



Akustik +
sylomer[®]
by getzner

ISOLATION OF MACHINERY IN BUILDINGS

AMC
MECANOCAUCHO

WHY AMC MECANOCAUCHO

Aplicaciones Mecánicas del Caucho (AMC) is a company that designs and produces anti-vibration mounts as well as noise insulation composites for the industrial and building sectors.

Since 1969 we have been developing noise and vibration solutions for a wide range of applications. To meet the demands of each project our products combine the properties of different isolating materials such as rubber, metal, springs and Sylomer.

Our dedicated engineering team are on hand to offer technical support with vibration calculations and product advice. On our website akustik.com you will find access to an extensive range of technical data for our products as well as calculation tools such as our acoustic mount selector. This tool allows the input of your system specifications and provides a recommendation of ceiling and floor mounts to meet the requirements of your project. Our library of acoustic test data is also available to view using our dB finder tool, this details the acoustic data we have obtained for various ceiling, wall and floor systems.

With a wide variety of clients served from across the world, we are ready to provide you with a personalised acoustic solution to your problem.



VIBRATION ISOLATION IN
MACHINERY ROOMS



Machinery in buildings

Why should you isolate machinery in buildings?



With the following information, our engineers can provide a calculation of the system and recommend vibration isolators:

- Total Load
- Drawing with center of gravity and mount positions
- Disturbing Frequency

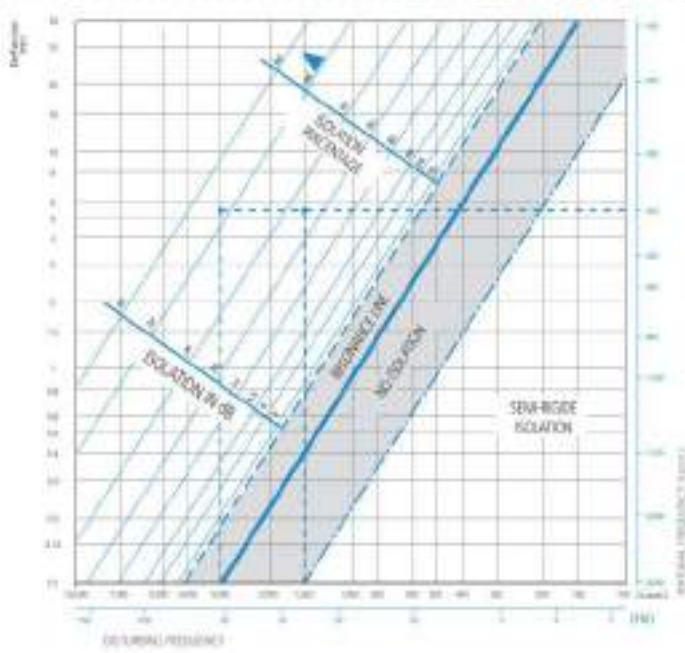
MACHINERY VIBRATION

Machinery in buildings produce **vibrations** that can be bothersome to **residents** or even **damaging to equipment**.

One example is noise, which is an audible vibration. Machinery that **vibrates between 20 and 20,000 Hz** will produce an audible noise. If this **machinery** is **connected to ducts or pipes**, this noise will **radiate** throughout the building. This can make it difficult to identify the source of the noise.

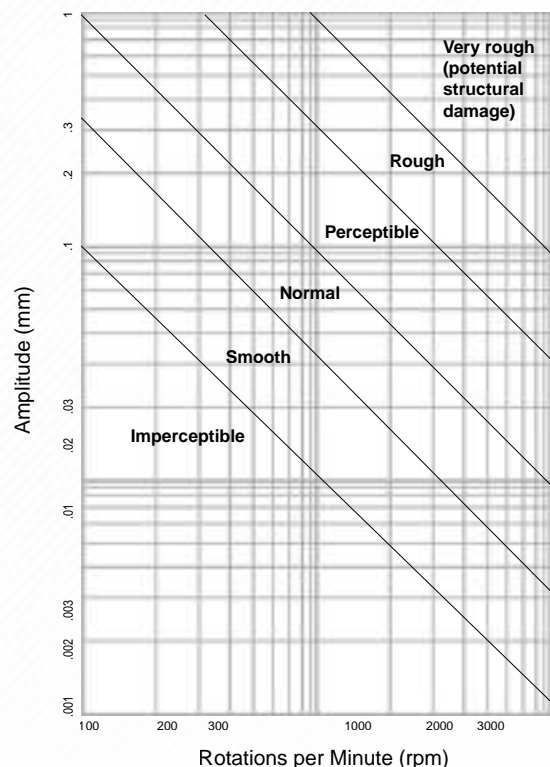
Because of this, it is important to **identify the frequency** of each machine and **install anti-vibration mounts** to decouple the system.

