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Authorised and notified according
to Article 29 of the Regulation (EU)
No 305/2011 of the European
Parliament and of the Council of 9
March 2011

MEMBER OF EOTA



European Technical Assessment ETA-23/0193 of 2023/04/11

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

Rotho Blaas PIANO flexible interlayer

Product family to which the above construction product belongs:

Flexible interlayer to be used for the reduction of flanking sound transmission and/or vibration transmission in construction works

Manufacturer:

Rotho Blaas s.r.l
Via dell'Adige 2/1
IT-39040 Cortaccia (BZ)
Tel. + 39 0471 818400
Fax + 39 0471 818484
Internet www.rothoblaas.com

Manufacturing plant:

Rotho Blaas s.r.l
Manufacturing Plants: RI3 - RI4

This European Technical Assessment contains:

14 pages including 6 annexes which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

EAD 042232-00-0503 Flexible interlayer to be used for the reduction of flanking sound transmission and/or vibration transmission in construction works

This version replaces:

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Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

for choosing the right products in relation to the expected economically reasonable working life of the works.

1 Technical description of product

Rotho Blaas "PIANO A", "PIANO B", "PIANO C", "PIANO D", "PIANO E" are flexible interlayers made of a homogeneous layer of EPDM (ethylene propylene diene monomer rubber)

The product has a thickness of 6 mm and it can be placed on market as stripe, mat, washer or other shape. The product is delivered with different density and shore hardness and different compressive modulus according to the values declared at point 3.2.

2 Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

Rotho Blaas PIANO flexible interlayer is used as flexible interlayer for the reduction of flanking transmission for airborne, impact and building service equipment sound between adjoining rooms frame and/or vibration transmission. The product is installed between at least two elements (i.e., floor and wall).

Rotho Blaas PIANO flexible interlayer shall be used in environmental not subjected to direct contact with weathering or wetting. Typically, the product is installed inside the construction works such as timber structures subject to the dry, internal conditions defined by the service classes 1 and 2 of EN 1995-1-1 (Eurocode 5).

The installation shall be carried out in accordance with nation provisions. Instructions from Rotho Blaas should be considered for installation.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the interlayers of 25 years. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works.

The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or Assessment Body, but are to be regarded only as a means

3 Performance of the product and references to the methods used for its assessment

Characteristic	Assessment of characteristic															
3.1 Safety in case of fire (BWR2)																
Reaction to fire	PIANO is made from EPDM (ethylene propylene diene monomer rubber) and classified as Euroclass E in accordance with EN 13501-1 and Commission Delegated Regulation 2016/364															
3.2 Protection against noise *) (BWR5)																
Compressive creep	See Annex A															
Compression set	See Annex B															
Compressive stress and deformation	See Annex C															
Dynamic elastic modulus	See Annex D															
Damping factor	See Annex E															
Flanking transmission for airborne, impact and building service equipment sound between adjoining rooms frame	See Annex F															
Compressive modulus	<table><tr><td>PIANO A</td><td>$E_c = 0,23 \text{ MPa}$</td><td>$E_{c,lubricant} = 0,19 \text{ MPa}$</td></tr><tr><td>PIANO B</td><td>$E_c = 1,08 \text{ MPa}$</td><td>$E_{c,lubricant} = 1,08 \text{ MPa}$</td></tr><tr><td>PIANO C</td><td>$E_c = 7,92 \text{ MPa}$</td><td>$E_{c,lubricant} = 3,67 \text{ MPa}$</td></tr><tr><td>PIANO D</td><td>$E_c = 22,10 \text{ MPa}$</td><td>$E_{c,lubricant} = 7,92 \text{ MPa}$</td></tr><tr><td>PIANO E</td><td>$E_c = 24,76 \text{ MPa}$</td><td>$E_{c,lubricant} = 12,03 \text{ MPa}$</td></tr></table>	PIANO A	$E_c = 0,23 \text{ MPa}$	$E_{c,lubricant} = 0,19 \text{ MPa}$	PIANO B	$E_c = 1,08 \text{ MPa}$	$E_{c,lubricant} = 1,08 \text{ MPa}$	PIANO C	$E_c = 7,92 \text{ MPa}$	$E_{c,lubricant} = 3,67 \text{ MPa}$	PIANO D	$E_c = 22,10 \text{ MPa}$	$E_{c,lubricant} = 7,92 \text{ MPa}$	PIANO E	$E_c = 24,76 \text{ MPa}$	$E_{c,lubricant} = 12,03 \text{ MPa}$
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*) Values may be subject to production tolerances.

