Comparative tests at the LABEIN technology centre

The Labein technology centre performed a series of comparative tests to confirm the good acoustic results of Akustik+Sylomer®. This centre is officially ENAC-certified and complies with the requirements of the ISO 140-1:1997 standard.

PURPOSE OF THE TEST

The purpose of the test is to compare, in equal conditions, the acoustic isolation to air-borne noise of a false ceiling without anti-vibration suspensions (direct transmission) to a false ceiling with the new Akustik+Sylomer® suspensions.

The secondary endpoint is to compare the Akustik+Sylomer® to another suspension with the same size-specific characteristics using high-resilience natural rubber from our Akustik 4 45 shore A standard series.

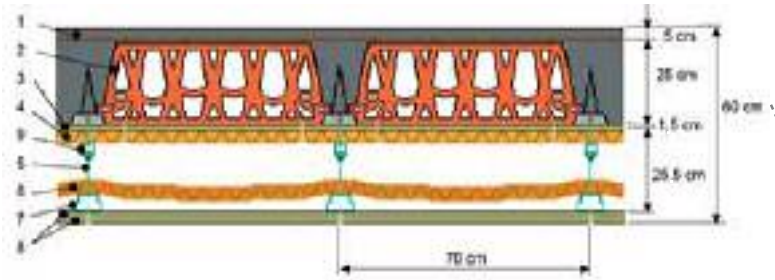
TEST METHODOLOGY

The reports contain the results of the noise isolation test to airborne noise conducted according to the UNE-EN ISO 140-3 standard for a false ceiling with the following ceiling mounts:

- Direct transmission (without anti-vibration suspensions).
- Akustik 4 45 shore A.
- Akustik 3+ Sylomer®30 Type B.

Besides the isolation curves, two RW and RA indexes have been calculated and used to compare the performance of the different suspensions. The Rw noise reduction index of the sample tested and the terms of adaptation of the C and Ctr spectrum were obtained according to the ISO 717-1 standard, based on the isolation curve. The pink noise isolation index RA between 100Hz and 5 KHz is that which is specified by the Basic Spanish Building Standard: NBE-CA 88 "Acoustic Conditions".

Specimen used for the test



IMPORTANT NOTE: The composition of the false ceiling is not meant to be used for teaching purposes in acoustics. It is a standard implementation whose objective is to compare the anti-vibration elements.
The specimen used in the tests is a standard ceramic hollow block with an approximate isolation of 54 dB A.

The results and the descriptive reports can be downloaded free of charge from *www.akustik.com*

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COMPARATIVE RESULTS OF THE TEST BETWEEN A SUSPENDED CEILING WITH AND WITHOUT AKUSTIK+SYLOMER®.

Graphic 1 shows the isolation provided by a single plasterboard suspended with Akustik + Sylomer® suspensions and the same ceiling fitted with M6 rod. The blue line represents the isolation achieved with Akustik + Sylomer® mounts.

As can be seen, there are major differences at low and high frequencies, offering a difference of:

- 3 dB at 125 Hz
- 6 dB at 250 Hz
- 5 dB at 500 Hz
- 5 dB at 1000Hz

At the same time, comparative tests were conducted with ceilings with a greater number of plasterboards. Table 1 shows the results of the RW reduction index:

It is clear that the use of Akustik+Sylomer® suspensions provides far greater airborne isolations, which in some cases are equivalent to or greater than the use of 2 or 3 plasterboards with anti-vibration ceiling mounts.

The results and descriptive reports can be downloaded free from *www.akustik.com.*

