XYLOFON

HIGH PERFORMANCE RESILIENT SOUNDPROOFING PROFILE

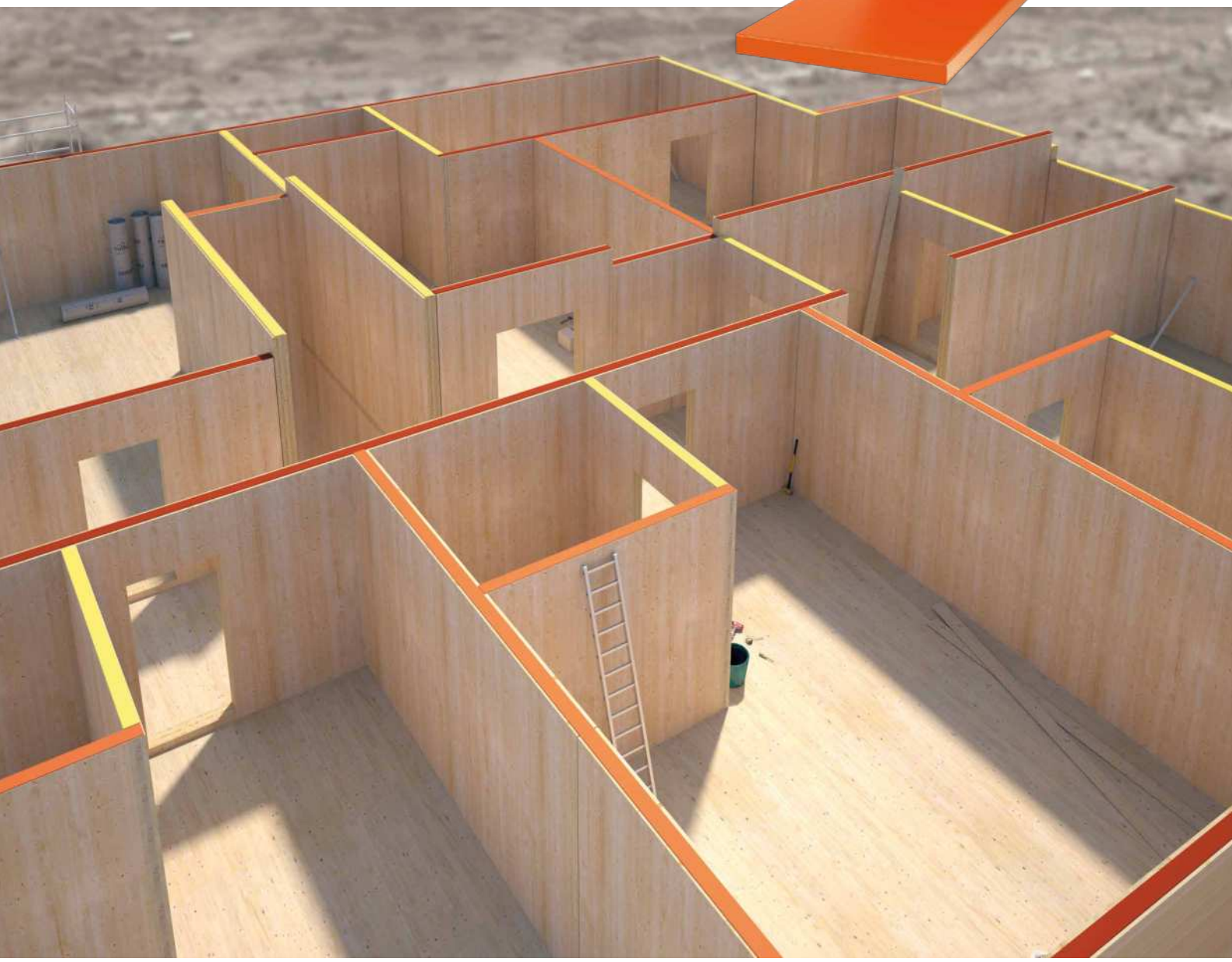
LCA EPD FLANKSOUND EN ISO 10848 CE ETA-23/0061

CERTIFIED, TESTED, DURABLE

XYLOFON is the resilient profile that provides acoustic comfort in timber structures and residential houses, but is also suitable for other building systems. Made of a polyurethane compound, it is available in 6 versions from 20 to 90 Shore, on the basis of the load it has to support.

The product is tested and certified for use as a decoupling and mechanical isolation layer between building materials. Due to its elasticity and damping capacity, the product has been tested according to international standards ISO 10848 and ISO 16283 and significantly reduces airborne and structure-borne noise transmission (from 5 to over 15 dB).

The low thickness of the six versions can support a wide range of loads without affecting the design choices. Also suitable for LVL, steel and concrete.



MONOLITHIC AND WATERPROOF

The monolithic structure of polyurethane guarantees impermeability, stability, long-term elastic properties and no structural failure in the long-term. XYLOFON is free of VOCs or harmful substances and is extremely chemically stable.