4 Attestation and verification of constancy of performance (AVCP)

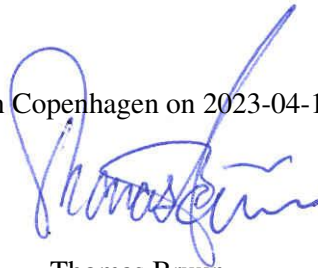
4.1 AVCP system

According to the decision 2000/273/EC as amended by 2001/596/EC of the European Commission¹, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 3.

5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2023-04-11 by

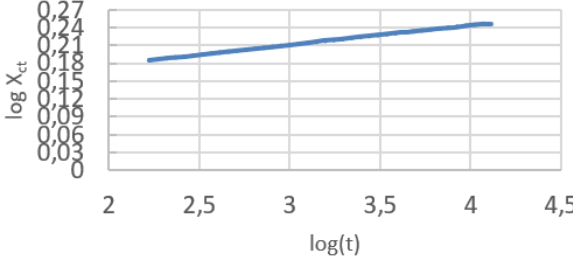
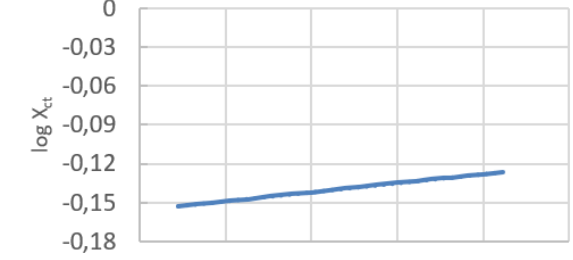
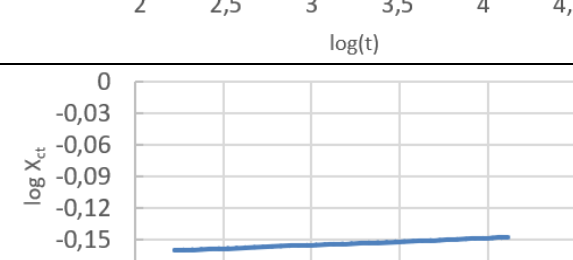
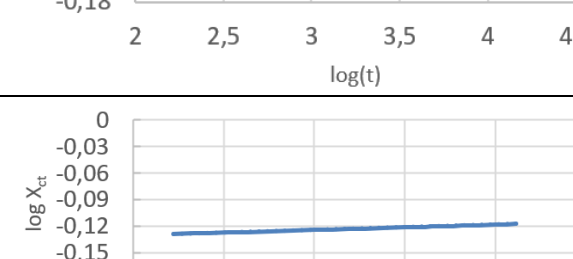
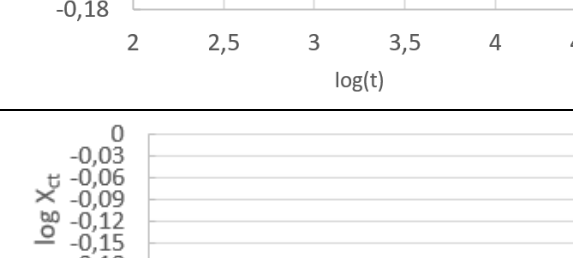


Thomas Bruun
Managing Director, ETA-Danmark

Annex A

Compressive creep

Table A.1

Product	$\frac{\Delta\varepsilon}{\varepsilon_1}$	Description
PIANO A	0,24	
PIANO B	0,34	
PIANO C	0,18	
PIANO D	0,45	
PIANO E	0,24	

Where:

- $\frac{\Delta\varepsilon}{\varepsilon_1}$ is the mean value of the creep index in compression.
- the description of the long-term deformation is determined according with Annex A of EN ISO 16534 using the values (deformation and time) determined with ISO 8013 with the assessment specification above and the result shall be expressed as Figure B1 of Annex B of EN ISO 16534.

Annex B
Compression set

Table B.1

Product	c.s.	t [mm]	t _{c.s.} [mm]
PIANO A	26,38 %	6	4,42
PIANO B	37,53 %	6	3,75
PIANO C	11,95 %	6	5,28
PIANO D	14,75 %	6	5,12
PIANO E	42,08 %	6	3,48

Where:

- c.s. is the difference between the initial thickness and the final thickness of a test piece of product after compression for a given time at a given temperature and after a given recovery time defined at point 8 of EN 1856.
- t [mm] is the nominal thickness of the product.
- t_{c.s.}[mm] is the calculated thickness of the product after compression and recovery.

