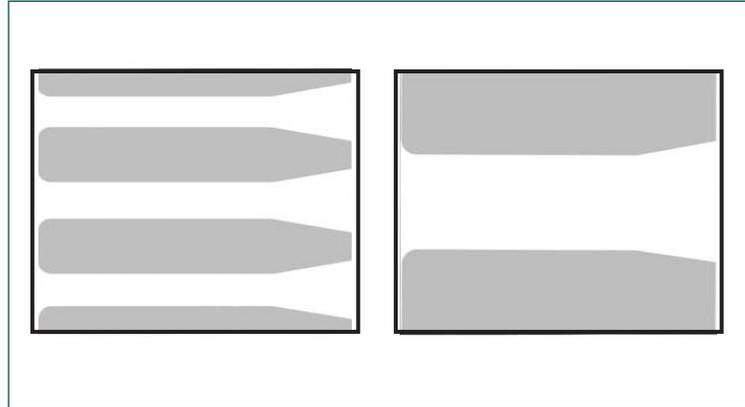


## SILENCER APPLICATION SOLUTIONS

### PROBLEM:

#### Low Frequency Noise

- ◆ Centrifugal fans and packaged equipment close to occupied space commonly generate low frequency noise problems which are difficult to attenuate using common silencing techniques.
- ◆ Forward Curve (FC) fans operating at high CFM's and static pressures are the most common sources of low frequency fan noise problems.
- ◆ Often, mid and high frequency noise is naturally attenuated by the duct system so that low frequency insertion loss is the primary need. Traditional standard silencers are most effective at mid frequencies. The resultant over-silencing of the mid-frequencies is a needless cost.

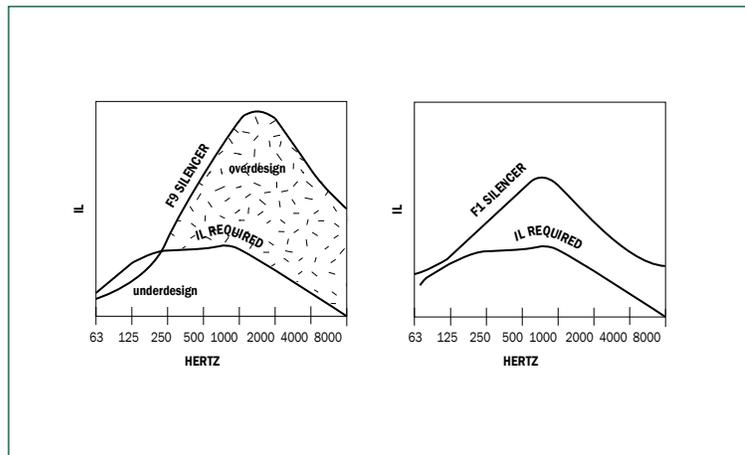


Traditional silencer (left) has many components and is costlier than a low frequency silencer (right).

### SOLUTION:

#### Low Frequency Silencers

- ◆ Vibro-Acoustics' silencer model numbers incorporate a "Frequency Indicator" which helps the user select the most effective silencer. The frequency indicator is displayed as an "F" with a numeric (e.g. F1, F2, etc.). A silencer with a low "F" numeric has better low frequency insertion loss (IL) and reduced mid frequency IL. The converse is true for a silencer with a higher "F" numeric.
- ◆ By calculating the insertion loss required (see Silencer Selection Guide) the user can optimize the silencer selection. If the requirement for mid and high frequency insertion loss is not great, then the silencer components can be reduced to both lower the cost and reduce the pressure drop. It pays to do a proper analysis.
- ◆ Vibro-Acoustics' low "F" rectangular silencers are lower cost than standard silencers because they have fewer mid frequency attenuation components.



Traditional mid-frequency (F9) silencer under-attenuates in low frequency, and over-attenuates in mid and high frequencies (left) (centrifugal fan system).

Low frequency (F1) silencer attenuates to achieve optimal results (right).

#### Acoustic Plenums as Silencers

- ◆ Acoustic plenums having 4", 6" or even 8" thick acoustic media used as silencers are effective low frequency attenuators.