



### FAST FOURIER TRANSFORM (FFT) TEST ON FAN WITH VIBRABSORBER+Sylomer®

With the aim to confirm the advantages of applying Sylomer® on our spring system, an analysis of FFT was carried out on fan system of a known international make.

#### THE ADVANTAGES OF THE VIBRABSORBER+ Sylomer® SUPPORTS ARE:

- The Sylomer mat that these dampers incorporate isolates the mid-high frequency vibrations which are transmitted through the coils of metal springs.
- These high and mid-range frequencies, if they are not isolated, are spread throughout the buildings or structures, generating noise.

#### OBJECTIVE OF THE TEST

The objective of this test is to compare the isolation which the Vibrasorber springs offer with or without Sylomer.

#### MEASURES USED.

**Reference of the Machine: FAN Power 20 Kw**  
**Supports used: 1 AMC 250+ Sylomer® P12**

**Measuring equipment: FFT Pulse, Bruel & Kjaer multi analyser. The spectrums shown in the graphics demonstrate that they are within a frequency range of 0-1000Hz and 1600 lines, represent the vibratory speed.**

#### TEST METHOD:

So as to know the isolation of the vibrations for each anti-vibratory phase, the sensors were placed in the following positions:

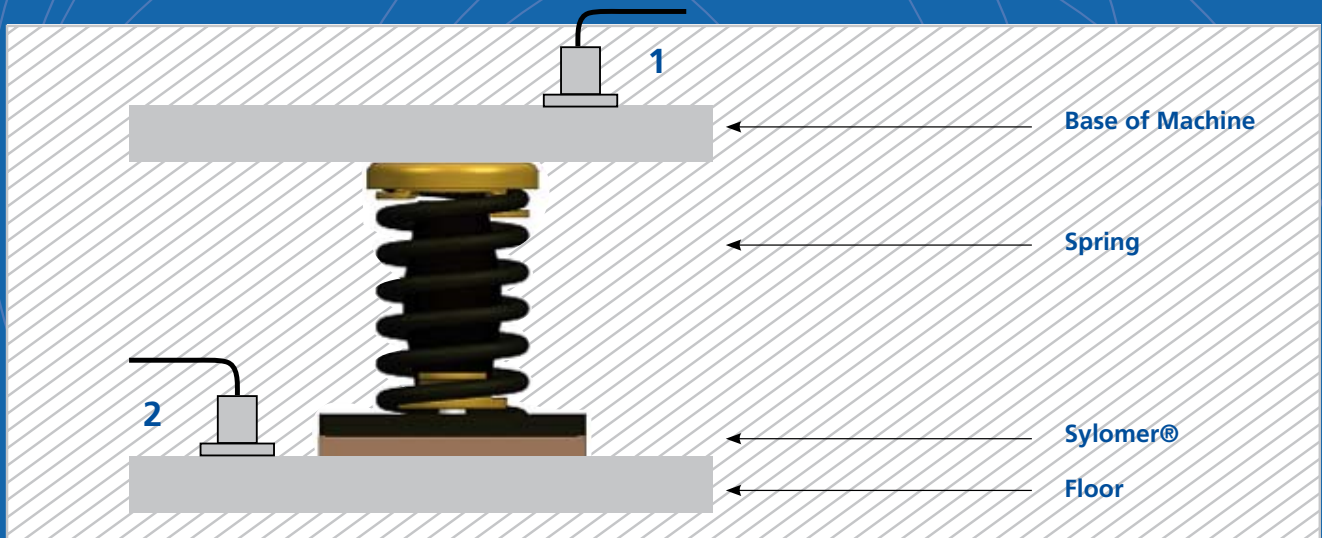
Position of the sensors:

- 1.- Machine:** The objective is to know the nature of the vibrations of the machine, both their magnitude as well as frequency.
- 2.- Base of the support:** The objective is to know the vibratory isolation achieved by the spring.
- 3.- Floor:** The objective is to know the vibratory isolation achieved by Vibrasorber + Sylomer®.





## Fast Fourier Transform Test



### PHOTOGRAPHS OF FFT TEST:

1AMC 250



1AMC 250 + Sylomer<sup>®</sup> P12



### FAST FOURIER TRANSFORM (FFT) TEST ON A CONDENSER UNIT WITH VIBRABSORBER+Sylomer®

#### RESULTS:

FFT Pulse, Bruel & Kjaer multi analyser. The spectrums shown in the graphics demonstrate that they are within a frequency range of 0-1000Hz and 1600 lines, represent the vibratory speed.

#### 1.- Results on the Machine POINT 1:

The maximum vibration rms velocity is situated at 25Hz followed by another of lesser magnitude at around 50 Hz. High frequency vibrations are also observed which correspond to harmonics and structural frequency responses from the machine.

#### 2.- Results on the Machine POINT 2 without Sylomer®:

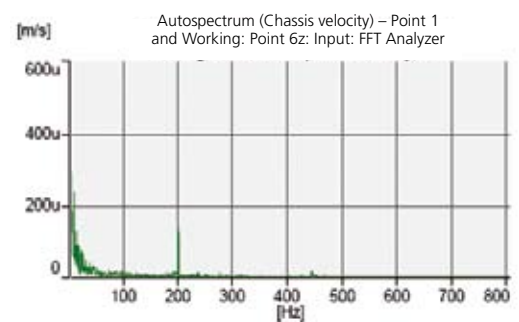
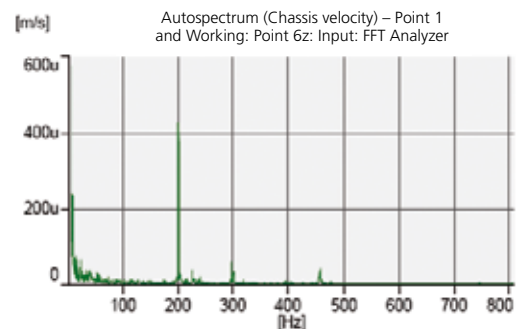
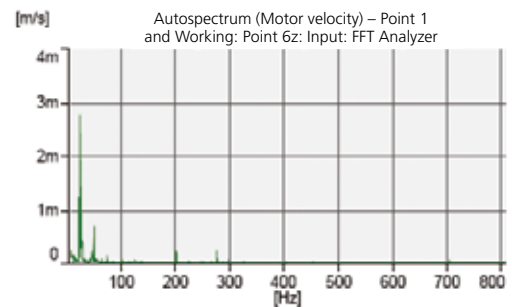
In this graphic, a reduction can be observed in the predominant peaks. What is most noticeable is that frequencies above 200Hz are transmitted through the coils of the spring. These frequencies from 100 to 500 Hz are considered "audible" frequencies, meaning noise.

#### 3.- Results on the Machine POINT 2 with Sylomer® :

In this graphic, a reduction can be observed in all the peaks. The transmission of "noise" through the coils of the spring is reduced.

#### CONCLUSION:

The air conditioning machines generate vibrations in a wide frequency spectrum (base frequencies). It is vital that the anti-vibration supports are cable of isolating the low medium or high frequencies to the maximum. The Spring of the Vibrabsorbers is very effective for the low frequencies while Sylomer® is especially interesting to reduce medium and high vibration frequencies also called "structural noise".



# VIBRABSORBER

by getzner  
**+ sylomer®**



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+ SYLOMER