isover
SAINT-GOBAIN

MINIMISE NOISE IN INDUSTRIAL PIPEWORK

Acoustic insulation is essential to improve working conditions inside the plant, but not only. It also allows to protect surrounding communities and the natural environment.

SAINT-GOBAIN

NOISE INSULATION, THE LONG-TERM SOLUTION BY ISOVER

At Isover, we have been delivering reliable acoustic insulation solutions for over 30 years, helping companies create safer, more comfortable, and more productive workplaces. Effective insulation reduces harmful noise levels, improving both well-being and efficiency.

In industrial environments, excessive noise poses serious health and safety risks. The constant rush of processes through pipes, plus the echo of machinery create a loud, restless atmosphere.
Over time, **this continuous noise exhausts workers, hampers focus, and disrupts communication.** Noise doesn't stop at the factory walls**. It extends to nearby neighbourhoods**, disturbing daily life and sleep, and **affects nature by disrupting wildlife and local ecosystems**.

- **How do you get started?**
- **Which standards apply?**
- **Which accoustic solutions work the best?**
- **How do you find the most efficient solution?**
- **Is there any innovation?**

Finding the right answers requires more than information, **it takes expertise.**

Talk to **Isover's experts** to get the **best acoustic insulation solution** for your needs.

Contact us

ISO 15665, THE STANDARD THAT SETS THE RULES

Isover adheres to ISO 15665, which classifies insulation systems based on their noise reduction effectiveness.

The ISO 15665 standard classifies the acoustic performance of industrial pipe insulation materials. It defines four classes (A, B, C, D) with increasing noise reduction performance (Table 1). Class D offers the highest noise reduction. The standard covers three pipe diameter categories:
1. Up to 300 mm
2. 300 mm to 650 mm
3. 650 mm to 1,000 mm

The table 1 shows the insertion loss per acoustic class and pipe category.

Class	Range of nominal diameter D mm	Octave band centre frequency, Hz						
		125	250	500	1 000	2 000	4 000	8 000
		Minimum insertion loss DW, dB						
A1	D < 300	-4	-4	2	9	16	22	29
A2	300 ≤ D < 650	-4	-4	2	9	16	22	29
A3	650 ≤ D < 1 000	-4	2	7	13	19	24	30
B1	D < 300	-9	-3	3	11	19	27	35
B2	300 ≤ D < 650	-9	-3	6	15	24	33	42
B3	650 ≤ D < 1 000	-7	2	11	20	29	36	42
C1	D < 300	-5	-1	11	23	34	38	42
C2	300 ≤ D < 650	-7	4	14	24	34	38	42
C3	650 ≤ D < 1 000	1	9	17	26	34	38	42
D2	300 ≤ D < 650	-3	4	15	36	45	45	45
D3	650 ≤ D < 1 000	3	9	26	36	45	40	40

In addition to the insertion loss, the ISO 15665 in Appendix A includes examples with a detailed description of different types of structures that could in principle meet the acoustic performance classes. These are expected to provide the insertion loss summarized in Table 1. However, these performances have not been verified by acoustic tests.

We develop and test our optimized solutions in external laboratories, achieving best-in-class performance according to **ISO 15665 standards.**

INNOVATION DRIVEN BY TESTING

Testing is part of our DNA

At Isover, we don't just follow ISO 15665, we test, test, and test again. First, to meet the standard. Then, to push beyond it. Every test is an opportunity to refine, to improve, to discover something better. And always considering real life conditions.

Considering spacers to meet real life conditions

ISO 15665 does not require a substructure for insulation materials, assuming they are pressure-resistant enough to support the cladding. However, for larger piping diameters (over 300 mm), insulation blankets are often in the field which are not pressure-resistant.

This can lead to deformation and reduced mechanical, thermal and acoustic properties. Therefore, spacer rings are necessary, as prescribed by CiNi guidelines. However, ISO 15665 advises against their use due to the risk of sound transmission. If they are unavoidable, they must include vibration insulating elements. Rigid spacers should not be used for acoustic insulation.

Isover spacers improve the performance, instead of damaging it!

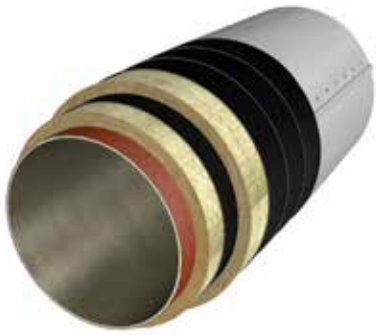
Combining ULTIMATE™ and Isover TECH dB innovations

Our solutions, such as the use of ULTIMATE™ combined with Isover TECH dB components, offer optimized acoustic performance while significantly reducing insulation thickness, total weight, and the number of material layers required.

