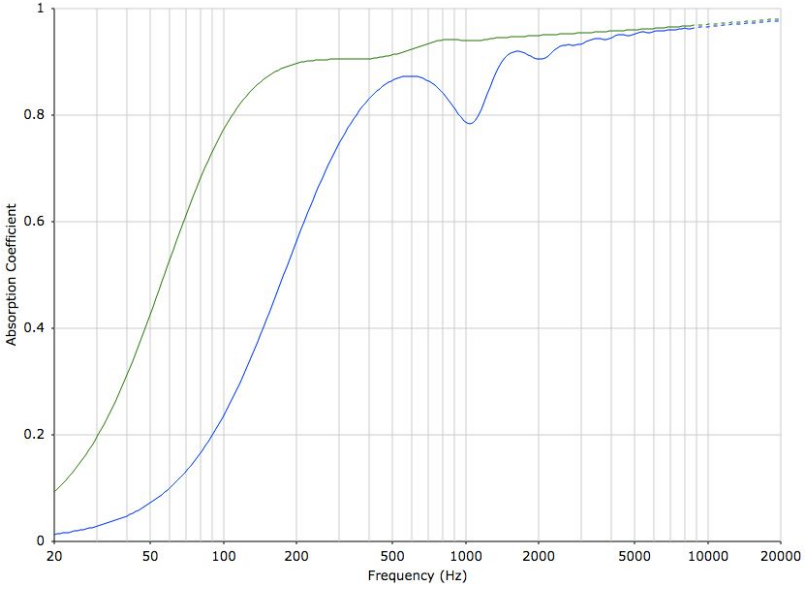
Porous Material Traps

How to identify them & causes of confusion:

- Typically a chunk of mineral wool, fiberglass or open cell foam. Usually square or triangular (a.k.a. Superchunk), often in a frame and covered with fabric for handling and looks.
- Frequently called bass traps, but are all, in fact, broadband absorbers that also absorb bass.
- To absorb any bass at all, velocity traps must be deep enough, typically 16cm (6”) or more.
- Material density (flow resistance/weight) is optimized for the core depth.
- Sometimes built with a sealed back, which makes no sense at all.

What they do:

- Reduce motion of air molecules in the sound wave (sound velocity) by friction.
- Hence they absorb sound velocity, not sound pressure!
- That means: for any given wavelength, absorption is maximum at ¼ wavelength away from a reflecting wall.
- -> Have peak absorption at mid and high frequencies
- -> Low frequency absorption gently drops off as you go down in frequency.
- -> Back needs to be open to increase effective trap depth.



Typical Absorption Character: 6” (16cm) vs 2” (5cm) mineral wool across corner

How to use them:

- These are not targeted absorbers, no matter how much some people claim they are. No point in trying to “target” certain frequencies with them.
- The deeper the trap, the lower down it will absorb. “Trap depth” is measured from front of material to the wall behind it, including any air.
- -> Place them away from the wall, or diagonally across corners to create an overall deeper trap.
- Corners of any angle will work, it just changes the effective trap depth.
- Start with corners closest to your speakers.
- Rule of thumb: Air gap should be no larger than material core depth. I.e. max air gap depth = porous core depth.

When to use them:

- If you are just starting out with treatment, since they help with a whole range of issues apart from bass.
- Unless you are (actually, confirmed, without a doubt) targeting a specific problem, AND have already fully used all available space, porous absorber are still your best option.
- When you are on a budget, since they offer, by far, the best bang for the buck.
- Basically always. I’m not joking. There’s a reason why all the pros use a TON of porous material in their builds.

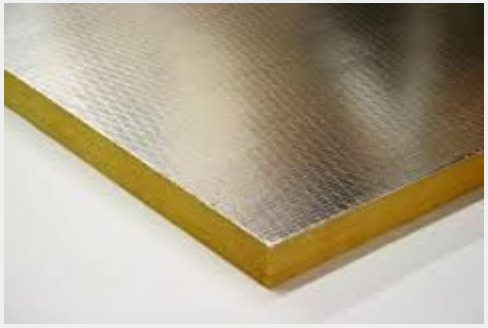
How many you need:

- As many as your room will fit, probably more.
- To get a significant effect, add them in groups of 3 or 4 panels at a time.

Pros and Cons

+ Cheap
+ Easy to design, build and use
+ Wide bandwidth makes them very flexible
± Inherently absorb mid and high frequencies as well.

Variation: With Reflective Front (a.k.a. Range Limiter | FRK)



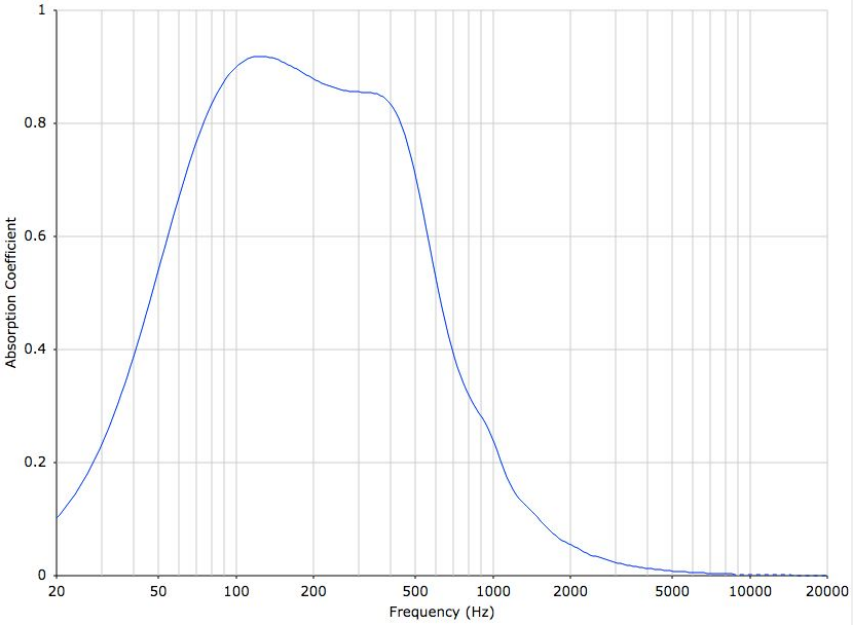
Owens Corning 705 FRK. Source.

