



Test Report No. 250/13

Laboratory Measurement of Airborne Sound Insulation
according to ČSN EN ISO 140-3

Test subject: Acoustic panel AKUSTIK 60P

Contract No: 363 097

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Customer: **KlimaTechnik s.r.o.**
Koněvova 60/1764
130 00 Praha 3 - Žižkov
Czech Republic

Sample accepted on: 16.09.2013

Tested on: 18.09.2013

Tested by the Building Acoustics Laboratory

Head of laboratory: Ing. Miroslav Figalla

Head of testing laboratory No. 1007.1:

Ing. Miroslav Figalla

The Accredited Testing Laboratory hereby declares that test results cover the tested object only and does not imply approval or certification of the tested product. Without a written consent by the Testing Laboratory, the Test Report may not be reproduced otherwise than in full.

Date: 20.09.2013



1. Assignment

The test was carried out based on order dated 16.09.2013.

2. Subject of Test

Determination of airborne sound insulation based on laboratory measurement.

Element tested: Acoustic panel AKUSTIK 60P, thickness of 60mm, dimensions 1190 mm x 1490 mm.

Structure of the panel:

- hot-dip galvanized metal sheet, th. 1mm,
- core from stone wool, density ~ 90 kg/m³,
- hot-dip galvanized metal perforated sheet with surface finish, th. 0,8 mm.

Detailed product description and drawing are shown on page 5.

3. Test Sample

The Customer supplied test sample with dimensions 1190 mm x 1490 mm. The sample was installed into the measuring opening for vertical elements. Installation of the sample was performed by the staff of the testing laboratory.

4. Standards used and measuring equipment

4.1 Standards

- ČSN EN ISO 10140-2 Acoustics. Laboratory measurement of sound insulation of building elements. Part 2: Measurement of airborne sound insulation,
- ČSN EN ISO 10140-1 Acoustics. Laboratory measurement of sound insulation of building elements. Part 1: Application rules for specific products,
- ČSN EN ISO 10140-4 Acoustics. Laboratory measurement of sound insulation of building elements. Part 4: Measurement procedures and requirements,
- ČSN EN ISO 717-1 Acoustics. Rating of sound insulation in buildings and of building elements. Airborne sound insulation.

Related standards:

- ČSN EN ISO 10140-5 Acoustics. Laboratory measurement of sound insulation of building elements. Part 5: Requirements for test facilities and equipment,
- ČSN EN 20140-2 Acoustics – Measurement of sound insulation in buildings and of building elements. Part 2: Determination, verification and application of precision data.

4.2 Measuring equipment

- Norsonic RTA 840 analyzer M 07 2024
- B. K. measuring microphone M 07 2005

5. Testing Procedure

Measuring is performed in sound chambers meeting the requirements of the ČSN EN ISO 140-1 standard. The tested element is mounted between the source and receiving room into a measuring opening for vertical elements. A steady sound is generated in the source room with continuous spectrum in the 100 to 5000 Hz band. Mean sound levels of acoustic pressure are measured in the source and receiving room (in dB). Sound reduction index is determined by the relation

$$R = L_1 - L_2 + 10 \log \frac{S}{A} \quad (\text{dB}),$$

where L_1 is the average sound pressure level in the source room,
 L_2 .. average sound pressure level in the receiving room,
 S ... area of the test specimen in m²,

A ... equivalent absorption area in the receiving room in m².

The size of the equivalent absorption area is determined from reverberation time measured according to the ČSN ISO 354 standard using the Sabine's formula

$$A = \frac{0,16 V}{T}$$

where V is the volume of the receiving room in m³,

T ... reverberation time in the receiving room in seconds.

A single-number quantity, weighted sound reduction index R_w is determined from the values of sound reduction index R in third-octave bands 100 to 3150 Hz, using the reference curve and method according to ČSN EN ISO 717-1.

6. Test Results

Reg. No.	Product tested	Weight per area (kg/m ²)	Weighted sound reduction index R_w (C; C _{tr}) dB
183/13	Acoustic panel AKUSTIK 60P	19,3	37 (-1; -4)

The course of sound insulation depend on the frequency and further measurement data are shown in standard measuring record on page 4.

7. Measurement Uncertainty

Measurement uncertainty is to be expressed in accordance with ČSN EN 20140-2 using the indices of repeatability r and reproducibility R that are the values under which the absolute value of the difference of the results of tests performed under specified conditions will lie with the probability of 95 %. For a single-digit quantity R_w , the repeatability index $r = 1$ dB, the reproducibility index $R = 2$ dB.