Annex C
Compressive stress and deformation

Table C.1

Product	$\sigma_{1\text{mm}}$ [MPa]	$\sigma_{2\text{mm}}$ [MPa]	$\sigma_{3\text{mm}}$ [MPa]
	$\sigma_{1\text{mm, lubricant}}$ [MPa]	$\sigma_{2\text{mm, lubricant}}$ [MPa]	$\sigma_{3\text{mm, lubricant}}$ [MPa]
PIANO A	0,04	0,08	0,15
	0,03	0,07	0,14
PIANO B	0,14	0,31	0,85
	0,14	0,30	0,80
PIANO C	1,50	3,55	9,23
	0,65	1,49	3,71
PIANO D	4,40	10,49	25,88
	1,41	3,38	9,19
PIANO E	3,81	8,36	17,07
	2,40	4,43	10,09

Where:

- $\sigma_{1\text{mm}}$ [MPa] is the mean value of compressive stress at 1 mm strain (surfaces not treated with lubricant).
- $\sigma_{1\text{mm, lubricant}}$ [MPa] is the mean value of compressive stress at 1 mm strain (surfaces treated with appropriate lubricant).
- $\sigma_{2\text{mm}}$ [MPa] is the mean value of compressive stress at 2 mm strain (surfaces not treated with lubricant).
- $\sigma_{2\text{mm, lubricant}}$ [MPa] is the mean value of compressive stress at 2 mm strain (surfaces treated with appropriate lubricant).
- $\sigma_{3\text{mm}}$ [MPa] is the mean value of compressive stress at 3 mm strain (surfaces not treated with lubricant).
- $\sigma_{3\text{mm, lubricant}}$ [MPa] is the mean value of compressive stress at 3 mm strain (surfaces treated with appropriate lubricant).

Annex D
Dynamic elastic modulus

Table D.1

Product	E' _{1Hz} [MPa] E'' _{1Hz} [MPa]	E' _{5Hz} [MPa] E'' _{5Hz} [MPa]	E' _{10Hz} [MPa] E'' _{10Hz} [MPa]	E' _{50Hz} [MPa] E'' _{50Hz} [MPa]
PIANO A	0,4 0,07	0,50 0,08	0,5 0,09	0,5 0,13
PIANO B	1,54 0,42	1,75 0,55	1,87 0,59	2,07 0,79
PIANO C	8,35 2,15	9,35 2,55	9,91 2,81	11,61 3,56
PIANO D	18,23 4,97	20,30 6,03	21,62 6,71	25,81 9,01
PIANO E	48,83 11,99	54,80 13,24	58,35 14,04	67,08 16,85

Where:

- E' _{1Hz} [MPa] is the mean value of elastic normal modulus (storage normal modulus) at 1 Hz.
- E'' _{1Hz} [MPa] is the mean value of loss normal modulus at 1 Hz.
- E' _{5Hz} [MPa] is the mean value of elastic normal modulus (storage normal modulus) at 5 Hz.
- E'' _{5Hz} [MPa] is the mean value of loss normal modulus at 5 Hz.
- E' _{10Hz} [MPa] is the mean value of elastic normal modulus (storage normal modulus) at 10 Hz.
- E'' _{10Hz} [MPa] is the mean value of loss normal modulus at 10 Hz.
- E' _{50Hz} [MPa] is the mean value of elastic normal modulus (storage normal modulus) at 50 Hz.
- E'' _{50Hz} [MPa] is the mean value of loss normal modulus at 50 Hz.