How to identify them & causes of confusion

- An airtight foil covers the front of the insulation material.
- It is debated if this foil adds low frequency absorption through resonance on top of what the insulation material does on its own. Based on my own data, available external data and the theory involved, this is not the case.
- Not to be mistaken with a membrane or diaphragm that is meant to add absorption through resonance. See Combined Pressure Over Velocity Absorber.
- Manufacturers somtimes deliberately confound the two.

What they do

- The foil stops mid and high frequencies from entering the front of the panel and get reflected. Bass frequencies with their long wavelengths either bend around the foil and enter from the side, or pass through it.[2]
- Absorption at lower frequencies is the same as without the reflective front.
- Lowest reflected frequency depends on size of foil. Sound waves “see” objects with similar dimensions to their wavelength.



Typical Absorption Character: 6” (16cm) mineral wool across corner with reflective front

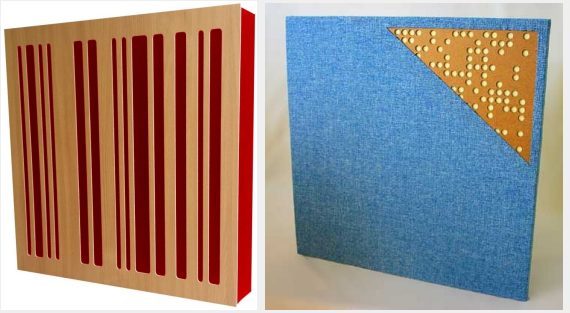
When to use them:

- As an alternative to the standard porous absorber.
- When you already have short reverb times in the mids and highs, but still need more bass absorption.
- Although a better option all together might be the diffusion front (see below).

Pros and Cons:

+ Keeps mid/high frequency energy in the room
- Reflected energy is still specular, not broken up.

Variation: With Diffusion Front (a.k.a. Scatter Plate)



GIK Alpha Series (Source) and RPG BAD (Source).

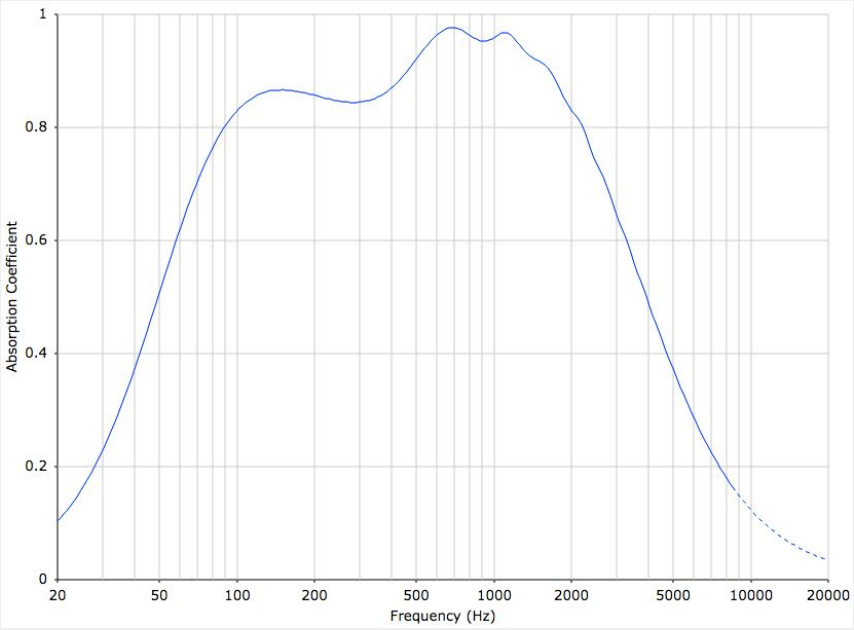
How to identify them & causes of confusion:

- Porous absorption material is fitted with a front pattern of slats, gaps or holes, following a particular mathematical sequence.
- Pattern can be arranged in lots of different ways, even show pictures.
- Standard perforated panel does NOT scatter reflected energy.

What they do:

- Low frequency absorption is the same as without the diffusor front.
- “Good enough” diffusion. Mid and high frequency energy is reflected and broken up (scattered using *binary amplitude diffusion*.

- Not as effective as QRD or PRD *phase grating diffusers*, but much better than a specular reflection.



Typical Absorption Character: 6” (16cm) mineral wool across corner with diffusion front

When to use them:

- As an alternative to the standard porous absorber and reflective front absorber.
- When you already have short reverb times in the mids and highs, but still need more bass absorption.

Pros and Cons:

+ Keeps mid/high frequency energy in the room
+ Reflected energy is broken up
± Scattering not as effective at mid frequencies than for a typical QRD or PRD design. But in turn minimum recommended distance to panel is also smaller -> more flexible in placement, especially smaller rooms.