Decoupled systems that have a natural frequency **three times lower** than the machine's disturbing frequency should produce an **isolation level close to 90%**. The graph to the left shows the effect of the mount's natural frequency on the level of vibration isolation.



WHY SHOULD YOU ISOLATE?

Vibration isolation is necessary to protect the building structure and its inhabitants from vibration effects of machinery in operation. Generally, in the area of building services design, we are concerned with force transfer from equipment such as fans, pumps, compressors, engines, or motor driven systems. The graph to the right shows how perceivable a vibration can be based on its frequency and amplitude.



Machinery in buildings

Why should you isolate machinery in buildings?

One useful technique in vibration isolation of machinery is the use of an inertia base. Inertia bases lower the center of mass of the system, providing increased stability and evening out the weight distribution on the mounts.

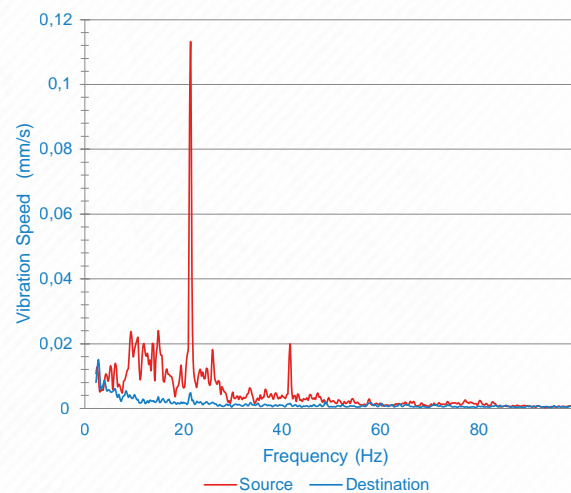
This results in a more uniform vibration isolation and reduces the risk of damaging the equipment or mounts due to irregular loads and vibrations. The images on the right show an example of using an inertia base on rooftop equipment to improve its stability.

Use of INERTIA BASES



In this field test, vibration measurements were taken on installed spring mounts under a HVAC system to determine their effectiveness. The graph below shows the significant decrease in vibration transmission between the machine and the floor

Vibration Isolation Measurement



Machinery
ISOLATION STUDY



Isolation Solutions

Materials & Combination

Our anti-vibration mounts come in **three different materials: rubber, Sylomer, and spring**, with the selection of the material depending on the specific requirements of the system. For example, for a cheaper solution requiring just **medium vibration isolation**, **rubber** can be an effective solution.



RUBBER

Small static deflection.
High damping



SYLOMER

Very small static
deflections



SPRING

Large static deflections.
Low damping

Isolation with Rubber



Isolation with Sylomer



Isolation with Spring



For solutions requiring **very high levels of isolation**, a combination of **spring and Sylomer** should be used.