Annex E

Damping factor

Table E.1

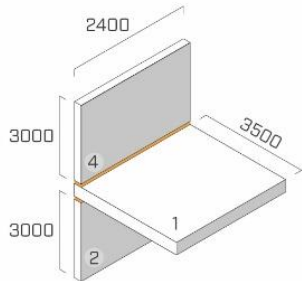
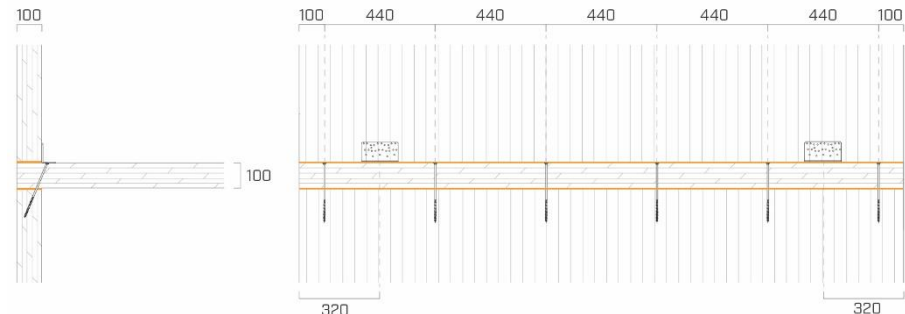
Product	$\tan \delta_{1\text{Hz}}$	$\tan \delta_{5\text{Hz}}$	$\tan \delta_{10\text{Hz}}$	$\tan \delta_{50\text{Hz}}$
PIANO A	0,177	0,186	0,192	0,238
PIANO B	0,270	0,308	0,314	0,372
PIANO C	0,258	0,272	0,283	0,306
PIANO D	0,273	0,297	0,310	0,349
PIANO E	0,247	0,243	0,242	0,253

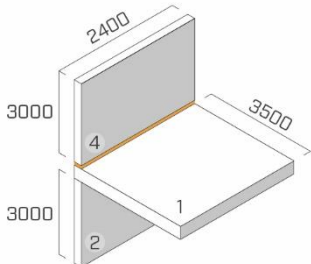
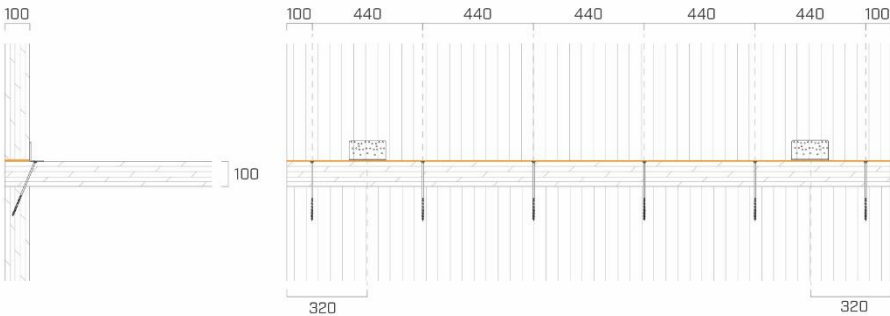
Where:

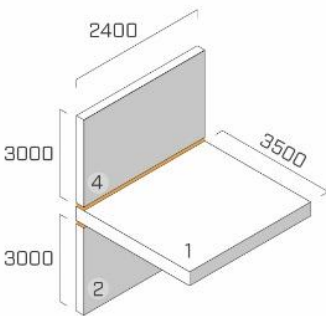
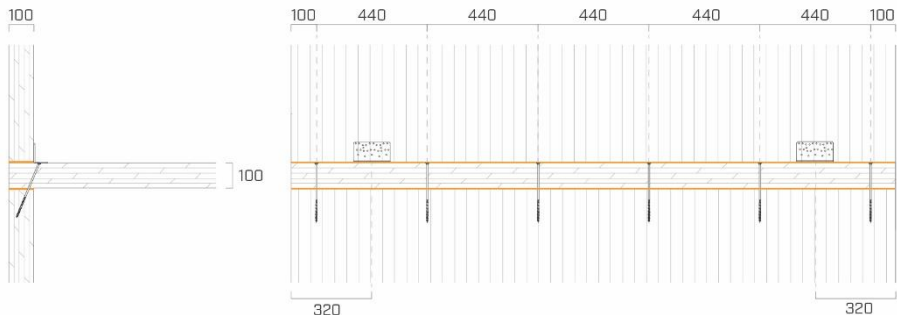
- $\tan \delta_{1\text{Hz}}$ [MPa] is the mean value of tangent of the loss angle at 1 Hz.
- $\tan \delta_{5\text{Hz}}$ [MPa] is the mean value of tangent of the loss angle at 5 Hz.
- $\tan \delta_{10\text{Hz}}$ [MPa] is the mean value of tangent of the loss angle at 10 Hz.
- $\tan \delta_{50\text{Hz}}$ [MPa] is the mean value of tangent of the loss angle at 50 Hz.

