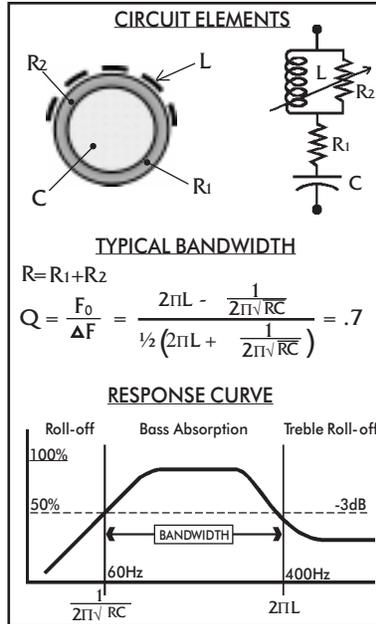


DESIGNED WITH ACOUSTIC PERFORMANCE IN MIND

ASC's *Tube Trap* is the first and foremost corner loaded bass trap in the audio industry. It's low frequency absorption is determined by the diameter of the *Tube Trap*: the greater the diameter, the lower the roll-off. The acoustic capacitor (C) is the air chamber inside, the bigger it is, the more efficient the *Tube Trap* is at low frequencies. The acoustic resistance (R) is DC impedance matched to the radiation (LC) impedance of a freely radiating soundwave. The specular diffusion panel that covers half of the *Tube Trap* is an acoustic choke (L) which is sized, ported and mass loaded to backscatter the treble range.

The operating bandwidth of *Tube Traps* is about 60Hz to 400Hz with a resulting Q = .7. The numerous proprietary steps integrated into the *Tube Trap* insure smooth, resonant-free response curves.

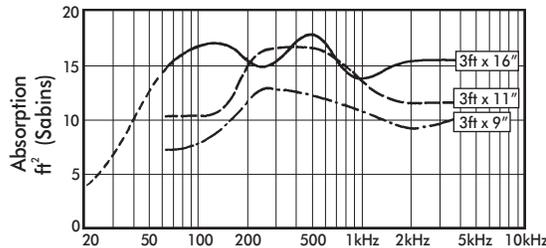


THE ACOUSTIC CIRCUIT



..... **Absorption**

- Curved walls are pressure loaded for resonance free absorption
- Entire curved surface of the Tube Trap is bass absorptive
- Impedance matched to radiation of the sound in free air
- Interior bulkhead compartments to increase efficiency
- Vented free breathing reflector sheet improves bass absorption



..... **Reflection**

- Reflector is curved for wide angle treble diffusion
- Perforated reflector gives smooth nearfield diffusion
- Reflector is a floating limp mass sheet and is resonant free
- Rotate the Trap to adjust reflector position and dial in ambience
- Specular diffusion, no time smear, storage or resonance effects
- Chrome button indicates the center of the reflective surface

... **Features** ...

- Freestanding, corner loaded bass trap
- Full bandwidth absorption to 40Hz or below
- Adjustable mid-range diffusion above 400Hz
- Sturdy exoskeleton construction for strength
- Threaded inserts for stacking and hanging
- Fiber-free construction, multiple sizes and colors



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The *Tube Trap* is the basic acoustic component in high performance sound systems. The original *Tube Trap* was developed as a corner loaded bass trap and voiced with a built-in treble range diffuser panel. Patented and lab tested, the *Tube Trap* has become a well known acoustic device in its own right. *Tube Traps* are used against walls, ceilings, loudspeakers and even in open space. By far, the most compelling feature of the *Tube Trap* is how convenient it is to position and adjust. This flexibility encourages experimenting in acoustics and has resulted in many unique innovations. The following sections outline basic principles used in *Tube Trap* setups.

Corner Loaded Bass Trap

The tri-corner of a room acts to transform and compress all of the acoustic energy in a sound wave into pure pressure fluctuations. *Tube Traps* are designed to take full advantage of the acoustic pressure zones created in the corners of a room. They convert the pressure changes into air movement within the dense walls of the *Tube Trap*. Through regulated friction in the walls of the *Tube Trap*, energy is damped out of the wave.