Isolation of
**Machinery
Rooms**

Rubber Solutions

What & Installation

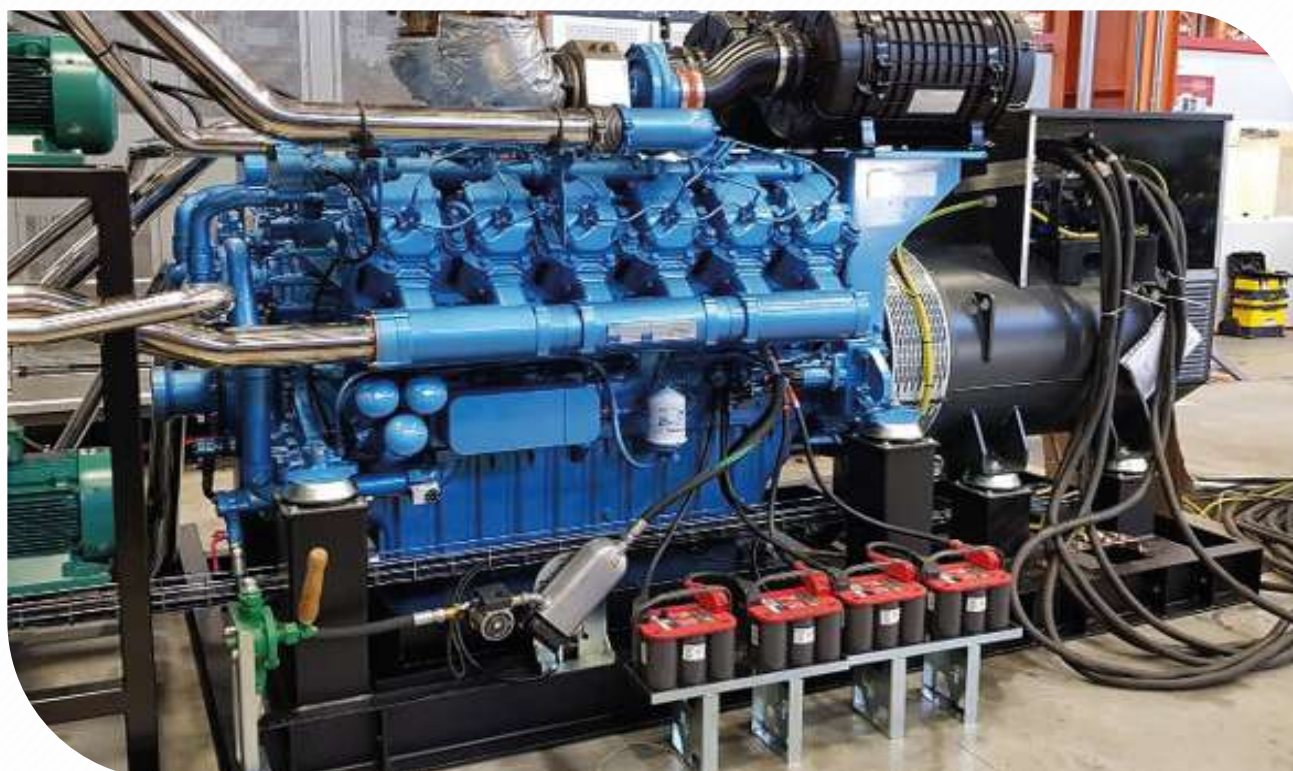
BRB Mounts

Are especially recommended isolation of rotating or mobile machines that are continuously subjected to shocks, dripping oil or diesel or are exposed to the elements.