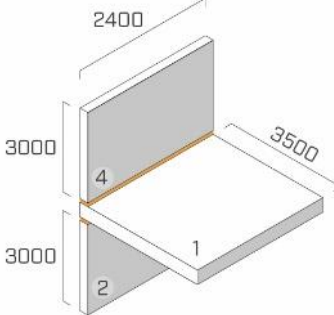
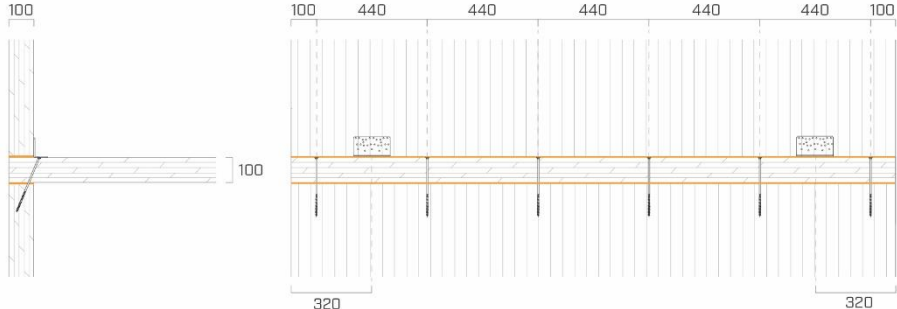
Annex F

Flanking transmission for airborne, impact and building service equipment sound between adjoining rooms
Frame