SMART

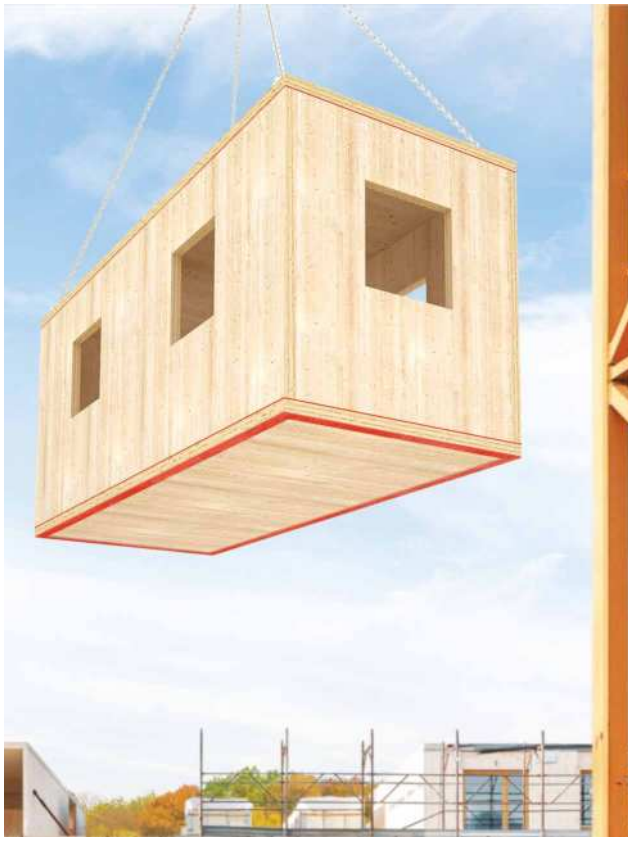
The profiles are easily processed and installed with the most common construction tools. Moreover, the wide range makes it ideal for every size and load of building element.

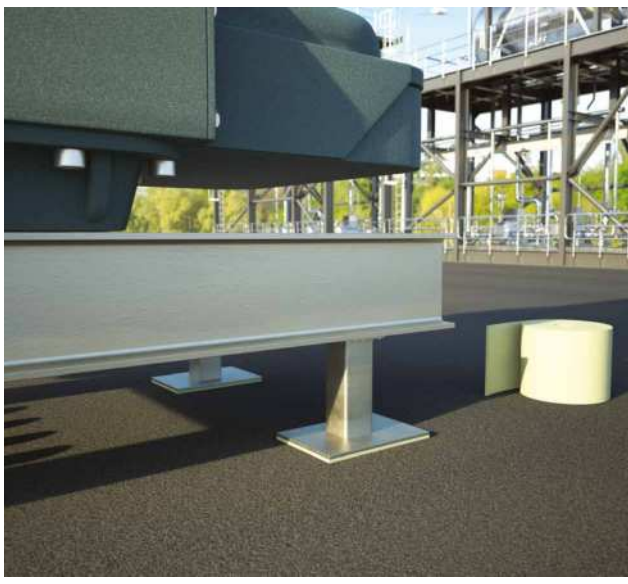
FIRE

Tested performance for characterisation and fire behaviour, both in exposed structural joints and for use in multi-storey buildings.

INTEGRATED DESIGN

Rothoblaas has studied and tested the product over the years in the most relevant project areas: acoustics, structural capacity, moisture and fire. This allows a single solution for different needs.





CODES AND DIMENSIONS

CODE	Shore	B [mm]	L [m]	s [mm]	*B [in]*	*L [ft]*	*s [in]*	pcs
XYL20050		50	3,66	6,0	*2*	*12*	*1/4*	1
XYL20080		80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL20090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL20100	20	100	3,66	6,0	*4*	*12*	*1/4*	1
XYL20120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL20140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL20160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1
XYL35080		80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL35090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL35100	35	100	3,66	6,0	*4*	*12*	*1/4*	1
XYL35120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL35140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL35160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1
XYL50080		80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL50090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL50100	50	100	3,66	6,0	*4*	*12*	*1/4*	1
XYL50120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL50140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL50160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1
XYL70080		80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL70090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL70100	70	100	3,66	6,0	*4*	*12*	*1/4*	1
XYL70120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL70140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL70160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1
XYL80080		80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL80090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL80100	80	100	3,66	6,0	*4*	*12*	*1/4*	1
XYL80120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL80140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL80160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1
XYL90080		80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL90090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL90100	90	100	3,66	6,0	*4*	*12*	*1/4*	1
XYL90120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL90140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL90160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1