In charge for the test: Ing. Miroslav Figalla

Note:

This document is a translation of Test Report No. 250/13 dated 20.09.2013, from the Czech language. In case of ambiguity or doubts, the Czech version prevails.

Date of issue: 05.02.2016

Sound reduction according to EN ISO 140-3

Laboratory measurement of airborne sound insulation of building elements

Reg. No.:
183/13

Customer:
KlimaTechnik s.r.o.
Koněvova 60/1764
130 00 Praha 3 – Žižkov, Czech Republic

Product: Acoustic panel

Description: Acoustic panel AKUSTIK 60P, dimensions of the sample: 1190 mm x 1490 mm.

Structure of the panel:

- hot-dip galvanized metal sheet, th. 1mm,
- core from stone wool, density ca. 90 kg/m³,
- hot-dip galvanized metal perforated sheet with surface finish, th. 0,8 mm.

Weight per area: 19,3 kg/m².

Sample No.: 102/A/13.

Conditions of the test

Test area: 1,7 m²
Source room volume: 90 m³
Receiving room volume: 70 m³

Test date: 18.09.2013

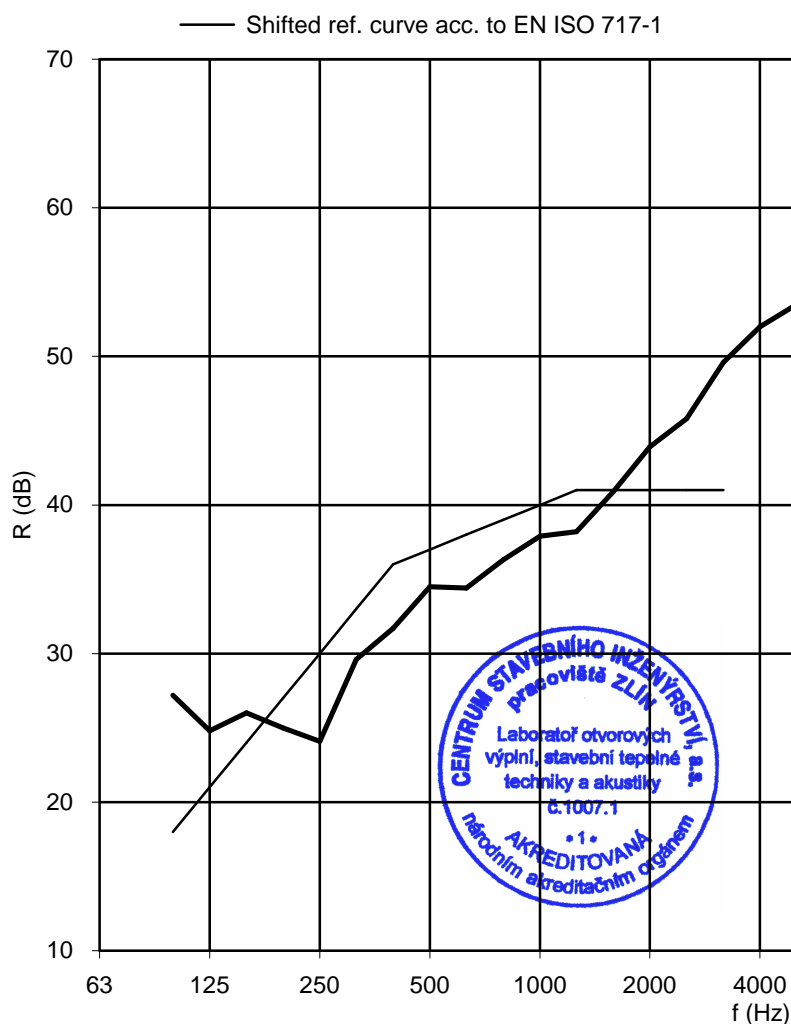
Air temperature: 18 °C

Humidity: 65 %

Static pressure: 978 hPa


Freq. (Hz)	R 1/3 okt. (dB)
100	27,2
125	24,8
160	26,0
200	25,0
250	24,1
315	29,6
400	31,7
500	34,5
630	34,4
800	36,3
1000	37,9
1250	38,2
1600	40,9
2000	43,9
2500	45,8
3150	49,6
4000	52,0
5000	53,5

Rating according EN ISO 717-1
 $R_w (C; C_{tr}) = 37 (-1; -4) \text{ dB}$

 $C_{100-5000} = 0 \text{ dB}, C_{tr100-5000} = -4 \text{ dB}$ 

Centrum stavebního inženýrství a.s.
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Date: 20.09.2013


Ing. Miroslav Figalla
Head of laboratory