Joint type	Joint description	System drawing																																																																																																												
1 T-joint	Standard: EN ISO 10848-1/4	 Executive drawing of the junction constructed for the test build up.																																																																																																												
	Tested build-up: (4) Top wall: 5-ply CLT, 100mm, (2,4 m x 3 m) (1) Floor: 5-ply CLT 100 mm (2,4 m x 3,5 m) (2) Bottom wall: 5-ply CLT, 100mm, (2,4 m x 3 m)																																																																																																													
	Fastening system: 6 Partially threaded screws HBS 8x240mm; step 440mm 2 Angle brackets NINO15080 (CLT pattern with 31 screws 5x50 mm) + XYLOFON 35 (55x150x6 mm); step 1760mm	 Executive drawings of the positioning of fastening system and resilient interlayers																																																																																																												
Flexible interlayer: - Product type: PIANO A - Position: between top wall and floor and between floor and bottom wall. - Dimensions: width=100mm thickness=6mm length=2,40m - Contact area: continuous stripe (same width and length of the wall) - Load applied [kN/m²]: 22	Measurements and results: Path: 1-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₄ (dB)</td><td>18,5</td><td>20,6</td><td>17,6</td><td>25,4</td><td>19,8</td><td>23,1</td><td>23,7</td><td>17,2</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₄ (dB)</td><td>24,1</td><td>22,8</td><td>22,1</td><td>24,2</td><td>25,7</td><td>25,3</td><td>25,8</td><td>26,4</td></tr></table> $\overline{K}_{14} = 22,4$ dB $\overline{K}_{14,0} = 14,4$ dB $\Delta_{l,14} = 8,0$ dB Path: 1-2 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₂ (dB)</td><td>19,6</td><td>16,9</td><td>13,0</td><td>21,2</td><td>19,2</td><td>21,2</td><td>21,7</td><td>18,3</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₂ (dB)</td><td>23,3</td><td>25,0</td><td>26,0</td><td>30,9</td><td>32,9</td><td>30,6</td><td>25,7</td><td>27,1</td></tr></table> $\overline{K}_{12} = 23,1$ dB $\overline{K}_{12,0} = 14,6$ dB $\Delta_{l,12} = 8,5$ dB Path: 2-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₂₄ (dB)</td><td>20,5</td><td>28,2</td><td>20,9</td><td>31,0</td><td>26,0</td><td>29,0</td><td>27,7</td><td>26,1</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₂₄ (dB)</td><td>26,4</td><td>31,9</td><td>34,1</td><td>38,5</td><td>41,1</td><td>41,3</td><td>37,7</td><td>32,6</td></tr></table> $\overline{K}_{24} = 30,9$ dB $\overline{K}_{24,0} = 20,4$ dB $\Delta_{l,24} = 10,5$ dB		F (Hz)	100	125	160	200	250	315	400	500	K ₁₄ (dB)	18,5	20,6	17,6	25,4	19,8	23,1	23,7	17,2	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₄ (dB)	24,1	22,8	22,1	24,2	25,7	25,3	25,8	26,4	F (Hz)	100	125	160	200	250	315	400	500	K ₁₂ (dB)	19,6	16,9	13,0	21,2	19,2	21,2	21,7	18,3	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₂ (dB)	23,3	25,0	26,0	30,9	32,9	30,6	25,7	27,1	F (Hz)	100	125	160	200	250	315	400	500	K ₂₄ (dB)	20,5	28,2	20,9	31,0	26,0	29,0	27,7	26,1	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₂₄ (dB)	26,4	31,9	34,1	38,5	41,1	41,3	37,7	32,6
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	Flexible interlayer: - Product type: PIANO A - Position: between top wall and floor - Dimensions: width=100mm thickness=6mm length=2,40m - Contact area: continuous stripe (same width and length of the wall) - Load applied [kN/m²]: 125	Measurements and results: Path: 1-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₄ (dB)</td><td>13,5</td><td>19,0</td><td>13,3</td><td>13,4</td><td>15,4</td><td>17,5</td><td>17,8</td><td>14,9</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₄ (dB)</td><td>19,3</td><td>18,5</td><td>24,8</td><td>26,2</td><td>22,6</td><td>20,8</td><td>21,0</td><td>21,6</td></tr></table> $\overline{K}_{14} = 18,7 \text{ dB}$ $\overline{K}_{14,0} = 14,4 \text{ dB}$ $\Delta_{l,14} = 4,4 \text{ dB}$ Path: 1-2 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₂ (dB)</td><td>15,1</td><td>18,5</td><td>13,2</td><td>10,1</td><td>14,2</td><td>12,0</td><td>13,0</td><td>10,0</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₂ (dB)</td><td>13,9</td><td>10,9</td><td>15,0</td><td>15,4</td><td>16,6</td><td>17,8</td><td>18,0</td><td>20,0</td></tr></table> $\overline{K}_{12} = 13,9 \text{ dB}$ $\overline{K}_{12,0} = 14,6 \text{ dB}$ $\Delta_{l,12} = -0,7 \text{ dB}$ Path: 2-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₂₄ (dB)</td><td>15,1</td><td>25,5</td><td>23,3</td><td>22,1</td><td>17,9</td><td>20,9</td><td>17,3</td><td>16,9</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₂₄ (dB)</td><td>21,3</td><td>25,1</td><td>30,0</td><td>32,6</td><td>30,7</td><td>31,8</td><td>31,4</td><td>31,0</td></tr></table> $\overline{K}_{24} = 24,3 \text{ dB}$ $\overline{K}_{24,0} = 20,4 \text{ dB}$ $\Delta_{l,24} = 3,9 \text{ dB}$	F (Hz)	100	125	160	200	250	315	400	500	K ₁₄ (dB)	13,5	19,0	13,3	13,4	15,4	17,5	17,8	14,9	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₄ (dB)	19,3	18,5	24,8	26,2	22,6	20,8	21,0	21,6	F (Hz)	100	125	160	200	250	315	400	500	K ₁₂ (dB)	15,1	18,5	13,2	10,1	14,2	12,0	13,0	10,0	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₂ (dB)	13,9	10,9	15,0	15,4	16,6	17,8	18,0	20,0	F (Hz)	100	125	160	200	250	315	400	500	K ₂₄ (dB)	15,1	25,5	23,3	22,1	17,9	20,9	17,3	16,9	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₂₄ (dB)	21,3	25,1	30,0	32,6	30,7	31,8	31,4	31,0