Tube traps

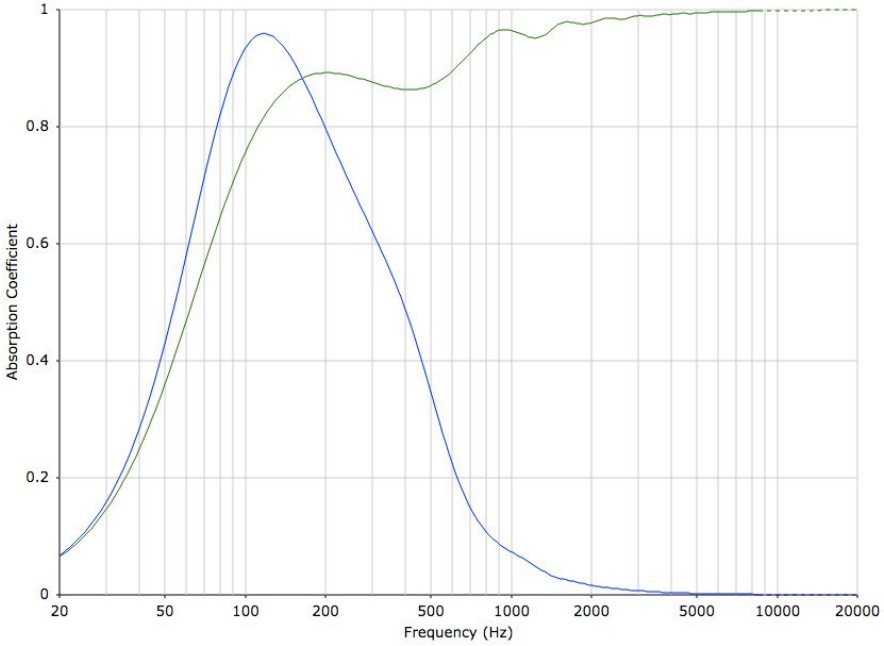
ASC Tube Trap (Source) & Hofa Bass Trap (Source)

How to identify them & causes of confusion:

- Hollow Cylinders of a porous material, typically high density fiberglass, about 3’ (1m) in length and 15” (40cm) in diameter.
- Sometimes half of the surface is covered in a reflective foil.
- Main tool used in the “Attack Wall”.
- Manufacturers like to claim that they are somehow different from all other bass traps, when really they are simply a standard porous absorber in cylinder form. Don’t be fooled!
- Foil may be described as a “limp mass”[1]. Not to be confused with limp membrane or limp mass resonant absorber as it does not resonate and does not add low frequency absorption in its own right. A better description for would be “high frequency scattering”.
- Not to be confused with a sealed pressure absorber in half cylinder design.

What they do:

- Reduce motion of air molecules in the sound wave (sound velocity) by friction.
- Peak absorption at mid and high frequencies.
- Low frequency absorption gently drops off.
- Tend to be less effective at low frequencies than equivalent standard porous panels, since effective trap depth is less.
- Reflective foil can be used to reflect and scatter mid and high frequencies.



Typical Absorption Character: 16" (40cm) tube trap. Standard (green) vs reflective front facing the room (blue)

How to use them:

- Intended to be placed in corners. Although they are velocity absorbers, so placing away from walls to increase low frequency absorption would make more sense.
- Turn reflective foil to face the room to reflect and scatter mid/high frequencies.

When to use them:

- If you are just starting out with treatment, since they help with a whole range of issues apart from bass.
- If you want your room to stay a little lively, or you need more low end control but your room is already quite dry.

How many you need:

- As many as your room will fit, probably more.
- To get a significant effect, add them in groups of 4 or 6 units at a time.

Pros and Cons:

+ Cheap
+ Relatively easy to design, build and use.
+ Allows some control over amount of high frequency absorption (liveliness) in the room -> very flexible
- Shape practically limits their use to vertical placement on the floor. Stacking is possible.
- Shape somewhat negates potential advantage of increased bass absorption by placing away from wall. Surface area is simply too small. -> Need a lot of units.

Resonance (Pressure) Traps

Sealed Box (a.k.a. Diaphragmatic | Panel | Membrane)

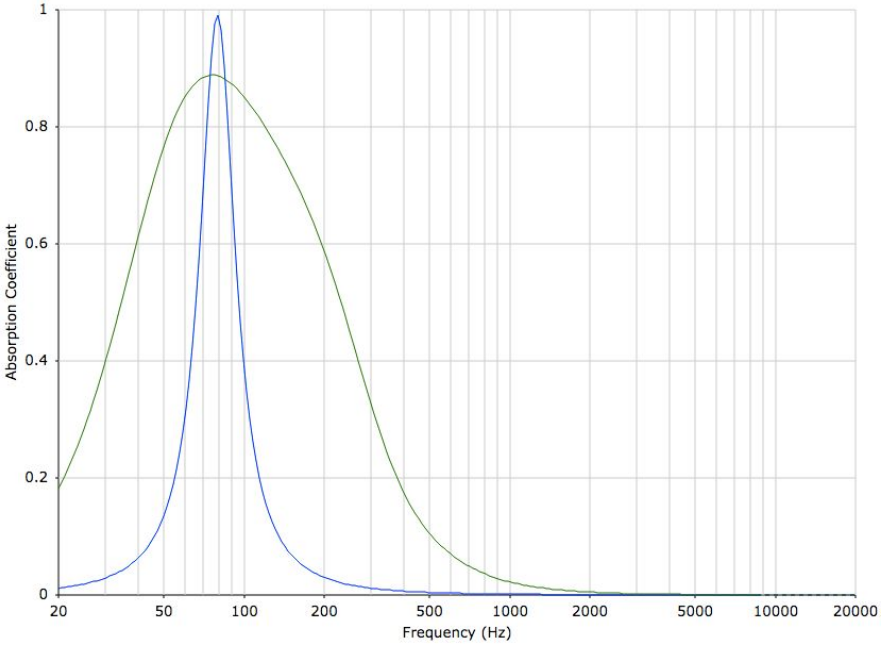
GIK Scopus (Source) and RPG Modex (Source)

How to identify them & causes of confusion:

- A hollow box sealed airtight with a membrane on one side.
- Membrane can be rigid (typically wood, literally looks like a wooden box) or limp (typically a heavy foil).
- Often square like a box, or as a half cylinder (poly) to diffuse reflections.
- Half cylinder design can easily be confused with a pure poly diffuser. Only acts as a diaphragmatic absorber when half cylinder is suspended over a sealed box. Note that without the sealed box some absorption still does happen due to vibration of the material alone.
- Needs to be purposely tuned to a particular frequency by choosing a mass for the membrane and a particular depth of the sealed air space.