These configurations, **validated by third party laboratories,** meet the practical requirements of our industrial clients, ensuring best-in-class acoustic performance and efficient, cost-effective installation.

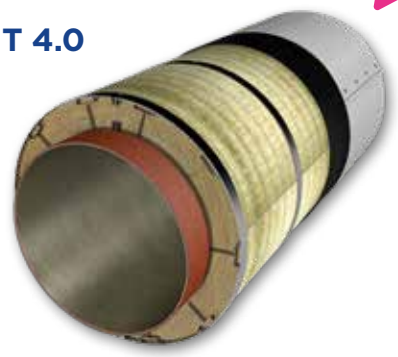
Stone wool Wired Mat
ISO 15665

› 3 layers ≈ 35 kg/m²



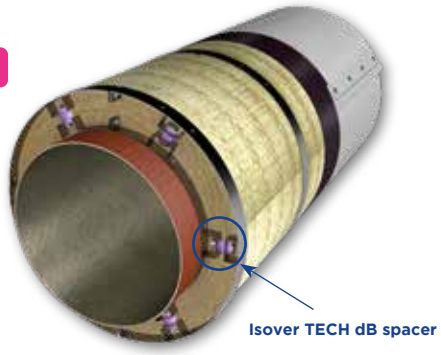
Ultimate™
U TECH Wired Mat MT 4.0

› 1 layer ≈ 16 kg/m²



Ultimate™
U TECH Wired Mat MT 4.0

› 1 layer ≈ 14 kg/m²



› **Testing with spacer rings**
› **1 layer** versus 3 for traditional systems
› **Lighter** acoutic insulation system

Unlike traditional systems that often require multiple layers of insulation and heavier materials, our configurations are **lighter, more efficient, and easier to install.**

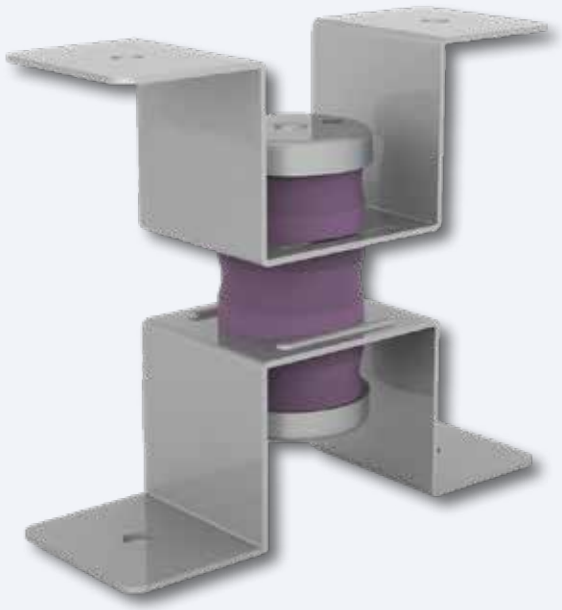
Tested. Proven. Innovative.

This relentless pursuit of performance drives us to innovate. With deep industry expertise and continuous testing, we create solutions that don't just comply with the standard, they redefine what's possible in acoustic insulation.

Would you install a spacer without knowing how it impacts the acoustic performance of the entire system?

Isover TECH dB Spacer to maximize acoustic performance

When spacer rings are needed to support the cladding, they shall be resilient instead of rigid as the ones used in distance rings for thermal insulation (following the most common acoustics regulations). However, the spacers commonly used, although resilient, constitute acoustic bridges which reduce the performance of the sound insulation system. This is why we have developed the Isover TECH dB Spacer, a specific acoustic component, to maximize acoustic performance



Viscoelastic components are integrated into the spacer

A well-thought design based on viscoelastic elements effectively reduces sound transmission to the cladding, thus improving the noise insulation of the system.

The standard dimensions of the components ensure easy integration into the existing systems so that they comply with the installation guidelines.

Isover provides test reports to demonstrate to our customers that we achieve the targeted acoustic performances.

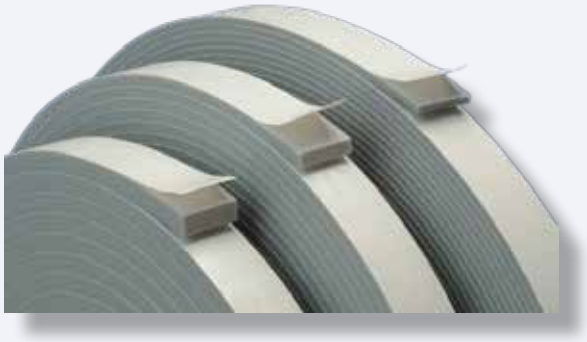
Isover TECH dB Alu

Isover TECH dB Alu is an engineered acoustic membrane specifically designed to enhance sound attenuation.
This product features a high-density viscoelastic layer combined with a bituminous base that incorporates polymers, ensuring optimal performance in mitigating low to medium frequency noise. The external embossed aluminum finish not only provides aesthetic appeal but also contributes to the membrane's durability, making it particularly suitable for industrial applications, including pipework, ducts, and equipment.