F (Hz)	100	125	160	200	250	315	400	500																																																																																																						
K ₁₄ (dB)	13,5	19,0	13,3	13,4	15,4	17,5	17,8	14,9																																																																																																						
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K ₁₄ (dB)	19,3	18,5	24,8	26,2	22,6	20,8	21,0	21,6																																																																																																						
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K ₁₂ (dB)	15,1	18,5	13,2	10,1	14,2	12,0	13,0	10,0																																																																																																						
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K ₁₂ (dB)	13,9	10,9	15,0	15,4	16,6	17,8	18,0	20,0																																																																																																						
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Joint type	Joint description	System drawing																																				
3 T-joint	Standard: EN ISO 10848-1/4	 Executive drawing of the junction constructed for the test build up.																																				
	Tested build-up: - (4) Top wall: 5-ply CLT, 100mm, (2,4 m x 3 m) - (1) Floor: 5-ply CLT 100 mm (2,4 m x 3,5 m) - (2) Bottom wall: 5-ply CLT, 100mm, (2,4 m x 3 m)																																					
	Fastening system: - 6 Partially threaded screws HBS 8x240mm; step 440mm - 2 Angle brackets NINO15080 (CLT pattern with 31 screws 5x50 mm) + XYLOFON 35 (55x150x6 mm); step 1760mm	 Executive drawings of the positioning of fastening system and resilient interlayers																																				
	Flexible interlayer: - Product type: PIANO B - Position: between top wall and floor and between floor and bottom wall. - Dimensions: width=100mm thickness=6mm length=2.40m - Contact area: continuous stripe (same width of the wall) - Load applied [kN/m²]: 210	Measurements and results: Path: 1-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₄ (dB)</td><td>15,7</td><td>17,5</td><td>16,7</td><td>18,3</td><td>16,4</td><td>19,3</td><td>21,7</td><td>17,5</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₄ (dB)</td><td>15,0</td><td>15,3</td><td>17,3</td><td>19,3</td><td>22,2</td><td>24,0</td><td>21,1</td><td>22,9</td></tr></table> $\overline{K}_{14} = 18,5 \text{ dB}$ $\overline{K}_{14,0} = 13,3 \text{ dB}$ $\Delta_{l,14} = 5,2 \text{ dB}$	F (Hz)	100	125	160	200	250	315	400	500	K ₁₄ (dB)	15,7	17,5	16,7	18,3	16,4	19,3	21,7	17,5	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₄ (dB)	15,0	15,3	17,3	19,3	22,2	24,0	21,1	22,9
	F (Hz)	100	125	160	200	250	315	400	500																													
	K ₁₄ (dB)	15,7	17,5	16,7	18,3	16,4	19,3	21,7	17,5																													
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K ₁₄ (dB)	15,0	15,3	17,3	19,3	22,2	24,0	21,1	22,9																														
	Path: 1-2 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₂ (dB)</td><td>18,6</td><td>17,4</td><td>14,2</td><td>16,6</td><td>16,6</td><td>18,9</td><td>21,3</td><td>19,2</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₂ (dB)</td><td>19,4</td><td>18,7</td><td>19,6</td><td>20,4</td><td>27,0</td><td>23,4</td><td>21,3</td><td>24,2</td></tr></table> $\overline{K}_{12} = 19,4 \text{ dB}$ $\overline{K}_{12,0} = 14,5 \text{ dB}$ $\Delta_{l,12} = 4,9 \text{ dB}$	F (Hz)	100	125	160	200	250	315	400	500	K ₁₂ (dB)	18,6	17,4	14,2	16,6	16,6	18,9	21,3	19,2	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₂ (dB)	19,4	18,7	19,6	20,4	27,0	23,4	21,3	24,2	
F (Hz)	100	125	160	200	250	315	400	500																														
K ₁₂ (dB)	18,6	17,4	14,2	16,6	16,6	18,9	21,3	19,2																														
F (Hz)	630	800	1000	1250	1600	2000	2500	3150																														
K ₁₂ (dB)	19,4	18,7	19,6	20,4	27,0	23,4	21,3	24,2																														
	Path: 2-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₂₄ (dB)</td><td>16,5</td><td>27,3</td><td>21,2</td><td>21,5</td><td>18,7</td><td>24,0</td><td>20,7</td><td>18,5</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₂₄ (dB)</td><td>22,5</td><td>22,7</td><td>24,2</td><td>21,7</td><td>31,1</td><td>31,6</td><td>30,2</td><td>29,2</td></tr></table> $\overline{K}_{24} = 23,5 \text{ dB}$ $\overline{K}_{24,0} = 17,3 \text{ dB}$ $\Delta_{l,24} = 6,2 \text{ dB}$	F (Hz)	100	125	160	200	250	315	400	500	K ₂₄ (dB)	16,5	27,3	21,2	21,5	18,7	24,0	20,7	18,5	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₂₄ (dB)	22,5	22,7	24,2	21,7	31,1	31,6	30,2	29,2	
F (Hz)	100	125	160	200	250	315	400	500																														
K ₂₄ (dB)	16,5	27,3	21,2	21,5	18,7	24,0	20,7	18,5																														
F (Hz)	630	800	1000	1250	1600	2000	2500	3150																														
K ₂₄ (dB)	22,5	22,7	24,2	21,7	31,1	31,6	30,2	29,2																														