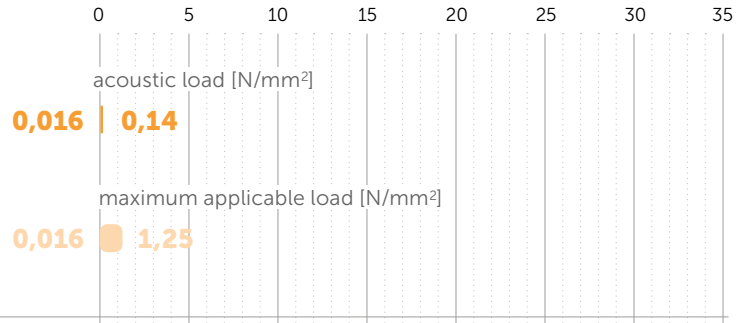
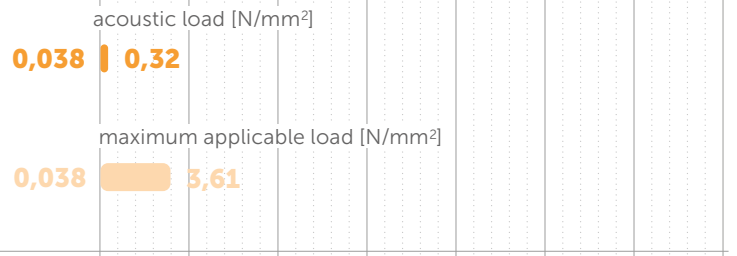
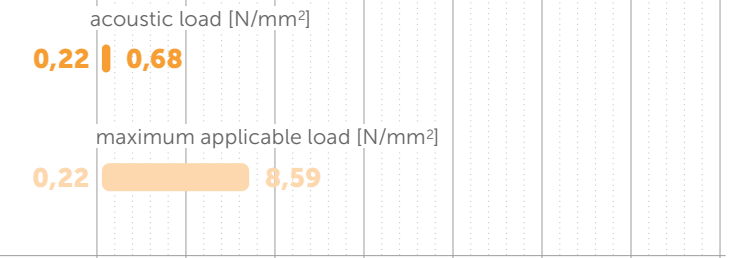
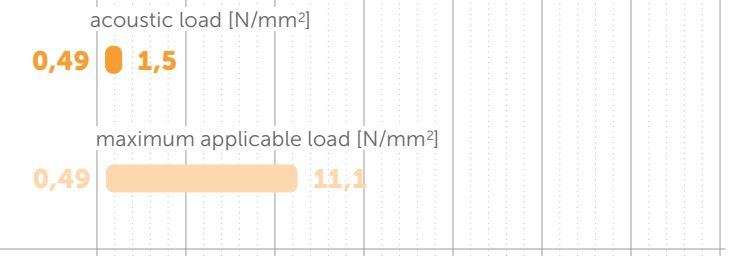
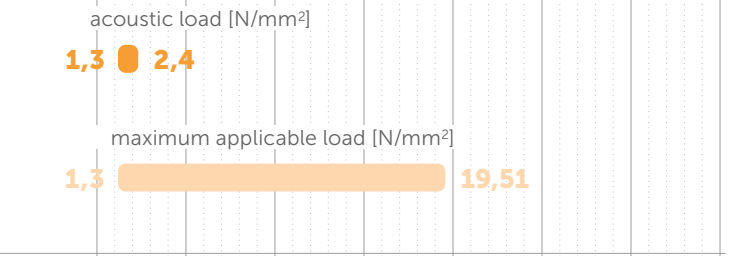
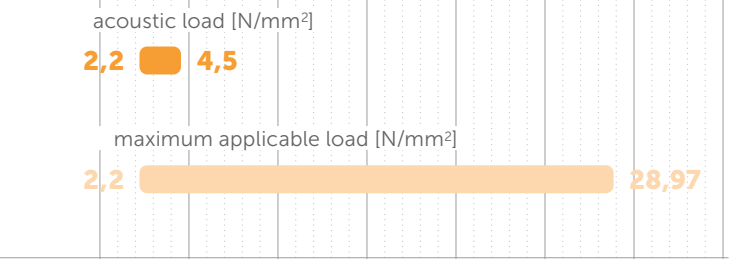
PRODUCT COMPARISON

products		thickness	acoustic improvement $\Delta_{l,ij}$ (1)	compressive modulus E_c
XYLOFON 20		**6** mm *1/4 in*	**> 7** dB	**1,45** N/mm² *210 psi*
XYLOFON 35		**6** mm *1/4 in*	**7,4** dB	**3,22** N/mm² *467 psi*
XYLOFON 50		**6** mm *1/4 in*	**10,6** dB	**7,11** N/mm² *1031 psi*
XYLOFON 70		**6** mm *1/4 in*	**7,8** dB	**14,18** N/mm² *2057 psi*
XYLOFON 80		**6** mm *1/4 in*	**> 7** dB	**25,39** N/mm² *3683 psi*
XYLOFON 90		**6** mm *1/4 in*	**> 7** dB	**36,56** N/mm² *5303 psi*

LEGEND:

load for acoustic optimisation

compressive stress at 3 mm (ultimate limit state)

dynamic elastic modulus E'_{5Hz} - E'_{50Hz}	damping factor $tan\delta_{5Hz}$ - $tan\delta_{50Hz}$	acoustic load / maximum applicable load
-	-	
3,10 N/mm² - **3,60** N/mm² *1305 psi - 1552 psi*	**0,321 - 0,382**	
3,93 N/mm² - **4,36** N/mm² *1610 psi - 1958 psi*	**0,173 - 0,225**	
6,44 N/mm² - **7,87** N/mm² *2393 psi - 3104 psi*	**0,118 - 0,282**	
16,90 N/mm² - **21,81** N/mm² *3568 psi - 4487 psi*	**0,150 - 0,185**	
39,89 N/mm² - **65,72** N/mm² *6150 psi - 8093 psi*	**0,307 - 0,453**	

(1) $\Delta_{I,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.

XYLOFON 20

CODES AND DIMENSIONS

CODE	Shore	B [mm]	L [m]	s [mm]	*B [in]*	*L [ft]*	*s [in]*	pcs
XYL20050		50	3,66	6,0	*2*	*12*	*1/4*	1
XYL20080		80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL20090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL20100	20	100	3,66	6,0	*4*	*12*	*1/4*	1
XYL20120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL20140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL20160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1

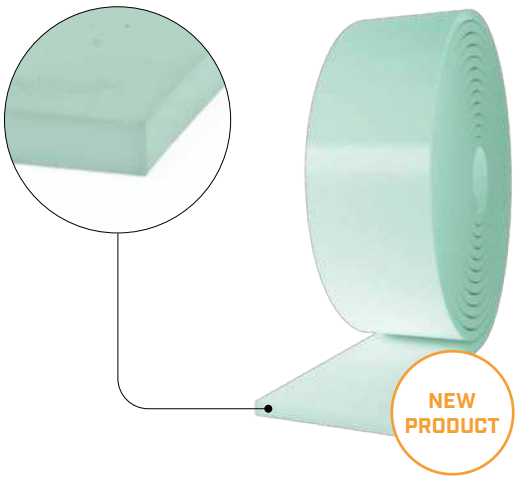


TABLE OF USE[1]

CODE	load for acoustic optimisation[2] [kN/m] *[lbf/ft]* min		max		compression for acoustic optimisation[2] [N/mm²] *[psi]* min	max	reduction [mm] *[mil]* min	max	*compressive stress at 3 mm (ultimate limit state)* [N/mm²] *[psi]*
XYL20050	0,7	*590*	8	*5163*					
XYL20080	1,12	*944*	12,8	*8261*					
XYL20090	1,26	*1062*	14,4	*9293*					
XYL20100	1,4	*1180*	16	*10326*	0,016 *2.32*	0,14 *20.3*	0,06 *2*	0,6 *24*	***1,25*** *181*
XYL20120	1,68	*1416*	19,2	*12391*					
XYL20140	1,96	*1652*	22,4	*14456*					
XYL20160	2,24	*1888*	25,6	*16521*					

[1] The load ranges reported are optimised with respect to the static behaviour of the material assessed under compression, considering the effect of friction and the system resonance frequency, which falls between 20 and 30 Hz, with a maximum deformation of 12%. See the manual or use MyProject to view transmissibility and attenuation graphs.

