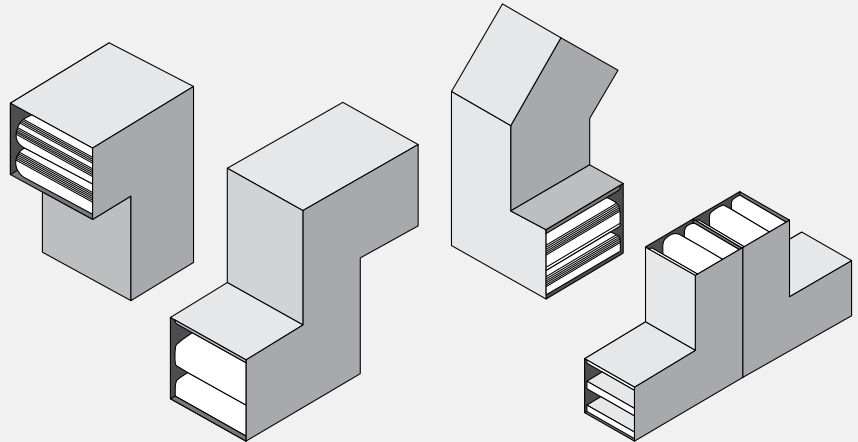


RED REFL RENM

Rectangular
Elbow silencers



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.

Applications

- > 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

Features and Benefits

- > Allows silencing when space does not permit the use of straight silencers
- > 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
- > 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](#))

Cautions/When Not to Use RED, REFL and RENM Silencers

- > When there is enough straight duct length to effectively use straight silencers

Performance Data/Testing

See [RED](#), [REFL](#), [RENM Performance Data](#) section. Vibro-Acoustics’ 5th generation aero-acoustic laboratory was the first laboratory to be NVLAP accredited (Lab Code 100424-0) for the ASTM E-477 silencer test code. NVLAP is administered by the U.S. Dept. of Commerce.

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 identical 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](#).

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 Vibar™ film with lap joints away from splitter to reduce potential tearing of the Vibar™
- > 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