

SILENCER SHEETS

DESCRIPTION

Vibro-Acoustics' RED (Rectangular Elbow Dissipative), REFL (Rectangular Elbow Film Lined) and RENM (Rectangular Elbow No-Media) silencers incorporate a full 90 degree and/or a partial bend to fit the duct system configuration. RED silencers use acoustic grade glass fiber protected by perforated metal. REFL silencers incorporate a film liner between the perforated metal and the glass fiber. RENM silencers do not use glass fiber and are completely void of any fill material.

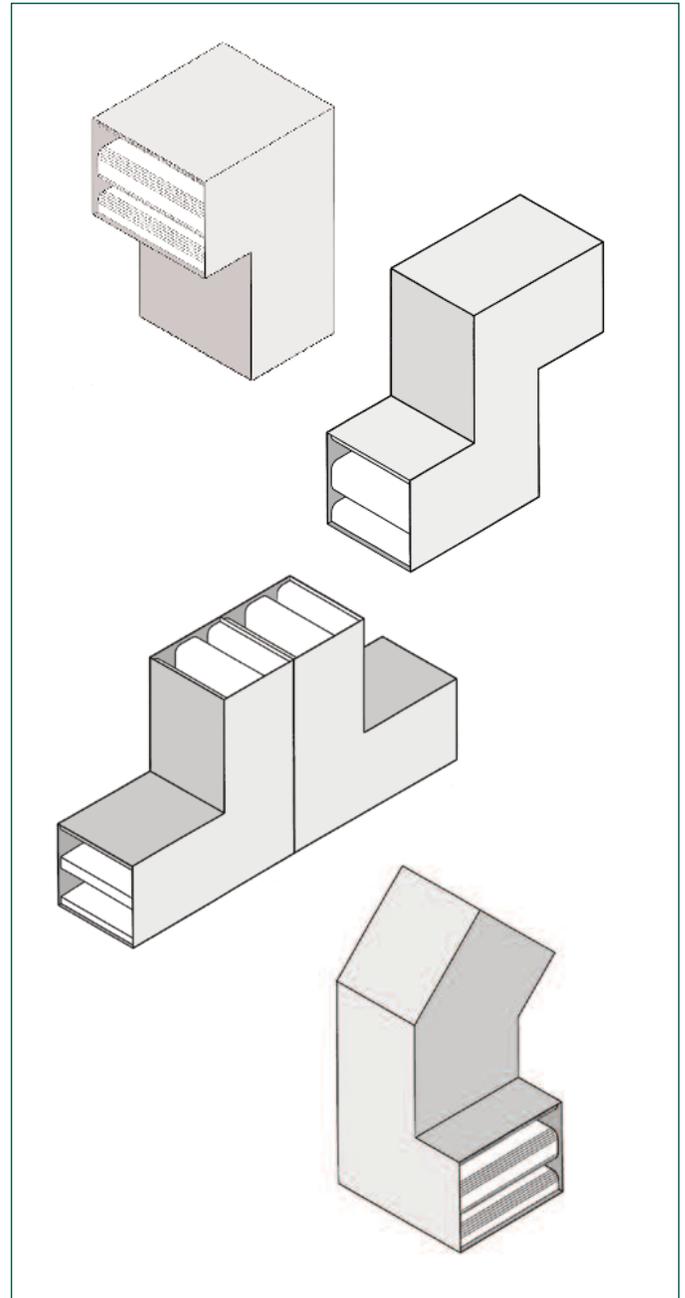
Splitters, sometimes called baffles, are aerodynamically designed to turn the air efficiently and minimize pressure drop. They vary in quantity and thickness, and air passages also vary in size.