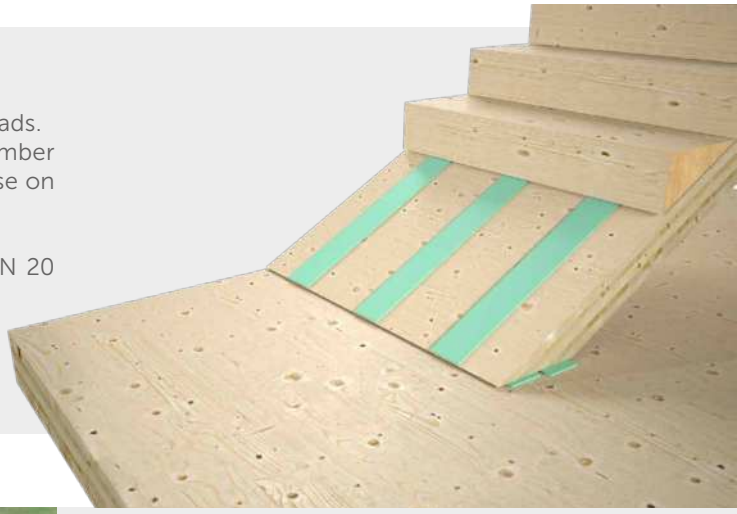
[2] Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5\ q_{vk}$).

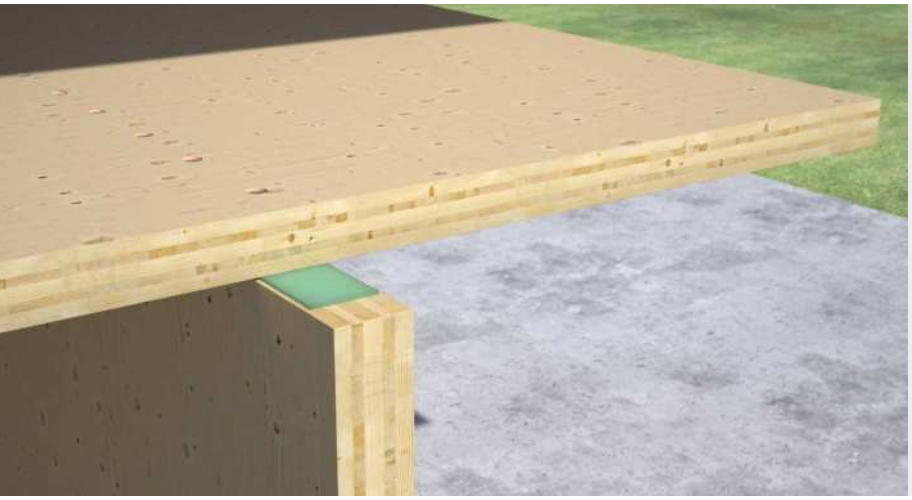
TECHNICAL DATA: available upon request.

LIGHTNESS AND HEIGHT

XYLOFON 20 is the range innovation for light structures and low loads. The acoustic insulation performance is the same as for Mass Timber structures, but the 20 shore polyurethane compound allows for use on light-frame structures, roofs and floors.

In the construction of multi-storey buildings, the use of XYLOFON 20 ensures soundproofing of the highest floors.





PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}$ [3] : **> 7** dB

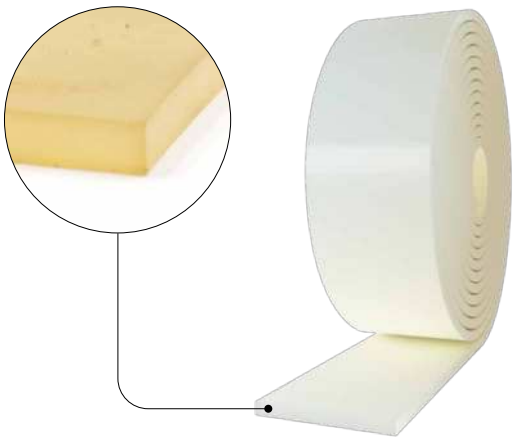
Maximum applicable load (deformation 3 mm):

1,25 N/mm²

Acoustic load:

from **0,016** to **0,14** N/mm²

XYLOFON 35



CODES AND DIMENSIONS

CODE	Shore	B [mm]	L [m]	s [mm]	*B [in]*	*L [ft]*	*s [in]*	pcs
XYL35080	35	80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL35090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL35100		100	3,66	6,0	*4*	*12*	*1/4*	1
XYL35120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL35140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL35160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1

TABLE OF USE[1]

CODE	load for acoustic optimisation[2] [kN/m] *[lbf/ft]* min		max		compression for acoustic optimisation[2] [N/mm²] *[psi]* min	max	reduction [mm] *[mil]* min	max	*compressive stress at 3 mm (ultimate limit state)* [N/mm²] *[psi]*
XYL35080	3,04	*2242*	25,6	*18882*					
XYL35090	3,42	*2522*	28,8	*21242*					
XYL35100	3,8	*2803*	32	*23602*	0,038 *5.5*	0,32 *46.4*	0,05 *2*	0,5 *20*	***3,61*** *524*
XYL35120	4,56	*3363*	38,4	*28322*					
XYL35140	5,32	*3924*	44,8	*33043*					
XYL35160	6,08	*4484*	51,2	*37763*					

[1] The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

[2] Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5\, q_{vk}$).