What they do:

- Absorbs sound pressure at/around its tuning frequency.
- Works like a kick drum in reverse. Membrane vibrates on the air cushion at the tuned frequency. Porous absorption in the cavity dampens the motion of air, causing absorption.
- Rigid membrane designs are typically high Q / low bandwidth.
- Limp Membrane on the other hand inherently damps the resonant system typically making these designs low(er) Q / high(er) bandwidth.



Typical Absorption Coefficient: Sealed Box Pressure Absorber. Rigid membrane (blue) vs limp membrane (green)

How to use them:

- Work like a sniper rifle targeting precise frequencies.
- Used more like a surgical tool to remove particular issues.
- Place them at a pressure maximum of the frequency they are tuned to.
- Corners work great, because pressure tends to build up here. But in comparison to the velocity trap, you want your pressure trap to be as shallow as possible, so that it gets hit xwith maximum pressure right at the wall.

When to use them:

- When you've exhausted all space for velocity absorbers (remember: your room doesn't just have vertical corners!!), but still need more control in the low end.
- If you've got a particularly strong low end resonance that needs a specific solution
- If you want to control bass in the sub frequencies, below 40Hz.

How many you need:

- At least 4 per target frequency to get a significant effect.

General Pros and Cons:

+ Can hit very low frequencies.
- Difficult to design right. Modelling is inherently inaccurate. Experience helps.
- Small mistakes in construction can stop them from functioning.
- Ideally, resonant system is damped just right for highest efficiency.
- Expensive.
- Sensitive to bad placement.

Rigid Membrane Pros and Cons:

+ High Q design makes them very effective if designed and built properly.
- Narrow bandwidth makes them unforgiving to design errors. Hit the wrong frequency and it's all for nothing.

Limp Membrane Pros and Cons:

+ Relatively wide bandwidth makes them more forgiving to design errors. Hit the right frequency more or less and you're good. -> More suitable to DIY.
- Low Q design makes the trap less efficient than its stiff membrane counterpart. Potentially need more traps.
- Do not remove reflections in the mids and highs.

Perforated Box (a.k.a. Helmholtz Resonator)

Perforated Panel (Slats or Holes)


Source and Source

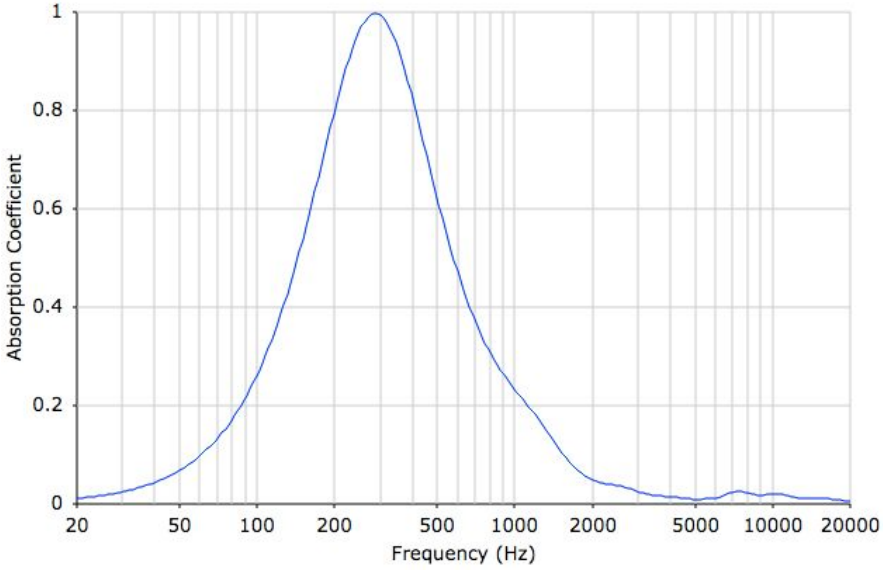
How to identify them and causes of confusion:

- Spoiler: This isn't really a bass trap. Once it is tuned to bass, it has effectively become a Helmholtz Tube.

- A hollow box sealed air tight whose front is covered in small holes or slots.
- Hole/slot pattern may act as a *binary amplitude diffusor* if arranged correctly.
- Holes or slots are typically ⅛” (5mm) to ½” (10mm) across.
- Only works as a resonance absorber if there is a sealed box behind the perforated panel and the holes/slots are small enough so that the air “plug” in the hole can go into resonance. Otherwise low frequencies absorption is simply determined by porous material in the air cavity.

What it does:

- Absorbs sound pressure in upper bass / low mid range.
- Tuned to a particular design frequency determined by depth of air cushion, and ratio of open to closed surface area.
- Absorption bandwidth is wider than membrane resonator but narrower than velocity absorber.



Typical Absorption Coefficient: Perforated Panel

How to use it:

- A bit like a shotgun. Just point it in the right direction..
- Absorb energy in the upper bass / mids while leaving the high mids and highs untouched.
- Place them flat on walls or ceilings where sound pressure is highest.

When to use them:

- Typically useful in large rooms like theatres and live recording rooms for broadband reduction of reverb in the middle and upper bass.

How many you need:

- Add them in batches of 20 ft^2 ($2m^2$) at a time to get a significant effect.

Pros and Cons:

+ Design equations are accurate.
+ Bandwidth is relatively wide. -> Resiliant to design mistakes.
+ Flexible in placement.
+ Relatively resiliant to construction mistakes.
- Do not work in low bass frequencies.
- Do not remove reflections in the mids and highs.
- Expensive.