APPLICATION

- ◆ when there is not enough space for straight silencers (straight silencers should not be located within three diameters of duct elbows or bends)
- ◆ in supply, return or exhaust ductwork
- ◆ in fan plenums and air handling units (both supply and return)
- ◆ on the receiver side of valves, dampers, terminal boxes, etc.
- ◆ economical substitution for acoustically lined duct (see SAS 10)

FEATURES AND BENEFITS

- ◆ allows silencing when space does not permit the use of straight silencers (see SAS 3)
- ◆ aerodynamic splitters and specially designed air passage ways efficiently turn the air for minimum pressure drop
- ◆ multiple configurations available such as
 - ◆ "T" shaped (two 90 degree Elbows back-to-back)
 - ◆ "Y" shaped (two greater than 90 degree Elbows back-to-back)
 - ◆ "T-Shirt" shaped (two less than 90 degree Elbows back-to-back)
 - ◆ "Z" shaped (two Elbows of any angle in series)
- ◆ available in any cross-sectional dimensions to "fit-the-duct"
- ◆ modular unit sizes to fit ducts and air handling units without using transitions or large blank-off sections
- ◆ can be selected to suit the acoustic, space, or energy-cost requirements



- ◆ construction quality and aerodynamic design optimized to give reliable performance, more acoustics, lower pressure drop and lower overall cost
- ◆ available in Dissipative (RED), Film Lined (REFL) and No-Media (RENM) options

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CAUTIONS / WHEN NOT TO USE RED, REFL AND RENM SILENCERS

- ◆ when there is enough straight duct length to effectively use straight silencers (see SAS 3)
- ◆ when there is not enough duct length consider using Fan Silencers (SS10 and SS11)
- ◆ when break-out noise is of prime concern RED, REFL and RENM silencers may be appropriate selections. They may require mass/stiffness added to their outer casing (see HTL Silencers (SS7))

TESTING

Vibro-Acoustics' 4th generation aero-acoustic laboratory was specially designed to enable a wide variety of tests, including Elbow Silencer testing. It was the first laboratory to be NVLAP accredited for the ASTM E-477 silencer test code. NVLAP is administered by the U.S. Dept. of Commerce. See the Corporate/Laboratory Section.

SILENCER SELECTION AND LOCATION

Elbow Silencers are not built up of standard modules like rectangular straight silencers. For elbow silencers, the outside to inside length ratio increases with the turning radius. Whereas for straight silencers the internal geometry is identi-

cal when silencer modules are combined. Therefore, Elbow Silencers need to be carefully selected to optimize performance. Call 1-800-565-8401 for custom selections by our application engineers.

SPECIAL CONSTRUCTION OPTIONS

- ◆ heavier gauge casings and perforated metal
- ◆ continuously welded casings
- ◆ special materials e.g. stainless steel, aluminum
- ◆ flanges
- ◆ access doors
- ◆ media protection: glass fiber cloth
- ◆ high transmission loss (HTL) casings to prevent break-out/break-in noise
- ◆ built in transitions
- ◆ removable splitters
- ◆ flow measuring stations
- ◆ for details of above and more special options see Special Construction Options (pg. 3.33 to pg. 3.37).

TO SPECIFY

See example specification located in the Selection/ Specification section.

STANDARD CONSTRUCTION FEATURES

RED

- ◆ galvanized, lockformed casing constructed to SMACNA standards
- ◆ 2" slip connection at each end
- ◆ aerodynamically shaped, galvanized nose at inlet
- ◆ galvanized gap plates between splitters to ensure close dimensional tolerances at air passages
- ◆ perforated galvanized splitters complete with perforated diffuser tail sections
- ◆ splitters filled with acoustic grade glass fiber under minimum 15% compression

REFL

- ◆ galvanized, lockformed casing constructed to SMACNA standards
- ◆ 2" slip connection at each end
- ◆ aerodynamically shaped, galvanized nose at inlet
- ◆ galvanized gap plates between splitters to ensure close dimensional tolerances at air passages
- ◆ perforated galvanized splitters complete with perforated diffuser tail sections
- ◆ splitters filled with acoustic grade glass fiber under minimum 15% compression
- ◆ glass fiber carefully wrapped in Tedlar film with lap joints away from splitter to reduce potential tearing of the Tedlar
- ◆ 0.5 inch deep corrugated honeycomb "stand-off" spacer sheet placed between the perforated metal and the film

RENM

- ◆ galvanized, lockformed casing constructed to SMACNA standards
- ◆ 2" slip connection at each end
- ◆ aerodynamically shaped, galvanized nose at inlet
- ◆ special "tuned" perforated galvanized splitters complete with perforated diffuser tail sections
- ◆ splitters configured with internal "tuned" chambers
- ◆ no acoustical media