TECHNICAL DATA

Properties	standard	value	*USC conversion*
Acoustic improvement $\Delta_{l,ij}$[3]	ISO 10848	7,4 dB	-
Compressive modulus E_c	ISO 844	3,22 MPa	*467 psi*
Dynamic elastic modulus E'_{5Hz} - E'_{50Hz}	ISO 4664-1	3,10 MPa - 3,60 MPa	*1305 psi - 1552 psi*
Damping factor $tan\delta_{5Hz}$ - $tan\delta_{50Hz}$	ISO 4664-1	0,321 - 0,382	-
Compression set c.s.	ISO 1856	0,72%	-
Compressive stress at 1 mm (*1/32 in*)strain σ_{1mm}	ISO 844	0,5 N/mm²	*73 psi*
Compressive stress at 2 mm (*1/16 in*) strain σ_{2mm}	ISO 844	1,54 N/mm²	*223 psi*
Compressive stress at 3 mm (*1/8 in*) strain σ_{3mm}	ISO 844	3,61 N/mm²	*524 psi*
Dynamic stiffness s'[4]	ISO 9052	1262 MN/m³	-
Max processing temperature (TGA)	-	200 °C	*392 °F*
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

[3] $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.

[4] The standard requires for measurement with loads between 0.4 and 4 kPa and not with the product operating load.

PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}$ (3) : **7,4** dB

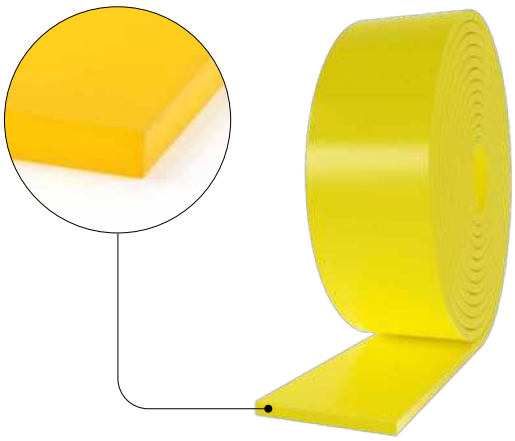
Maximum applicable load (deformation 3 mm):

3,61 N/mm²

Acoustic load:

from **0,038** to **0,32** N/mm²

XYLOFON 50



CODES AND DIMENSIONS

CODE	Shore	B [mm]	L [m]	s [mm]	*B [in]*	*L [ft]*	*s [in]*	pcs
XYL50080	50	80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL50090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL50100		100	3,66	6,0	*4*	*12*	*1/4*	1
XYL50120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL50140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL50160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1

TABLE OF USE[1]

CODE	load for acoustic optimisation[2] [kN/m] *[lbf/ft]* min		max		compression for acoustic optimisation[2] [N/mm²] *[psi]* min	max	reduction [mm] *[mil]* min	max	*compressive stress at 3 mm (ultimate limit state)* [N/mm²] *[psi]*
XYL50080	17,6	*12981*	54,4	*40123*					
XYL50090	19,8	*14604*	61,2	*45139*					
XYL50100	22	*16226*	68	*50154*	0,22 *31.9*	0,68 *98.6*	0,07 *3*	0,6 *24*	***8,59*** *1246*
XYL50120	26,4	*19472*	81.6	*60185*					
XYL50140	30,8	*22717*	95,2	*70216*					
XYL50160	35,2	*25962*	108,8	*80247*					

[1] The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

[2] Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5\ q_{vk}$).

TECHNICAL DATA

Properties	standard	value	*USC conversion*
Acoustic improvement $\Delta_{l,ij}$[3]	ISO 10848	10,6 dB	-
Compressive modulus E_c	ISO 844	7,11 MPa	*1031 psi*
Dynamic elastic modulus E'_{5Hz} -E'_{50Hz}	ISO 4664-1	3,93 MPa - 4,36 MPa	*1610 psi - 1958 psi*
Damping factor $tan\delta_{5Hz}$ - $tan\delta_{50Hz}$	ISO 4664-1	0,173 - 0,225	-
Compression set c.s.	ISO 1856	1,25%	-
Compressive stress at 1 mm (*1/32 in*)strain σ_{1mm}	ISO 844	1,11 N/mm²	*161 psi*
Compressive stress at 2 mm (*1/16 in*) strain σ_{2mm}	ISO 844	3,5 N/mm²	*508 psi*
Compressive stress at 3 mm (*1/8 in*) strain σ_{3mm}	ISO 844	8,59 N/mm²	*1246 psi*
Dynamic stiffness s'[4]	ISO 9052	1455 MN/m³	-
Max processing temperature (TGA)	-	200 °C	*392 °F*
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

[3] $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.

[4] The standard requires for measurement with loads between 0.4 and 4 kPa and not with the product operating load.

PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}^{(3)}$: **10,6** dB

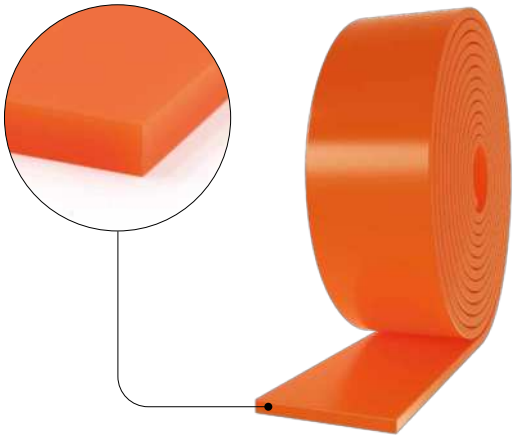
Maximum applicable load (deformation 3 mm):

