

SILENCER SHEETS

RFL/CFL RECTANGULAR AND CIRCULAR FILM LINED STRAIGHT SILENCERS

DESCRIPTION

Vibro-Acoustics' RFL and CFL silencers use acoustic grade glass fiber as the principal sound-absorbing mechanism. Rectangular models utilize acoustical splitters, sometimes called baffles. Perforated metal and a film liner protects the glass fiber from erosion by the airflow. The glass fiber is also protected against contamination from elements in the airstream.

Similarly circular models have acoustical center-bodies, sometimes referred to as pods. The glass fiber is protected by a film liner and perforated metal. The CFL models also incorporate film lined glass fiber external to the duct connection size.

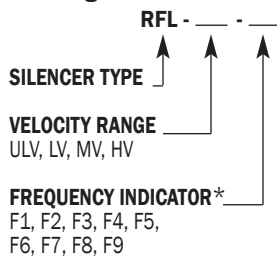
An acoustical spacer between the film liner and the perforated metal helps reduce the acoustic performance degradation caused by the film liner.

Splitters in rectangular models vary in quantity and thickness, and air passages also vary in width. Circular models vary in centerbody diameter, air passage width and external body dimension. The splitters and centerbodies are aerodynamically shaped to minimize pressure drop.

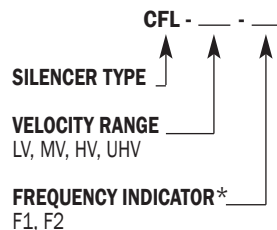
MODEL NAMES

Vibro-Acoustics' silencer model names are coded to help identify their recommended application range.

Rectangular



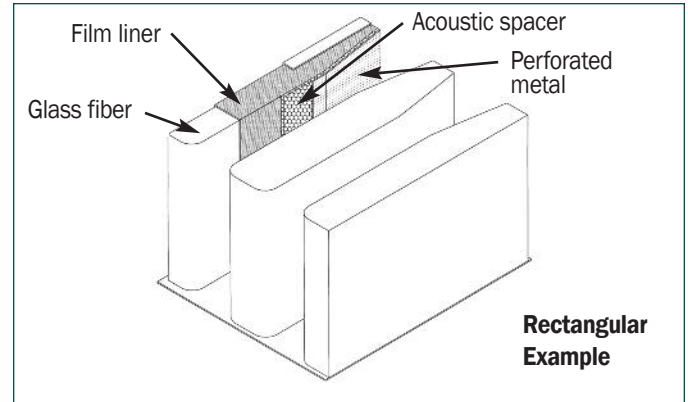
Circular



*The lower the Frequency Indicator, the better the silencer's insertion loss in the low frequency range. The higher the Frequency Indicator, the better the silencer's insertion loss in the mid to high frequency ranges.

APPLICATION

- ◆ wherever glass fiber is not desirable in direct contact with the airstream
- ◆ in supply, return and exhaust ductwork
- ◆ in fan plenums and air handling units (both supply and return)



- ◆ on cooling towers, air-cooled chillers, etc.
- ◆ on the receiver side of valves, dampers, terminal boxes, etc.
- ◆ economical substitution for acoustically lined duct (see SAS 10)
- ◆ normal recommended duct velocity range

RFL-ULV	0-500 fpm	CFL-LV	0-1500 fpm
RFL-LV	0-750 fpm	CFL-MV	1500-3000 fpm
RFL-MV	750-1250 fpm	CFL-HV	3000-5000 fpm
RFL-HV	1250-2000 fpm	CFL-UHV	5000-7000 fpm

For velocities in excess of the RD-HV range see the EX Model and RLP Silencers (SS8 and SS9)

FEATURES AND BENEFITS

- ◆ greatly reduces the potential for glass fiber particles to enter the airstream
- ◆ prevents contamination sources from entering the silencer media
- ◆ 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
- ◆ standard rectangular silencer lengths available in 36,60, 84 and 108"; custom lengths up to 144" at no cost premium
- ◆ can be selected to suit the acoustic, space, or energy-cost requirements
- ◆ construction quality and aerodynamic design optimized to give reliable performance, best acoustics, lowest pressure drop and lowest overall cost
- ◆ splitters can be aligned vertically or horizontally to minimize extra pressure losses due to poor inlet or discharge flow conditions e.g. near fans, elbows, etc.

SILENCER SHEETS

CAUTIONS / WHEN NOT TO USE RFL AND CFL SILENCERS

- ◆ when 3-5 equivalent duct diameters of straight, unobstructed duct are not available on both the silencer's inlet or discharge; consider using Elbow Silencers (SS5), Transitional Silencers (SS6) or Fan Silencers (SS10 and SS11)
- ◆ when velocities exceed 2000fpm for RFL silencers; see RLP Silencers (SS9) or EX Silencers (SS8)
- ◆ when no acoustical media whatsoever is acceptable in the airstream see No-Media Silencers (SS3)
- ◆ when break-out noise is of prime concern RFL and CFL silencers may be appropriate selections. They may require mass/stiffness added to their outer casing (see HTL Silencers (SS7) and refer to the Selection/Specification Section for proper silencer location)
- ◆ the acoustic performance of RFL and CFL silencers is generally less than RD and CD silencers. Longer lengths may be required to achieve the insertion loss required.

PERFORMANCE DATA / TESTING

See Performance Data section.

Vibro-Acoustics' 4th generation aero-acoustic laboratory 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

Vibro-Acoustics offers multiple selection methods, from Vibro-Acoustics Full-Service complete analysis to Do-It-Yourself quick selections. See the Selection/ Specification Section for details.

STANDARD CONSTRUCTION FEATURES

RFL

- ◆ 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

CFL

- ◆ galvanized, lockformed casings for class I construction
- ◆ galvanized or prime painted mild steel, stitchwelded and sealed casings for class II construction
- ◆ prime painted, mild steel continuously welded casings
- ◆ 2" slip connection at each end

STANDARD CONSTRUCTION FEATURES continued

RFL

- ◆ 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

CFL

- ◆ centerbody "bullet" centered and supported in airstream by steel struts
- ◆ centerbodies have either spun aerodynamic noses or truncated nose cones
- ◆ centerbodies have perforated diffuser tail sections
- ◆ casing and centerbodies 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

CONSTRUCTION OPTIONS

- ◆ heavier gauge casings and perforated metal
- ◆ continuously welded casings
- ◆ special materials e.g. stainless steel, aluminum
- ◆ flanges
- ◆ access doors
- ◆ 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.