

Impact Sound Insulation

1 Transaction

Product designation IVC Group/Mohawk Group Academic view 959

IVC sample number

Testing period 13/03/2018

2 Test Method / Requirements

| | |
|---------------------|--|
| EN ISO 10140-1:2014 | Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rules for certain products |
| EN ISO 10140-2:2010 | Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation |
| EN ISO 10140-3:2015 | Acoustics - Laboratory measurement of sound insulation of building elements - Part 3: Measurement of impact sound reduction |
| EN ISO 10140-4:2010 | Acoustics - Laboratory measurement of sound insulation of building elements - Part 4: Measurement procedures and requirements |
| EN ISO 10140-5:2014 | Acoustics - Laboratory measurement of sound insulation of building elements - Part 5: Requirements for test facilities and equipment |
| EN ISO 717-1:2013 | Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation |
| EN ISO 717-2:2013 | Acoustics - Rating of sound insulation in buildings and of building elements - Part 2: Impact sound reduction |

3 Remarks

None

4 Measuring Operation

| | |
|---|---|
| Measurement of the impact sound pressure level: | Using with 3 tapping machine position. The single results of the one-third-octave-bands were averaged on an energy basis. |
| Test surface: | ~1 m ² |
| Category: | I |
| Connection with the floor: | Loose laid |
| Damage to the sample: | None |

Impact Sound Insulation

5 Laboratories

| | |
|---|---|
| Test rooms: | Laboratories of IVC, Nijverheidslaan 29, 8580 Avelgem, Belgium |
| Sending room: | $V = 69,7 \text{ m}^3$ (with diffusers) |
| Receiving room: | $V = 50,4 \text{ m}^3$ (with diffusers) |
| | $4.30 \text{ m} \times 4.50 \text{ m}$; $S = 19.35 \text{ m}^2$ |
| Reference floor: | 14 cm concrete slab floor with an area-related mass of $m' \sim 322 \text{ kg/m}^2$ |
| Flanking walls: | 10 cm concrete blocks with 1 cm plaster with an area-related mass of $m' \sim 216 \text{ kg/m}^2$ |
| Weighted normalized impact sound pressure level | $L_{n,0,w} = 78 \text{ dB}$; $C_{l,0} = -13 \text{ dB}$ |
| Weighted normalized impact sound pressure level | $L_{n,w} = 49 \text{ dB}$; $C_l = 1 \text{ dB}$ |
| Weighted normalized impact sound pressure level | $L_{n,r,w} = 53 \text{ dB}$; $C_{l,r} = 1 \text{ dB}$ |

6 Measuring Devices

| | |
|----------------------|---|
| Real time analysers: | SINUS Messtechnik, TYP: Apollo PCIE, SN: 10061, 10062, 10063 |
| Microphones: | Microtech Gefell, TYP: M 370, SN: 0981, 0979, 0980, 0982, 0971, 0973, 0977, 0974, 0978, 1105 |
| Calibrator: | Larson Davis, TYP: CAL200, SN: 11893 |
| Tapping machines: | SINUS Messtechnik, TYP: TM50, SN: TM14036, TM14172 (standard tapping machine with 3 feet and 5 hammers according to ISO 10140) |

7 Evaluation

The impact sound pressure level generated by the standard tapping machine is measured in the receiving room under a bare heavy floor with and without a floor covering. The impact sound reduction is determined on the basis of the measured values as follows:

$$\Delta L = L_{n,0} - L_n \text{ (dB)}$$

$L_{n,0}$: Impact sound pressure level without a floor covering (dB)

L_n : Impact sound pressure level with a floor covering (dB)

For the evaluation of the weighted reduction in impact sound pressure level ΔL_w , the relevant reference curve is shifted in increments of 1 dB towards the measured curve until the sum of unfavourable deviations is as large as possible, but not more than 32 dB.

Impact Sound Insulation

The linear impact sound level ΔL_{lin} is determined according to the following equation:

$$\Delta L_{lin} = L_{n,r,0,w} + C_{l,r,0} - (L_{n,r,w} + C_{l,r}) = \Delta L_w + C_{l,\Delta}$$

$L_{n,r,w}$ is the calculated weighted normalized impact sound pressure level of the reference floor with the floor covering under test

$L_{n,r,0,w}$ 78 dB, calculated from $L_{n,r,0}$ according to Section 4.3.1 of DIN EN ISO 717-2: 2013

$C_{l,r}$ Spectrum adaptation term for the reference floor with the floor covering to be tested

$C_{l,r,0}$ -11 dB, spectrum adaptation term for the reference floor with $L_{n,r,0}$ determined according to Annex A, Section A.2.1 of DIN EN ISO 717-2:2013

8 Note

The results are based on measurements performed under laboratory conditions with artificial excitation (standard procedure). The test results are applicable in due consideration of the national provisions and the local circumstances and/or constructions.