Helmholtz Resonator (a.k.a. Helmholtz Tube)

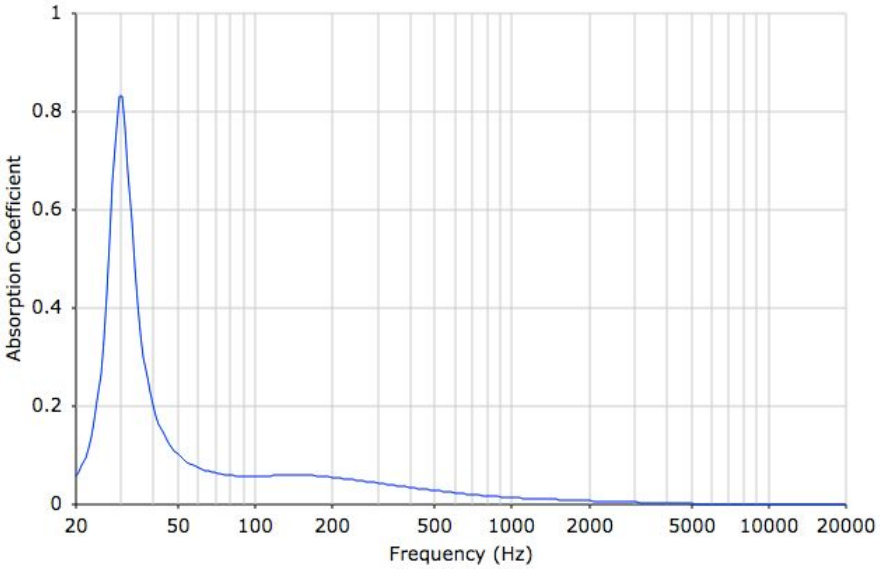
Corner Helmholtz Resonator (Source) and Vicoustic Vari Bass (Source)

How to identify it & causes of confusion:

- A hollow box sealed airtight with one or more big holes/slots on the front.
- Sometimes holes are extended to form short or tunnels.
- Holes/tunnels are usually between 5cm and 10cm in diameter.

What it does:

- Absorbs sound pressure at/around its tuning frequency.
- Tuning frequency determined by the volume of the air in the cavity and the size and length of the hole/tunnel.
- High Q / low bandwidth. -> Absorption quickly drops around tuning frequency.



Typical Absorption Coefficient: Helmholtz Resonator

How to use it:

- Like a sniper rifle targeting one exact frequency with a lot of power.
- Remove a very particular, strong problem that cannot be addressed otherwise.
- Place hole/tunnel at pressure maximum of the frequency you want to absorb, typically a corner.

When to use it:

- When you have a strong resonance in your room and you literally have exhausted ALL other possibilities.
- I cannot stress this enough, this is the most specialized tool in the toolbox, and it's the most difficult to use.

How many you need:

- Use at least 2 units per target frequency to get a significant effect.

Pros and Cons:

+ Extremely effective if executed right.
+ Can hit very low frequencies.
- Notoriously difficult to design and build.
- Mistakes in construction can stop it from functioning and even aggravate the problem.
- Expensive.
- Very large for low frequencies.
- Very sensitive to positioning.
- Interaction between units is poorly understood.[4]
- Do not remove reflections in the mids and highs.

Free Membranes

Limp Mass Hanger

Limp Mass Hanger (Source)

How to identify it & causes of confusion:

- A sheet of heavy flexible material, typically barrier mat or Mass Loaded Vinyl (MLV), usually suspended against a layer of porous insulation material.
- Note that there is no sealed air cavity behind the membrane. If there is a sealed air cavity, this is a standard resonance membrane absorber. One manufacturer in particular (*cough* primacoustics *cough*) makes a complete mess of describing this properly in their product so you understand how the trap actually works.
- The porous material serves only to dampen the motion of the membrane in this device. It is not directly accessible to the sound wave, for example through a wood frame. In practice this is difficult to do of course, so the absorption mechanism usually forms part of a combined absorber.

What it does:

- Poorly documented. Presumably absorbs low frequencies through sympathetic vibration with the air, which is damped by the porous material.
- Possibly works like a plate resonator, but theory of operation is not well researched/unknown. I could not find any concrete examples of their performance or theory of operation. Only anecdotal evidence.

How to use it:

- Difficult to say.
- Presumably place it in areas of high sound pressure.
- Large surface areas probably work best.

When to use it:

- When you have very limited space but still need full control in the low end.
- A better solution is probably it's real life sibling, the combined pressure and velocity absorber.

How many you need:

- Unknown.

Pros and Cons:

+ Potentially cheap and easy to build.
+ Potentially absorb very low bass in a shallow footprint.
- Absorption Mechanism poorly understood. -> Hit and miss design.
- Do not remove reflections in the mids and highs.

Rigid Hanger (Hidley Hanger)

Rigid Hanger (Source)

How to identify them & causes of confusion:

- Best known for use in Philip Newell's "Non-Environment" rooms.
- A sheet of heavy, rigid material suspended decoupled from the surrounding structure, often pointed at the speakers.
- Wrapped in light porous material.

What it does:

- "Absorbs Bass", possibly by resonance, possibly by simple porous absorption, possibly through the constant impedance change between air and the panels.
- Poorly understood/documented. I could not find any concrete examples of their performance or theory of operation. Only anecdotal evidence.
- It is possible that they do not work any better than simple porous material of the same depth.

How to use it:

- Unknown

When to use them:

- Unknown

How many you need:

- Unknown

Pros and Cons:

± Presumably absorb mid and high frequencies as well.
- Need A LOT of space.
- Functionality not documented.

Plate Resonator (a.k.a. Compound Baffle Absorber CBA | Verbundplattenresonator VPR)