DRD Mounts

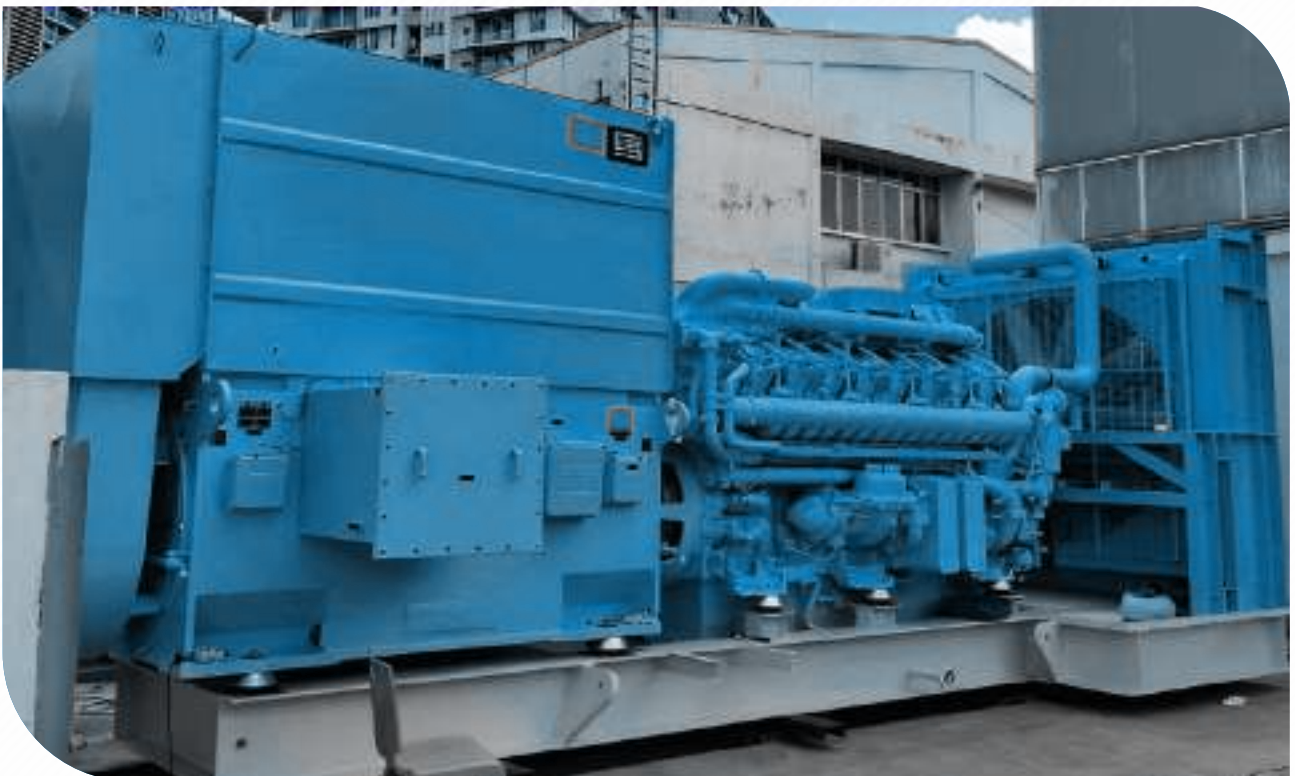
DRD anti vibration mounts have low axial and radial stiffness rates. Their design makes them ideal for those machines that produce vibrations in three axes.



Rubber Solutions

Technical Info

	Maximum load range (Kg)	Natural frequency range (Hz)	Minimum space required (mm)	
	20 - 3,150	3 - 12	25	<div>DRD</div> 
	12 - 4,200	5 - 15	25	<div>BRB</div> 
	70 - 5,000	7 - 14	31	<div>BSB</div> 





Isolation with
Sylomer

Akustik + Sylomer® Solutions

What & Installation

The Akustik+Sylomer® mounts are made of Sylomer®, a microcellular polyurethane material specially conceived for vibration isolation. This material produces a higher degree of damping than the elastomers traditionally used for this purpose.



Isolation of Chillers

FZ + Sylomer®



Isolation of a Rooftop Genset

FZH + Sylomer®

Preparation of floating floor for
isolation of a rooftop genset



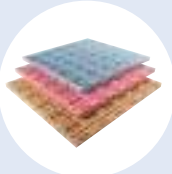







Isolation of Heat Pumps

TSR 150x150



Akustik + Sylomer® Solutions

Technical Info

	Maximum load range (Kg)	Natural frequency range (Hz)	Minimum space required (mm)	
	30	≥ 8	27	Sylomer Pad 
	60	≥ 15	21.5	FZH + Sylomer 
	30	≥ 8	85.5	FZ + Sylomer 
	15-75	≥ 8	33	TSR + Sylomer 

Isolation of
air conditioning
units





Isolation with
**Spring
+ Sylomer®**

Spring+ Sylomer® Solutions

What & Installation

Isolation of **speakers**

ST + Sylomer

Ideal for stationary applications where the acoustic hanger must provide a high degree of structure borne noise isolation.



Isolation of **HVAC equipment**

AMC Vibrabsorber

Spring mounts can be effective for machinery which by virtue of its design has reciprocating or rotating parts. The create vibration through the imbalance that can exist in these moving parts.