8,59 N/mm²

Acoustic load:

from **0,22** to **0,68** N/mm²

XYLOFON 70



CODES AND DIMENSIONS

CODE	Shore	B [mm]	L [m]	s [mm]	*B [in]*	*L [ft]*	*s [in]*	pcs
XYL70080	70	80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL70090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL70100		100	3,66	6,0	*4*	*12*	*1/4*	1
XYL70120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL70140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL70160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1

TABLE OF USE[1]

CODE	load for acoustic optimisation[2] [kN/m] *[lbf/ft]* min		max		compression for acoustic optimisation[2] [N/mm²] *[psi]* min	max	reduction [mm] *[mil]* min	max	*compressive stress at 3 mm (ultimate limit state)* [N/mm²] *[psi]*
XYL70080	39,2	*28912*	120	*88507*					
XYL70090	44,1	*32526*	135	*99571*					
XYL70100	49	*36141*	150	*110634*	0,49 *71.1*	1,5 *218*	0,2 *8*	0,65 *26*	***11,1*** *1610*
XYL70120	58,8	*43369*	180	*132761*					
XYL70140	68.6	*50597*	210	*154888*					
XYL70160	78,4	*57825*	240	*177015*					

[1] The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

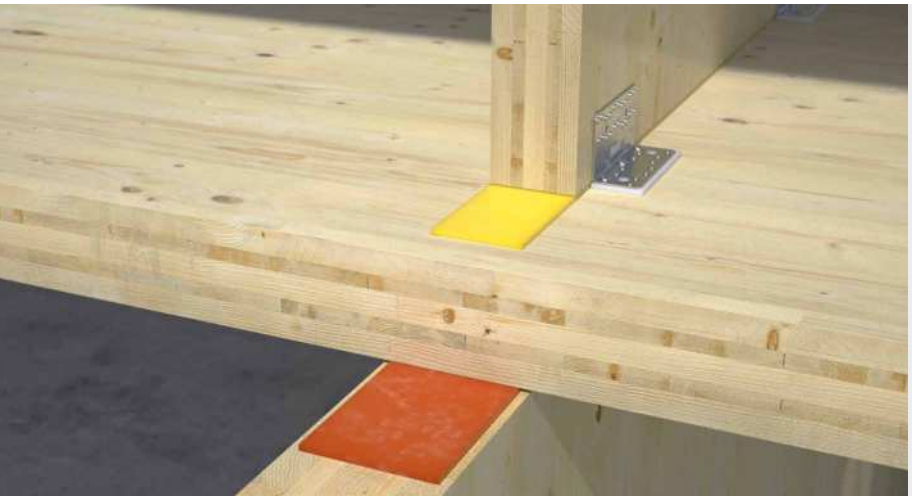
[2] Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5\ q_{vk}$).

TECHNICAL DATA

Properties	standard	value	*USC conversion*
Acoustic improvement $\Delta_{l,ij}$[3]	ISO 10848	7,8 dB	-
Compressive modulus E_c	ISO 844	14,18 MPa	*2057 psi*
Dynamic elastic modulus E'_{5Hz} - E'_{50Hz}	ISO 4664-1	6,44 MPa - 7,87 MPa	*2393 psi - 3104 psi*
Damping factor $tan\delta_{5Hz}$ - $tan\delta_{50Hz}$	ISO 4664-1	0,118 - 0,282	-
Compression set c.s.	ISO 1856	0,71%	-
Compressive stress at 1 mm (*1/32 in*)strain σ_{1mm}	ISO 844	2,44 N/mm²	*354 psi*
Compressive stress at 2 mm (*1/16 in*) strain σ_{2mm}	ISO 844	5,43 N/mm²	*788 psi*
Compressive stress at 3 mm (*1/8 in*) strain σ_{3mm}	ISO 844	11,1 N/mm²	*1610 psi*
Dynamic stiffness s'[4]	ISO 9052	1822 MN/m³	-
Max processing temperature (TGA)	-	200 °C	*392 °F*
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

[3] $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.

[4] The standard requires for measurement with loads between 0.4 and 4 kPa and not with the product operating load.



PERFORMANCE

Acoustic improvement tested

$\Delta_{l,ij}$ (3) : **7,8** dB

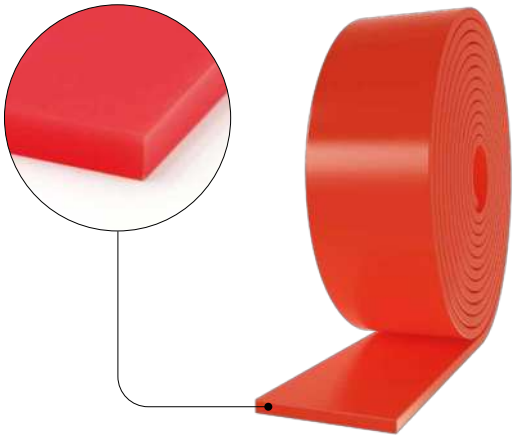
Maximum applicable load (deformation 3 mm):

11,1 N/mm²

Acoustic load:

from **0,49** to **1,5** N/mm²

XYLOFON 80



CODES AND DIMENSIONS

CODE	Shore	B [mm]	L [m]	s [mm]	*B [in]*	*L [ft]*	*s [in]*	pcs
XYL80080	80	80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL80090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL80100		100	3,66	6,0	*4*	*12*	*1/4*	1
XYL80120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL80140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL80160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1

TABLE OF USE[1]

CODE	load for acoustic optimisation[2] [kN/m] *[lbf/ft]* min		max		compression for acoustic optimisation[2] [N/mm²] *[psi]* min	max	reduction [mm] *[mil]* min	max	*compressive stress at 3 mm (ultimate limit state)* [N/mm²] *[psi]*
XYL80080	104	*76706*	192	*141612*					
XYL80090	117	*86295*	216	*159313*					
XYL80100	130	*95883*	240	*177015*	1,3	2,4	0,3	0,57	***19,51***
XYL80120	156	*115060*	288	*212418*	*189*	*348*	*12*	*22*	*2830*
XYL80140	182	*134236*	336	*247821*					
XYL80160	208	*153413*	384	*283224*					

[1] The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

[2] Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5\ q_{vk}$).