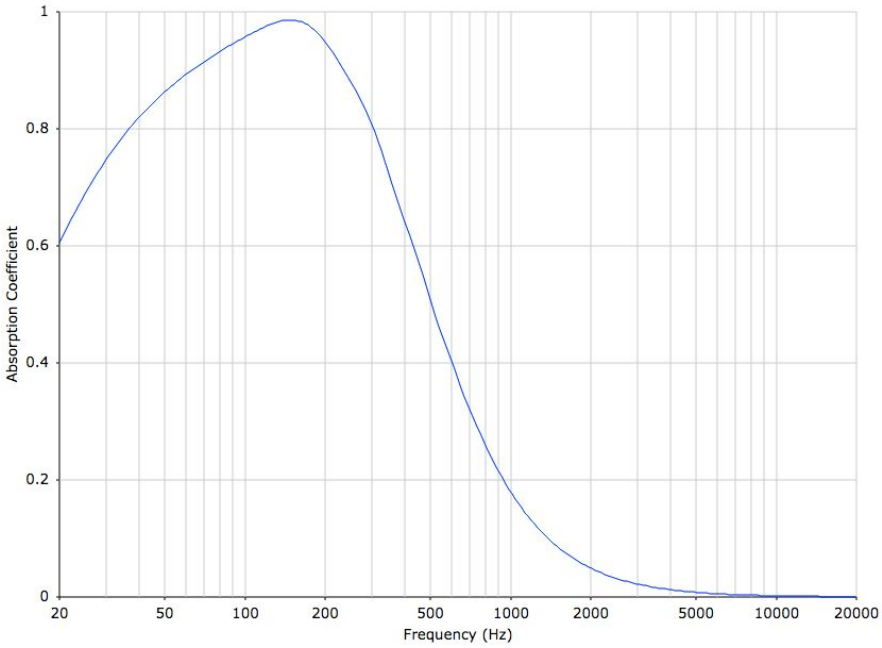
DIY Compound Baffle Absorber (Source)

How to identify them & causes of confusion:

- A plate of heavy, rigid material. Often steel, resting against a slab of insulation material.
- Sometimes housed inside a perforated frame.
- Although a tuned device, the CBA isn't tuned to one frequency, like the Helmholtz resonator. Instead its mass and dimensions dictate a number of different frequencies at which it will resonate, all contributing to absorption.

What it does:

- Plate moves as a whole, and bends in itself, against the insulation material.
- Insulation material damps this motion, absorbing the sound energy.
- Plate mass and dimensions determine absorption frequencies.
- -> Absorbs sound pressure from low lows to low mid frequencies.



Typical Absorption Coefficient: Compound Baffle Absorber

How to use it:

- Like a low frequency "broadband" panel.
- Place them flat on walls or ceilings where sound pressure is highest.

When to use them:

- When you need no compromise low end control in a very limited space.

How many you need:

- Use at least 2 units to get a significant effect.

Pros and Cons:

+ Extremely effective if executed right.
+ Can hit very low frequencies at shallow sizes.

+ Works “broadband” across the bass and low mids.
+ Easy to build and use.
- Difficult to design.
- Very heavy and expensive.
- Do not remove reflections in the mids and highs.
- Sensitive to placement.
- Require a lot of surface area.

Active Bass Absorbers

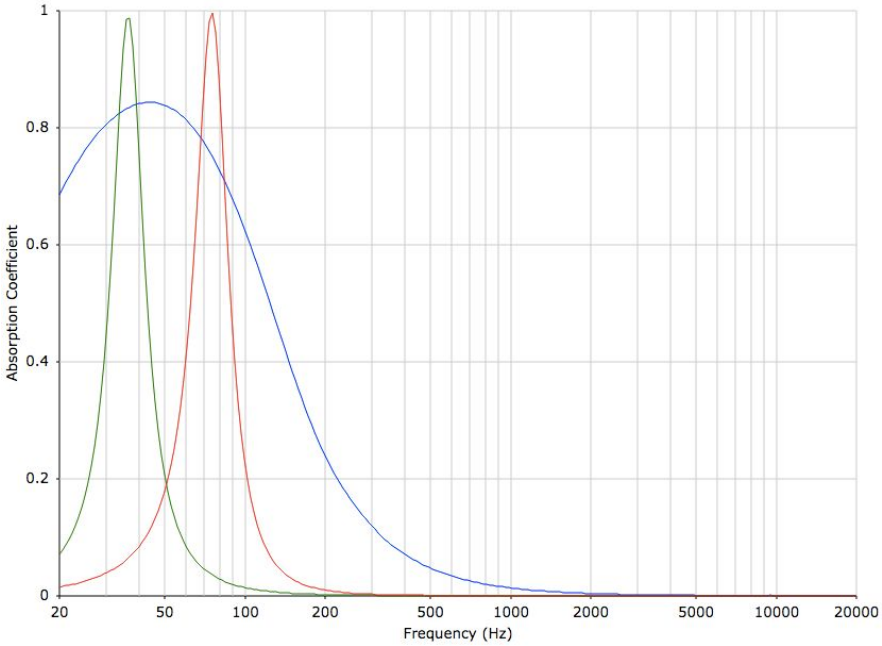
PSI Audio AVAA C20 (Source) and Bag End E-Trap (Source)

How to identify them & causes of confusion:

- Requires electricity, hence “active”.
- Usually a black box of sorts, may resemble a subwoofer.
- Don’t be fooled by the “Velocity” in the name of the AVAA C20. Although it converts pressure to velocity inside the device, the microphone still measures sound pressure, and the loudspeaker still produces sound pressure. This is a pressure absorber.

What they do:

- Essentially performs low frequency noise cancelling.
- A microphone picks up sound pressure variations, a loudspeaker chassis then produces a polarity inverted version that cancels out the incident sound.
- Designed to combat room modes specifically.
- Absorbs “broadband” across bass frequencies (PSI AVAA C20), or a specifically tuned frequencies (Bag End E-trap).



Typical Absorption Coefficient: “broadband” active absorber (blue) vs tuned active absorber (green & red)

How to use them:

- Works like a self targeting sniper rifle.
- Place where sound pressure is highest for offending frequencies. Tri-corners are a good place to start.
- May require tuning to the offending frequencies.

When to use them:

- When you need no compromise low end control in a limited space, and have exhausted all other possibilities.

How many you need:

- At least 1 unit, 2 recommended to keep response of the room symmetrical.

Pros and Cons

+ Extremely effective.
+ Can hit very low frequencies in a very small size.
+ Relatively easy to use.
- Very expensive.
- Do not remove reflections in the mids and highs.
- Sensitive to placement.

Combined Velocity and Pressure Traps

The idea here is pretty simply. You basically stick a velocity trap on top of a pressure trap, or the other way around, or even in multiple layers.

In either case, you are trying to get the best of both worlds, usually to form an absorber with broader range, in a slimmer profile, that is easier to use.