Joint type	Joint description	System drawing																																																																																																												
1 T-joint	Standard: EN ISO 10848-1/4																																																																																																													
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	Flexible interlayer: - Product type: PIANO C - Position: between top wall and floor and between floor and bottom wall. - Dimensions: width=100mm thickness=6mm length=2.40m - Contact area: continuous stripe (same width of the wall) - Load applied [kN/m²]: 1300	Measurements and results: Path: 1-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₄ (dB)</td><td>15,5</td><td>16,0</td><td>16,1</td><td>17,7</td><td>16,9</td><td>19,1</td><td>18,0</td><td>16,6</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₄ (dB)</td><td>17,6</td><td>18,8</td><td>17,1</td><td>19,1</td><td>19,8</td><td>16,1</td><td>17,8</td><td>21,1</td></tr></table> $\overline{K}_{14} = 17,6 \text{ dB}$$\overline{K}_{14,0} = 13,3 \text{ dB}$ $\Delta_{l,14} = 4,3 \text{ dB}$ Path: 1-2 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₁₂ (dB)</td><td>16,4</td><td>17,2</td><td>12,6</td><td>18,4</td><td>16,5</td><td>16,3</td><td>19,2</td><td>14,9</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₁₂ (dB)</td><td>17,1</td><td>17,5</td><td>16,1</td><td>19,8</td><td>23,6</td><td>19,3</td><td>21,1</td><td>26,5</td></tr></table> $\overline{K}_{12} = 17,6 \text{ dB}$$\overline{K}_{12,0} = 14,5 \text{ dB}$ $\Delta_{l,12} = 3,1 \text{ dB}$ Path: 2-4 <table><tr><td>F (Hz)</td><td>100</td><td>125</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>500</td></tr><tr><td>K₂₄ (dB)</td><td>15,4</td><td>26,0</td><td>18,0</td><td>20,1</td><td>21,5</td><td>23,4</td><td>21,3</td><td>16,4</td></tr></table> <table><tr><td>F (Hz)</td><td>630</td><td>800</td><td>1000</td><td>1250</td><td>1600</td><td>2000</td><td>2500</td><td>3150</td></tr><tr><td>K₂₄ (dB)</td><td>19,3</td><td>23,5</td><td>23,5</td><td>31,1</td><td>30,3</td><td>30,4</td><td>31,7</td><td>29,7</td></tr></table> $\overline{K}_{24} = 23,4 \text{ dB}$$\overline{K}_{24,0} = 17,3 \text{ dB}$ $\Delta_{l,24} = 6,1 \text{ dB}$		F (Hz)	100	125	160	200	250	315	400	500	K ₁₄ (dB)	15,5	16,0	16,1	17,7	16,9	19,1	18,0	16,6	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₄ (dB)	17,6	18,8	17,1	19,1	19,8	16,1	17,8	21,1	F (Hz)	100	125	160	200	250	315	400	500	K ₁₂ (dB)	16,4	17,2	12,6	18,4	16,5	16,3	19,2	14,9	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₁₂ (dB)	17,1	17,5	16,1	19,8	23,6	19,3	21,1	26,5	F (Hz)	100	125	160	200	250	315	400	500	K ₂₄ (dB)	15,4	26,0	18,0	20,1	21,5	23,4	21,3	16,4	F (Hz)	630	800	1000	1250	1600	2000	2500	3150	K ₂₄ (dB)	19,3	23,5	23,5	31,1	30,3	30,4	31,7
F (Hz)	100	125	160	200	250	315	400	500																																																																																																						
K ₁₄ (dB)	15,5	16,0	16,1	17,7	16,9	19,1	18,0	16,6																																																																																																						
F (Hz)	630	800	1000	1250	1600	2000	2500	3150																																																																																																						
K ₁₄ (dB)	17,6	18,8	17,1	19,1	19,8	16,1	17,8	21,1																																																																																																						
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K ₁₂ (dB)	16,4	17,2	12,6	18,4	16,5	16,3	19,2	14,9																																																																																																						
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K ₂₄ (dB)	15,4	26,0	18,0	20,1	21,5	23,4	21,3	16,4																																																																																																						
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