Installation of an inertia base on **spring mounts**



Spring+ Sylomer® Solutions

Technical Info

Floor

Maximum load range (Kg)	Natural frequency range (Hz)	Minimum space required (mm)
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915 - 2,409

3.5 - 8

150

FZH Spring + Sylomer



67 - 10,800

2 - 5

120

3V-SR+ Sylomer



67 - 10,800

2 - 5

128

4V-SH+ Sylomer



Ceiling

ST + Sylomer



5 - 60

3 - 4

112



SRS + Sylomer



25 - 150

3 - 4

150



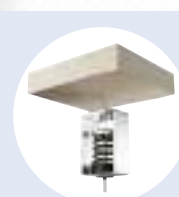
VT



8 - 750

5 - 7

120



Spring+ Sylomer® Solutions

What & Installation



Isolation of **HVAC equipment**

V-SR

These mounts feature a mechanical fixation on the base to anchor the system during operation. This ensures the stability of the unit.

Isolation of **chillers**

V-SH

These mounts provide high reliability for the isolation of low frequency vibrations.



Isolation of **Ventilation systems fro subways**

**V-SH
Anti-seismic**

Spring+ Sylomer® Solutions

What & Installation



Isolation of **Chillers**

Vibrabsorber Anti-Seismic



Elastic suspension **of Silencers**

VT Hanger



Isolation of **Axial fans**

VT Hanger

Vibration Isolator Pro Web Selector Tool



Download Vibration Isolator Pro!



VIBRATION ISOLATOR PRO

By using the isolation calculator from the AMC Mecnocaucho website, you can obtain a mount recommendation for your system given the inputs seen below. Through this, you can get a better understanding of what mount types would work best for you.



Calculation Tool

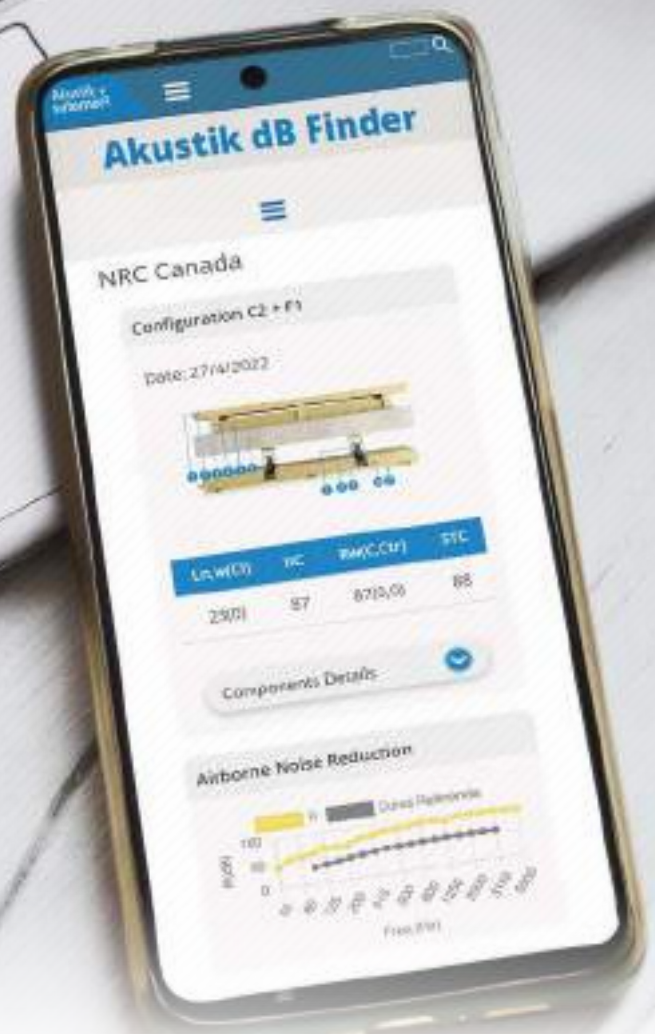
Web & App

AKUSTIK DB FINDER

Let your phone discover the main disturbing frequencies of your application. The integrated accelerometers of your phone are capable of making an FFT measurement where you will be able to see what are the main frequencies that you need to isolate.



Akustik Db Finder





Our **expertise lies** in the **building** and **industrial acoustics field**, with a dedicated **technical department**. We have skilled engineers situated across various countries who are prepared to comprehend your specific situation and offer suitable solutions. Don't hesitate to **get in touch with our main office or explore our websites** and social media platforms.



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