So combined traps are rarely pure bass traps. The whole point of them is to get absorption over a broader frequency range in a smaller package.

In reality though, as you stack absorption techniques, they will start affecting each other. It is not as simple as slapping a membrane on a piece of insulation material, and sticking another slab in front of the whole thing to get rid of high frequency reflections.

Designing a layered absorber that works efficiently, and as intended, is no trivial task.

So the benchmark when judging the value of such a device is this:

Does it actually outperform a standard velocity absorber of similar size? Does the performance justify the increased cost and effort?

In my opinion the answer in most cases is: no.

Because there are a whole range of combinations available, and this rabbit hole is endless, I am going to focus on the two simplest designs, so you can get an idea of what's going on.

Pressure Over Velocity Absorber

(a.k.a. Limp Mass Membrane | Range Limiter Membrane | FlexRange Technology)

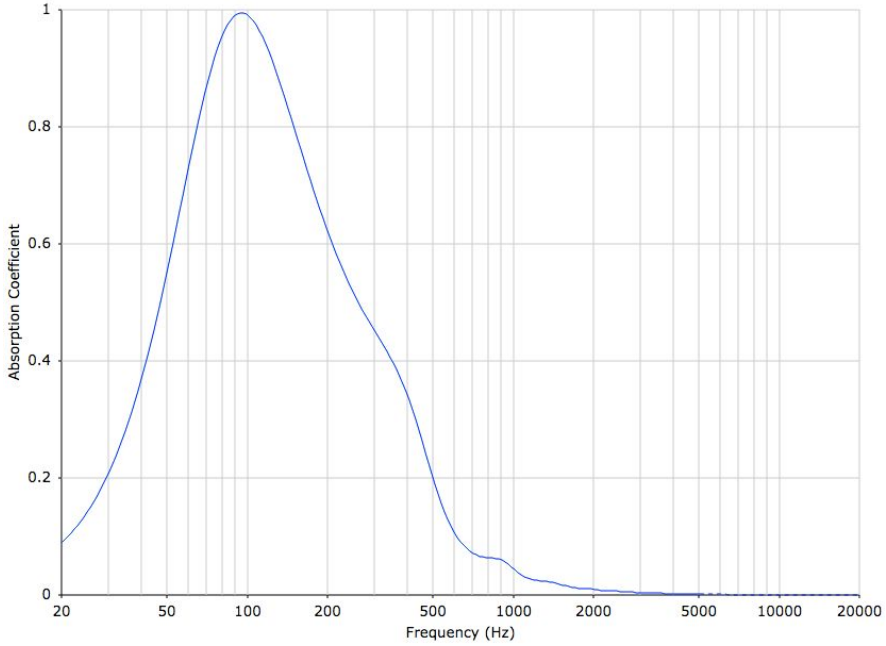
RealTraps MegaTrap (Source) & GIK Monster Trap with FlexRange Technology (Source)

How to identify them & causes of confusion

- The usual implementation of the limp mass hanger.
- A sheet of heavy flexible material, typically barrier mat or Mass Loaded Vinyl (MLV), suspended against a layer of porous insulation material.
- This is not a sealed box, so it is not tuned to a certain frequency.
- The porous material is open to sound coming in from the sides and the back.

What they do:

- Membrane presumably absorbs low frequencies through sympathetic vibration with the air, whose motion is damped by the porous material, causing absorption.
- Possibly works like a plate resonator, but I could not find a concrete description of their theory of operation.
- Sound reaching the porous material from the sides and back is absorbed through standard velocity absorption.
- -> Low frequencies are absorbed through membrane. Absorption drops of rapidly after “cutoff” frequency.
- -> Mid and high frequencies are reflected off the membrane, but some of it can reach the porous material and is absorbed.



Typical Absorption Coefficient: combined pressure over velocity absorber placed across a corner

How to use them:

- The device is not tuned to a certain frequency, so their is no point in trying to “target” a certain frequency with it.
- Place it in areas of high sound pressure, i.e. close to a wall or in a corner, so that the membrane can do its job. Of course you cannot expect good low frequency absorption from the insulation material here.

When to use them:

- If you are just starting out with treatment, since they work “broadband” across the bass range.
- When you already have short reverb times in the mids and highs, but still need more bass absorption.

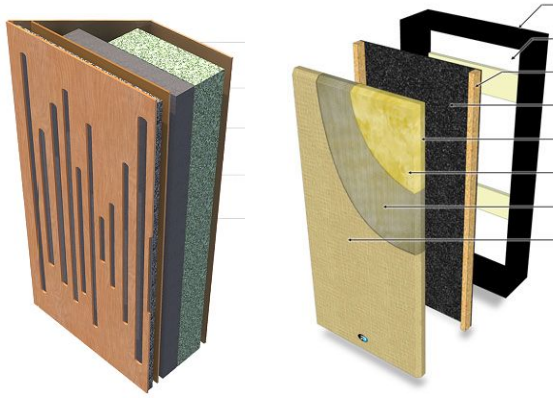
How many you need:

- As many as your room will fit, probably more.
- To get a significant effect, add them in groups of 3 or 4 panels at a time.

Pros and Cons:

+ Can be very effective if designed right.
+ Relatively cheap and easy to build.
+ Can hit low frequencies in a slim profile.
+ Easy to use.
+ Keeps mid/high frequency energy in the room
- Reflected energy is still specular, not broken up.
- Need to be designed right to perform well at low frequencies.