Akustik isolation curves

Graphic 1

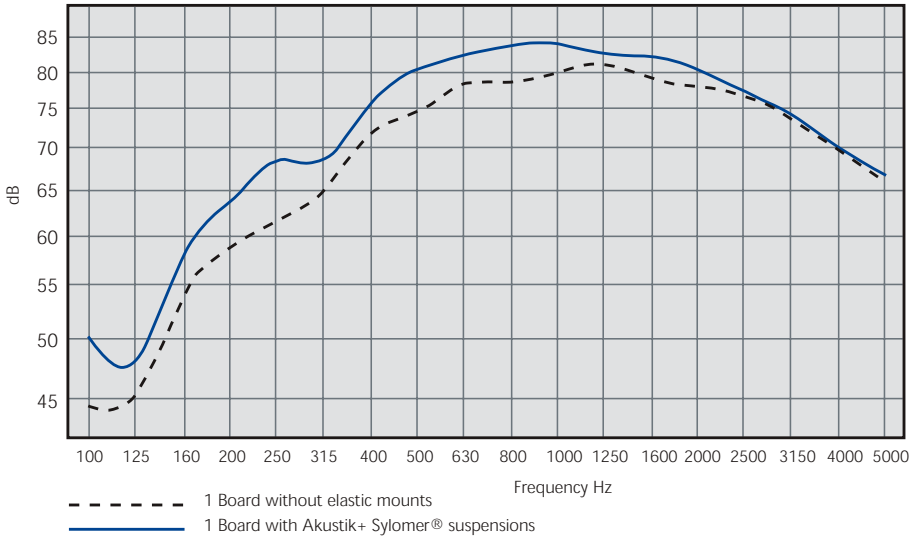
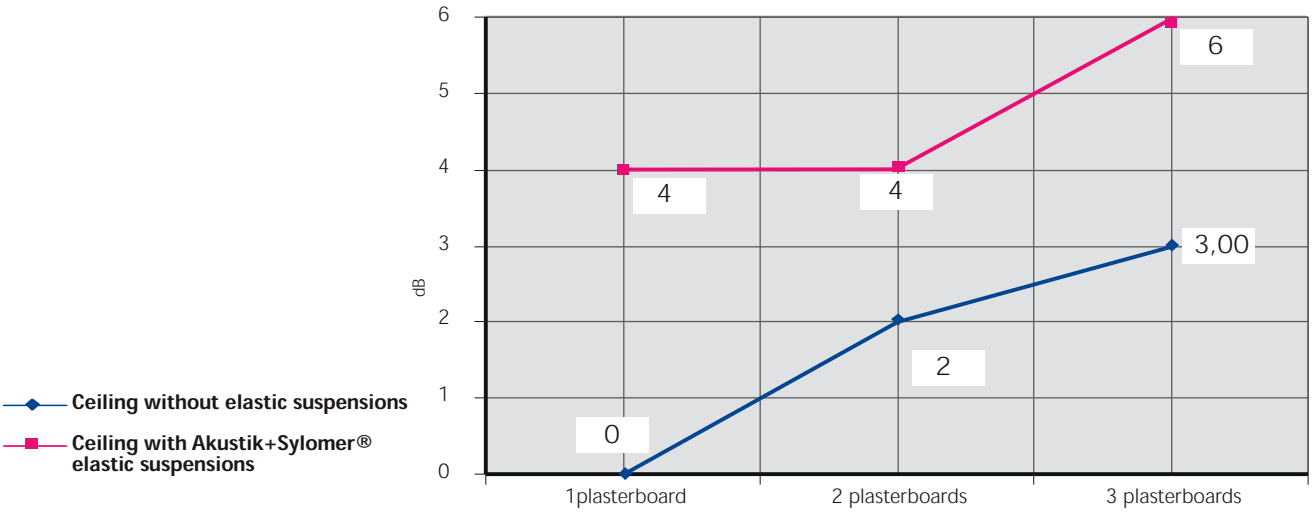


Table 1

RW sound isolation index	Without suspensions (M6 rod)	With suspensions Akustik + Sylomer®
1 plasterboard	71 dB	75 dB
2 plasterboards	73 dB	75 dB
3 plasterboards	74 dB	77 dB

Gain in dB thanks to the use of the Akustik+Sylomer® suspensions as opposed to a ceiling without elastic suspensions.



COMPARATIVE RESULTS OF THE TEST BETWEEN A SUSPENDED CEILING WITH AKUSTIK+SYLOMER VS RUBBER SUSPENSIONS.

Table 2 compares the RA sound isolation index according to the number of plasterboards.

The improvement is self-evident. the akustik+sylomer® mounts offer a superior isolation to the rubber mounts. This difference is so great that it may be said that a ceiling with a plasterboard with akustik+sylomer® offers the same isolation as a ceiling with two plasterboard rubber suspensions. This therefore means savings in time and material.

The savings in plasterboard and labour costs make these mounts particularly interesting. both technically and economically.

In order to provide a better analysis of the differences between the rubber mounts and the akustik+sylomer® mounts. table 3 shows the isolation data at different frequencies.

The results of these tables show that the isolation differences are in the low frequency range. which is particularly interesting for the isolation of premises without soundproofing. since they are particularly difficult to isolate.

Table 2

RA sound isolation index	With akustik+sylomer® suspensions	With rubber suspensions
1 plasterboard	70.4 dB	70.8 dB
2 plasterboards	71.3 dB	70.3 dB
3 plasterboards	72.3 dB	71.3 dB

Table 3

False ceiling with 1 plasterboard		
Frequency	**Akustik+Sylomer®**	**Rubber**
160 Hz.	58.3 dB	57.5 dB
250 Hz.	68.4 dB	66 dB
500 Hz.	80.3 dB	79.1 dB

False ceiling with 2 plasterboards		
Frequency	**Akustik+Sylomer®**	**Rubber**
160 Hz.	57 dB	56.9 dB
250 Hz.	70 dB	68 dB
500 Hz.	81.5 dB	81.1 dB

False ceiling with 3 plasterboards		
Frequency	**Akustik+Sylomer®**	**Rubber**
160 Hz.	60.4 dB	58.5 dB
250 Hz.	69.4 dB	67 dB
500 Hz.	82.4 dB	81.1 dB