

SILENCER SHEETS

RNM/CNM RECTANGULAR AND CIRCULAR NO-MEDIA STRAIGHT SILENCERS

DESCRIPTION

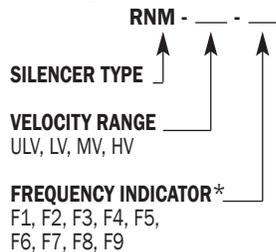
Vibro-Acoustics' RNM and CNM silencers do not contain glass fiber and are void of any fill material whatsoever. The Helmholtz resonator principle is used as the primary sound-reducing mechanism. Rectangular models utilize splitters, sometimes called baffles, which incorporate expansion chambers. The chambers are covered by specially tuned perforated metal. Similarly circular models have center-bodies, sometimes referred to as pods. The expansion chambers are in the centerbodies and external to the duct connection size.

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 dimensions. The splitters and centerbodies are aerodynamically shaped to minimize pressure drop.

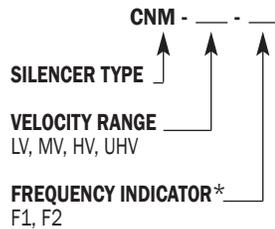
MODEL NAMES

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

Rectangular



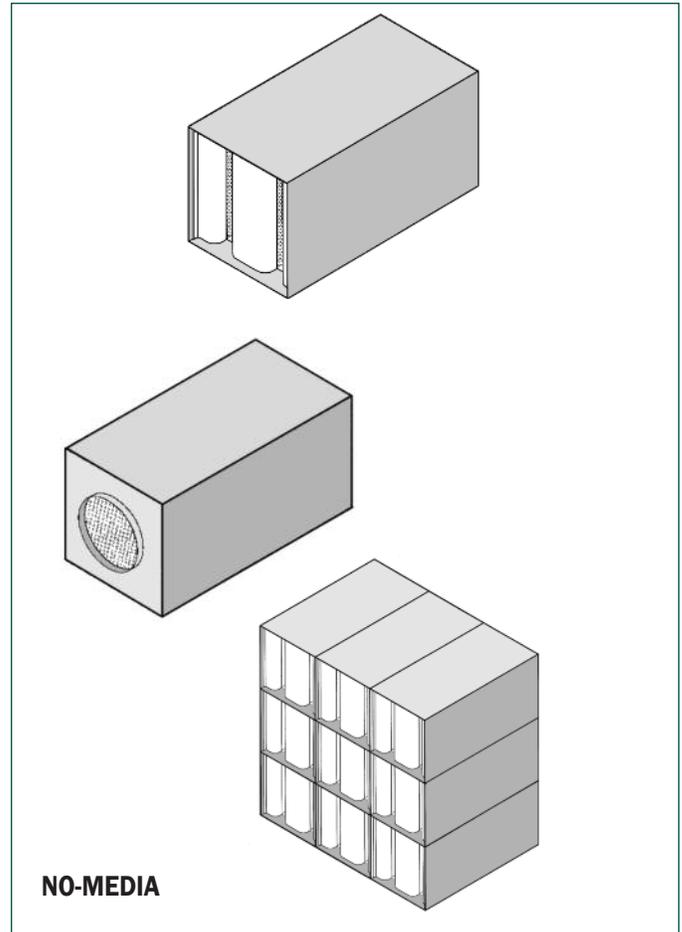
Circular



*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 acceptable in duct and air handling systems
- ◆ when it is necessary to periodically sterilize the entire interior of the silencer
- ◆ in laboratory fume hood systems, pharmaceutical manufacturing facilities, food processing plants, hospitals, clean rooms, kitchen exhausts, etc.
- ◆ in supply, return or 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.
- ◆ substitution for acoustically lined duct (see SAS 10)
- ◆ normal recommended duct velocity range

RNM-ULV	0-500 fpm	CNM-LV	0-750 fpm
RNM-LV	0-750 fpm	CNM-MV	750-1250 fpm
RNM-MV	750-1250 fpm	CNM-HV	1250-2000 fpm
RNM-HV	1250-2000 fpm	CNM-UHV	2000-3500 fpm

Patents U.S. 4,287,962;
CAN. 1,137,877; CAN. 1,160,959

SILENCER SHEETS

FEATURES AND BENEFITS

- ◆ no glass fiber particles to contaminate the airstream
- ◆ no glass fiber to host contamination within the silencer
- ◆ ability to sterilize the silencer
- ◆ RNM: available in any cross-sectional dimensions to “fit-the-duct”
- ◆ CNM: available in any diameter from 8”-16”; larger diameters also available - contact our application engineers
- ◆ 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.

CAUTIONS / WHEN NOT TO USE RNM AND CNM SILENCERS

- ◆ when 3-5 equivalent duct diameters of straight, unobstructed duct are not available on both the silencer’s inlet or discharge; consider using Circular Elbow No-Media Silencers (SS4), Elbow Silencers (SS5), Transitional Silencers (SS6) or Fan Silencers (SS10 and SS11)
- ◆ when velocities exceed 2000 fpm for RNM silencers; see RLP Silencers (SS9) or EX Silencers (SS8)
- ◆ when break-out noise is of prime concern RNM and CNM 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 RNM and CNM 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.

STANDARD CONSTRUCTION FEATURES

RNM and CNM

- ◆ 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 section
- ◆ splitters configured with internal “tuned” chambers
- ◆ no acoustic media

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.

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
- ◆ internal spray sterilization systems can be built into silencers
- ◆ drains to remove toxic or contaminated solutions
- ◆ airflow measuring devices
- ◆ 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.