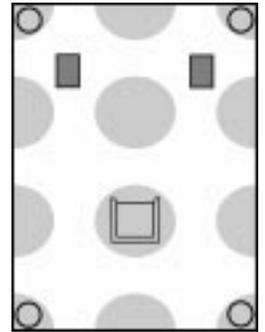
Because of how it works the *Tube Trap* is known as a "pressure zone bass trap." The diameter of the *Tube Trap*, not the length determines the low frequency cutoff. Only *Tube Traps* have built-in diffusive reflection panels to maintain ambience control. *Tube Traps* work best in areas where there is heavy bass, such as the corners of the room.



Room Modes

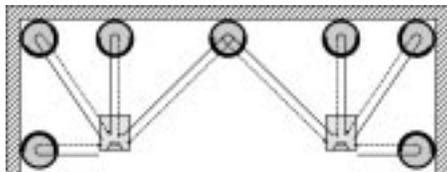
When low frequency sound is injected into a room, the waves reflect back and forth. At certain frequencies, the reflection patterns begin to overlap and lock into a synchronized condition with each other to produce standing waves. Whenever this pattern overlaps the speakers we get "room boom", an overpowering emphasis by the room/speaker arrangement to play only a few, very strong bass notes.

Nothing can actually get rid of room modes, short of removing the room entirely. But adding bass traps will even out the bass response and improve transient attacks and decay. Although every mode has a unique pattern of pressure zones distributed throughout the room, all modes have pressure zones in the tri-corners. ASC is the pioneer of corner loaded bass traps, and the *Tube Trap* remains the unsurpassed upgrade for all high performance audio acoustic systems.



Boundary Reflections

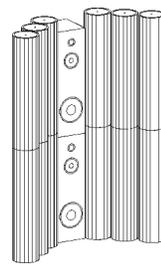
When a woofer is located near a wall, its freefield frequency response becomes distorted. The nearby reflection drives a pressure wave back over the speaker cone. Walls, floor and corner reflections produce 5 to 20ms delay signals that mix



with the direct signal at the driver to induce comb filtering effects into the bass range of the speaker and as well, side lobe beaming patterns.

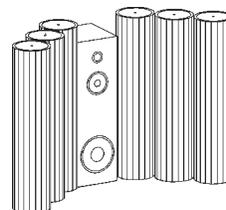
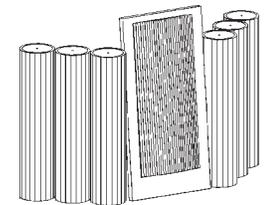
A *Tube Trap* located at each of these reflection points will reduce the strength of the reflection. This reduces the comb filtering and side-lobing effects in the bass range. But not all wall reflections are bad. Speakers located near walls deliver better deep bass. Our boundary conditioning Traps are bandwidth limited to allow them to defeat comb filtering and beaming effects but not at the expense of wall loading in the deep bass range. Diffusive strips in the Traps are oriented behind the speakers to better develop the ambience.

Bass Loading



Tube Traps can also be used in the open, close coupled to speakers in order to improve their performance. By stacking *Tube Traps* to expand the effective size of the speaker baffle board, the effect of increased bass directivity and efficiency is achieved. This works with sealed, front ported or dipole speakers, flown or stage mains, hi-fi, studio monitors, portable PA and nightclub systems.

In addition, the *Tube Traps* can be stacked in a forward stepped array that casts an acoustic shadow to the side of the speakers. The diffusive strips of the *Tube Traps* are oriented away from the front of



the speaker for color-free horn loading. This shadowing technique protects on-stage mics from feedback, small room listening from side wall reflections and halls from excessive reverberation.

When You Want the Best in Acoustic Performance, Specify ASC Tube Traps.