TECHNICAL DATA

Properties	standard	value	*USC conversion*
Acoustic improvement $\Delta_{l,ij}$[3]	ISO 10848	> 7 dB	-
Compressive modulus E_c	ISO 844	25,39 MPa	*3683 psi*
Dynamic elastic modulus E'_{5Hz} - E'_{50Hz}	ISO 4664-1	16,90 MPa - 21,81 MPa	*3568 psi - 4482 psi*
Damping factor $tan\delta_{5Hz}$ - $tan\delta_{50Hz}$	ISO 4664-1	0,150 - 0,185	-
Compression set c.s.	ISO 1856	1,31%	-
Compressive stress at 1 mm (*1/32 in*)strain σ_{1mm}	ISO 844	3,85 N/mm²	*558 psi*
Compressive stress at 2 mm (*1/16 in*) strain σ_{2mm}	ISO 844	9,52 N/mm²	*1381 psi*
Compressive stress at 3 mm (*1/8 in*) strain σ_{3mm}	ISO 844	19,51 N/mm²	*2830 psi*
Dynamic stiffness s'[4]	ISO 9052	2157 MN/m³	-
Max processing temperature (TGA)	-	200 °C	*392 °F*
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

[3] $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.

[4] The standard requires for measurement with loads between 0.4 and 4 kPa and not with the product operating load.

PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}^{(3)}$: **> 7** dB

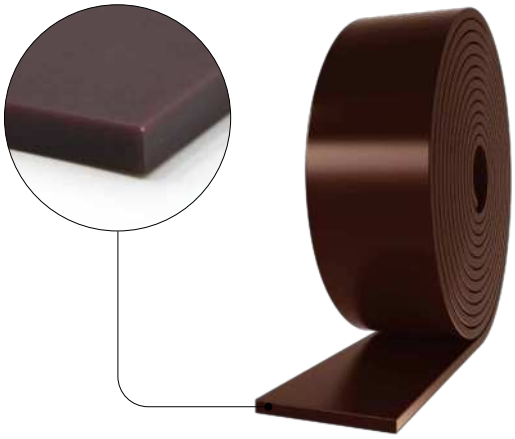
Maximum applicable load (deformation 3 mm):

19,51 N/mm²

Acoustic load:

from **1,3** to **2,4** N/mm²

XYLOFON 90



CODES AND DIMENSIONS

CODE	Shore	B [mm]	L [m]	s [mm]	*B [in]*	*L [ft]*	*s [in]*	pcs
XYL90080	90	80	3,66	6,0	*3 1/8*	*12*	*1/4*	1
XYL90090		90	3,66	6,0	*3 1/2*	*12*	*1/4*	1
XYL90100		100	3,66	6,0	*4*	*12*	*1/4*	1
XYL90120		120	3,66	6,0	*4 3/4*	*12*	*1/4*	1
XYL90140		140	3,66	6,0	*5 1/2*	*12*	*1/4*	1
XYL90160		160	3,66	6,0	*6 1/4*	*12*	*1/4*	1

TABLE OF USE[1]

CODE	load for acoustic optimisation[2] [kN/m] *[lbf/ft]*				compression for acoustic optimisation[2] [N/mm²] *[psi]*		reduction [mm] *[mil]*		*compressive stress at 3 mm (ultimate limit state)* [N/mm²] *[psi]*
	min		max		min	max	min	max	
XYL90080	176	*129811*	360	*265522*					
XYL90090	198	*146037*	405	*298713*					
XYL90100	220	*162264*	450	*331903*	2,2	4,5	0,3	0,74	***28,97***
XYL90120	264	*194716*	540	*398283*	*319*	*653*	*12*	*29*	*4202*
XYL90140	308	*227169*	630	*464664*					
XYL90160	352	*259622*	720	*531045*					

[1] The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

[2] Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5\ q_{vk}$).

TECHNICAL DATA

Properties	standard	value	*USC conversion*
Acoustic improvement $\Delta_{l,ij}$[3]	ISO 10848	> 7 dB	-
Compressive modulus E_c	ISO 844	36,56 MPa	*5303 psi*
Dynamic elastic modulus E'_{5Hz} - E'_{50Hz}	ISO 4664-1	39,89 MPa - 65,72 MPa	*6150 psi - 8093 psi*
Damping factor $tan\delta_{5Hz}$ - $tan\delta_{50Hz}$	ISO 4664-1	0,307 - 0,453	-
Compression set c.s.	ISO 1856	2,02%	-
Compressive stress at 1 mm (*1/32 in*)strain σ_{1mm}	ISO 844	5,83 N/mm²	*846 psi*
Compressive stress at 2 mm (*1/16 in*) strain σ_{2mm}	ISO 844	14,41 N/mm²	*2090 psi*
Compressive stress at 3 mm (*1/8 in*) strain σ_{3mm}	ISO 844	28,97 N/mm²	*4202 psi*
Dynamic stiffness s'[4]	ISO 9052	> 2200 MN/m³	-
Max processing temperature (TGA)	-	200 °C	*392 °F*
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

[3] $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.

[4] The standard requires for measurement with loads between 0.4 and 4 kPa and not with the product operating load.

PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}^{(3)}$: **> 7** dB

Maximum applicable load (deformation 3 mm):

29,87 N/mm²

Acoustic load:

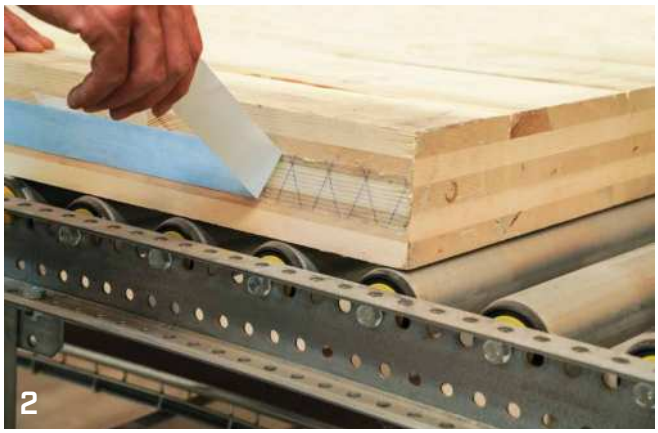
from **2,2** to **4,5** N/mm²

XYLOFON | Recommendations for installation

APPLICATION WITH STAPLES

APPLICATION WITH PRIMER SPRAY

APPLICATION WITH DOUBLE BAND



XYLOFON | Tests performed

LCA EPD FLANKSOUND EN ISO 10848 CE ETA-23/0061

EUROPEAN TECHNICAL ASSESSMENT

The European Technical Assessment (ETA) provides an independent Europe-wide procedure for assessing the essential performance characteristics of non-standard construction products.

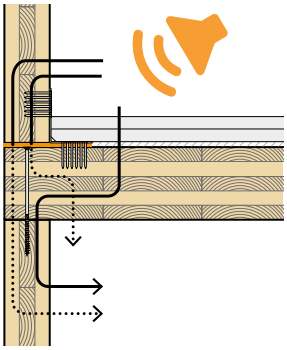
- Certificate of suitability for reducing flanking sound transmission and vibration within structures
- K_{ij} measured for different hardnesses and with appropriate fastening system

$\Delta_{l,ij} > 6$ dB

Theoretical reduction of up to more than 15 dB when used as a vibration damper

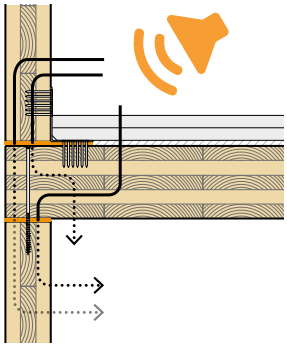
SOUND REDUCTION INDEX MEASUREMENTS

At the University of Innsbruck, a new laboratory was set up to measure the sound reduction index of CLT buildings with the aim of determining the effectiveness of the resilient profiles to be installed between the walls and floor.



$\Delta R_{Df+Ff,situ} = 5$ dB

$\Delta STC_{Df+Ff,situ} = 4$ dB

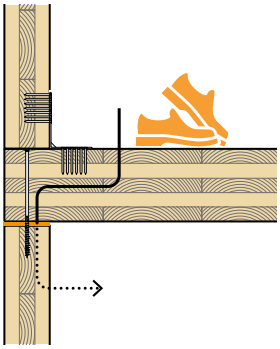


$\Delta R_{Df+Ff,situ} = 10$ dB

$\Delta STC_{Df+Ff,situ} = 10$ dB

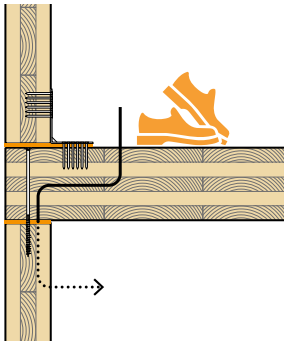
IMPACT NOISE LEVEL MEASUREMENTS

In this laboratory, it is also possible to measure the impact noise level in CLT buildings and to measure the effectiveness of resilient profiles placed between the walls and the floor.



$\Delta L_{n,Df+Ff,situ} = 7$ dB

$\Delta IIC_{Df+Ff,situ} = 7$ dB



$\Delta L_{n,Df+Ff,situ} = 8$ dB

$\Delta IIC_{Df+Ff,situ} = 8$ dB

INTEGRATED DESIGN - FLANKSOUND PROJECT

Rothoblaas has financed research projects aimed at measuring the K_{ij} vibration reduction index for a variety of CLT panel joints, with the dual objective of providing specific experimental data for acoustic design and contributing to the development of analytical calculation methods.

- Influence of CLT type and thickness
- Influence of type and number of screws
- Influence of type and number of angle brackets and connectors
- Influence of XYLOFON

K_{ij} for 15 different types of joint

FIRE

Awareness of fire design is increasingly growing. Over the years, Rothoblaas has carried out numerous tests to increase its know-how on this subject and will continue to do so in the future.
Characterisation tests for EI behaviour were carried out at the ETH Zürich and the Institute of Structural Engineering (IBK) & Swiss Timber Solutions AG.

After 60 minutes of exposure to fire, the temperature of the unexposed surface remained about room temperature, showing no colour changes.

Rothoblaas was also a partner in the research project "Fire Safe implementation of visible mass timber in tall buildings", sponsored by RISE - Research Institutes of Sweden. This project made it possible to study the compartmentalisation of timber buildings and to analyse the limits of structures with exposed CLT.

More information on RISE Report 2021:40.

experimental test **EI 60**

STATICS AND ACOUSTICS

Rothoblaas also subsidised research campaigns aimed at characterising the mechanical behaviour of connections incorporating the resilient XYLOFON profile. This was in cooperation with the Universities of Bologna, Innsbruck and Graz.

Thanks to these studies, it was possible to optimise the thickness and material of XYLOFON to ensure a balance between static and acoustic performance.

- Influence of XYLOFON with different screw diameters
- Influence of XYLOFON in nail connections
- Testing of timber-to-timber joints
- Tests on timber-to-steel joints
- Influence of friction in shear connections

over **100 specimens** tested

Use the QR-code to download the complete manual!
www.rothoblaas.com