Velocity Over Pressure Absorber



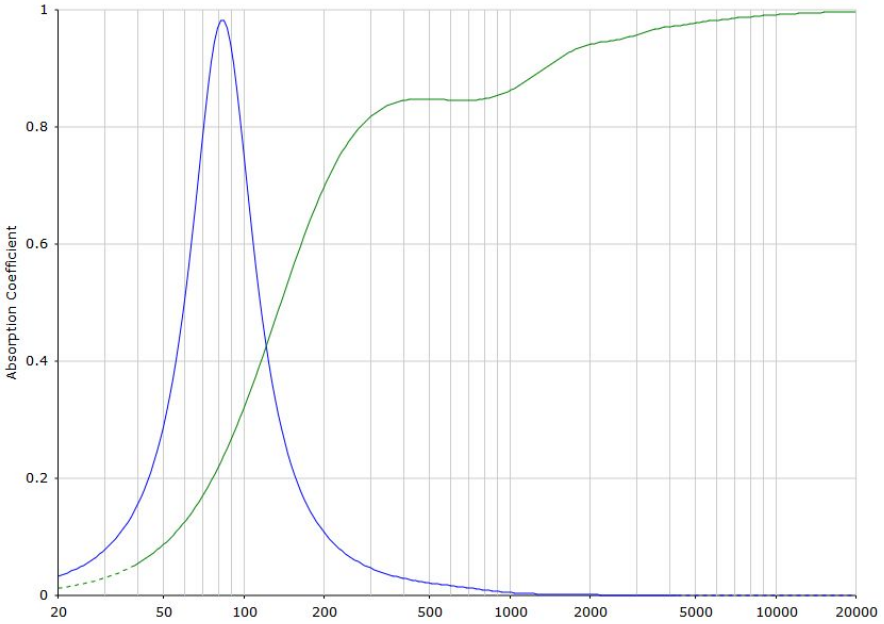
Vicoustic Super Bass Extreme (Source) & Primacoustics FullTrap (Source)

How to identify them & causes of confusion:

- A layer or porous absorption over a membrane absorber.
- The membrane absorber can be a sealed box type, or a free membrane type.
- This is where things become very messy. The wild west of absorber construction. Without a lot of experience with a particular design, it's anyone's guess if they work as well as the manufacturer claim.
- The porous absorption material is sometimes fitted with a front pattern of slats, gaps or holes to scatter mid and high frequencies.

What they do:

- Generally speaking, the porous material at the front absorbs mids and high frequencies, the pressure absorber behind it picks up where the velocity absorbers drops off.



Typical Absorption Coefficient: combined velocity (green) over pressure absorber (blue)

How to use them:

- Place it in areas of high sound pressure, i.e. close to a wall or in a corner, so that the membrane can do its job.
- If the pressure absorber is a sealed box design, then the device is tuned to a particular frequency. -> Place it in areas of high sound pressure for the frequency it is tuned to.

When to use them:

- If you are just starting out with treatment, since they help with a whole range of issues apart from bass.

How many you need:

- As many as your room will fit, probably more.
- To get a significant effect, add them in groups of 3 or 4 panels at a time.

Pros and Cons:

+ Can be very effective if designed right.
+ Relatively cheap and easy to build.
+ Can hit low frequencies in a slim profile.
+ Easy to use.
- Need to be designed right to perform well at low frequencies.
± Absorb mid and high frequencies as well.

DON'T BE FOOLED!

THIS IS NOT A BASS TRAP

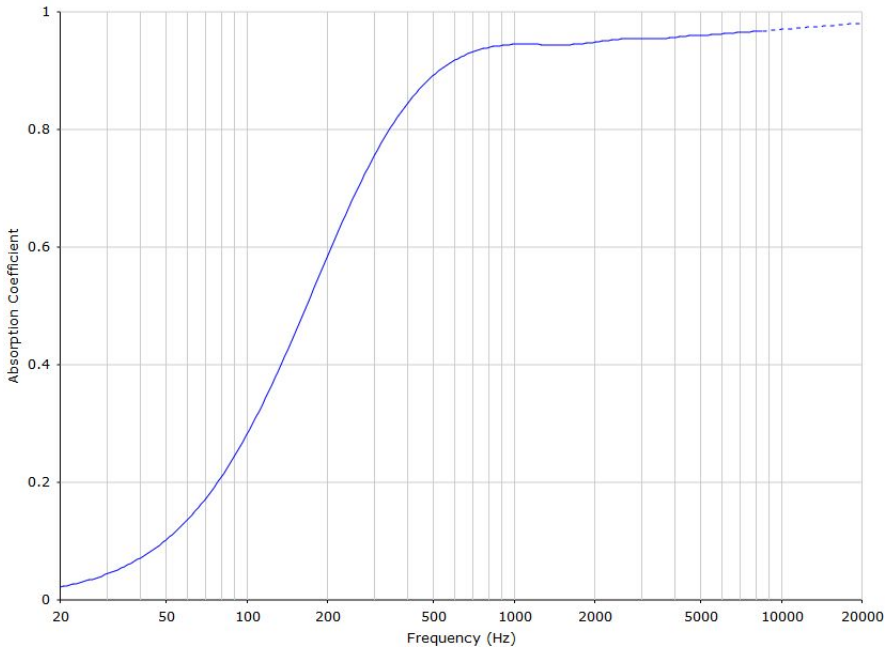
Auralex LENRD (Source) & Vicoustic Mega Fuser Bass Trap (Source)

How to identify them & causes of confusion:

- A triangular wedge of foam.
- Often with an angled front surface to imply diffusion.

What they do:

- Absorb sound velocity, just like all standard porous absorbers.
- The shallow average depth of the wedge keeps them from reaching low frequencies. -> Absorb mids and high frequencies.
- Equivalent to 4" (10cm) insulation material placed directly on the wall, but with a lot less surface area.
- In effect, they are "everything but bass" traps.
- Also do not offer any diffusion, since that would require the surface to be reflective, i.e. solid.



Typical Absorption Coefficient: foam corner wedge

How to use them:

- Don't.

When to use them:

- Never.

How many you need:

- None.

Pros and Cons:

- Too shallow to offer any bass absorption.
- Expensive for what they do.

References

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[3] Cox, T.J. and D'Antonio, P., 2017. Acoustic absorbers and diffusers: theory, design and application. CRC Press.
[4] Voetmann Jan., Klinkby J., "Review of the Low-Frequency Absorber and Its Application to Small Room Acoustics", 94th Convention, Audio Eng. Soc., Preprint 3578, (1993)