Impact sound insulation according ISO 10140-1

Laboratory measurements of the reduction of transmitted impact noise by floor coverings on a heavyweight reference floor

Product name IVC Group/Mohawk Group Academic view 959
Testing period 13/03/2018
Installed by EVA International

Receiving room

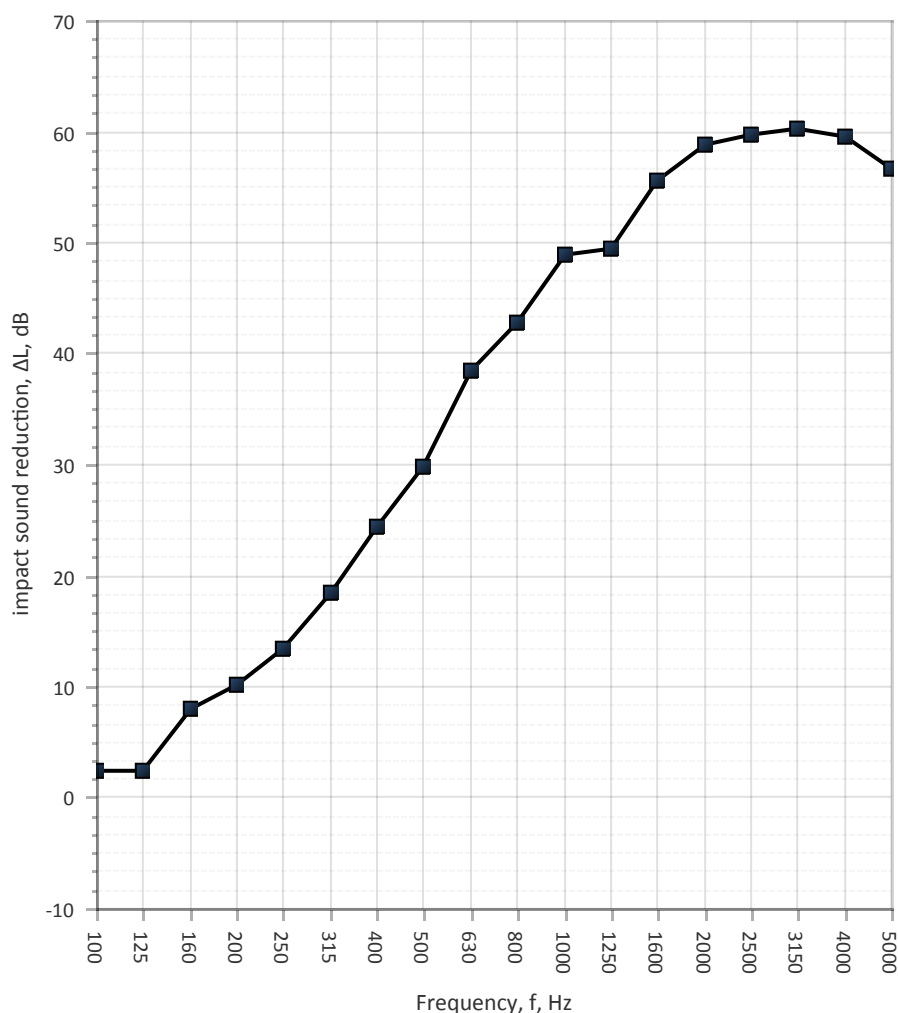
Volume 50,4 m³
Air temperature 21,5 °C
Relative air humidity 36,0 %
Static pressure 1006,8 hPa

Source room

Volume 69,7 m³
Air temperature 39,0 °C
Relative air humidity 36,0 %
Type of reference floor Massive

| Frequency f [Hz] | Ln,0 1/3 oct. [dB] | ΔL 1/3 oct. [dB] |
|------------------------|--------------------------|------------------------|
| 100 | 59,9 | 2,4 |
| 125 | 62,8 | 2,5 |
| 160 | 66,9 | 8,0 |
| 200 | 63,8 | 10,2 |
| 250 | 66,4 | 13,4 |
| 315 | 67,2 | 18,4 |
| 400 | 67,6 | 24,5 |
| 500 | 68,2 | 29,9 |
| 630 | 67,7 | 38,4 |
| 800 | 68,6 | 42,8 |
| 1000 | 69,7 | 48,9 ¹ |
| 1250 | 70,2 | 49,5 ¹ |
| 1600 | 71,3 | 55,6 ¹ |
| 2000 | 72,1 | 58,9 ¹ |
| 2500 | 72,3 | 59,7 ¹ |
| 3150 | 73,0 | 60,3 ¹ |
| 4000 | 72,5 | 59,6 ¹ |
| 5000 | 70,3 | 56,6 ¹ |

¹ correction basic noise



Rating according to ISO 717-2

$\Delta L_w = 25$ dB

$C_{l,\Delta} = -12$ dB

$C_{l,r} = 1$ dB

The results are based on a test performed with an artificial source under laboratory conditions (engineering method) with the specified reference floor.