Its integration within the Isover TECH dB System makes it the perfect mass layer to ensure best-in-class acoustic performance.

Isover TECH dB Band

Isover TECH dB Band has been specifically engineered and chosen for its superior acoustic performance. It is a high-density, closed-cell PVC foam renowned for its exceptional vibration absorption. Placed around the spacers, it provides a decoupling effect that enhances the acoustic performance of the system. Isover TECH dB Band has high internal strength, making it an excellent shock absorber and vibration dampener.



Isover TECH dB System Benefits for our customers:

- Isover TECH dB Spacer nearly eradicates sound transmission bridges, significantly minimizing noise emission.
- Isover TECH dB Alu enhances acoustic performance with its advanced design and high-density materials.
- Isover TECH dB Band placed around the spacers boosts overall acoustic performance through a decoupling effect.

A RANGE OF PRODUCTS DESIGNED FOR INDUSTRY ACOUSTICS

Leading the Way in Industrial Acoustic Innovation

- All performance claims are backed by test, ensuring they meet industry standard ISO 15665 through third-party reports.
- Our lightweight solutions for acoustic insulation of pipeworks outperform conventional insulation solutions.
- Optimized solutions with fewer layers, less weight, and reduced thickness achieve top acoustic class for all pipe diameters, including D2 and D3.
- We have tested our solutions with spacers, ensuring real acoustic impact on systems, representative of real situations, and secure long-term performance.
- Our innovative TECH dB system (Isover TECH dB Spacers, Isover TECH dB Alu, Isover TECH dB Band) enhances the overall performance of the system.

Saint-Gobain TI solutions for Class 1 (pipe diameter < 300 mm) according to ISO 15665

Insulation	Thickness mm	Cladding	Mass Layer	Classes		
TECH PS MT 4.1	50	Steel cladding 1 mm (7.8 kg/m²)	/		B1	
TECH WM MT 5.1	100	Steel cladding 1 mm (7.8 kg/m²)	/	A1	B1	
U TECH WM MT 4.0	100	Steel cladding 1 mm (7.8 kg/m²)	/	A1	B1	C1
U TECH PS MT 4.0	50	Steel cladding 1 mm (7.8 kg/m²)	/	A1	B1	C1
U TECH PS MT 4.0	50	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (5 kg/m²)	A1	B1	C1
U PROTECT PS ALU 2	50	Steel cladding 1 mm (7.8 kg/m²)	/	A1	B1	
U PROTECT PS ALU 2	50	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (3 kg/m²)	A1	B1	C1
TECH PS MT 4.0	50	Alu cladding 1 mm (2.7 kg/m²)	/	A1	B1	
TECH PS MT 4.0	50	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (3 kg/m²)	A1	B1	C1
TECH PS MT 4.0	50	Steel cladding 1 mm (7.8 kg/m²)	/	A1	B1	C1
TECH Crimped Roll 2.0	50	Alu cladding 1 mm (2.7 kg/m²)	/		B1	
TECH Crimped Roll 2.0	50	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A1	B1	C1

PS = Pipe Section ; WM = Wired Mat

Saint-Gobain TI solutions for Class 2 (pipe diameter 300-650mm) according to ISO 15665

Insulation	Thickness	Spacers	Cladding	Mass Layer	Classes				
TECH LAMELLA MAT MT 2.0	100 mm	/	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2				
TECH CRIMPED ROLL 2.0	100 mm	Omega Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2	B2	C2		
TECH CRIMPED ROLL 2.0	100 mm	/	Alu cladding 1 mm (2.7 kg/m²)	/	A2	B2	C2		
TECH WM MT 3.1	100 mm	Omega Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2	B2	C2		
TECH WM MT 4.2	100 mm	Omega Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2	B2	C2		
TECH WM MT 4.2	100 mm	Omega Spacers	Steel cladding 1 mm (7.8 kg/m²)	Isover TECH dB Alu (3 kg/m²)	A2	B2	C2		
TECH WM MT 3.1	100 mm	Isover TECH dB Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2	B2	C2	D2	★
TECH WM MT 4.2	100 mm	Isover TECH dB Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2	B2	C2	D2	★
U TECH WM MT 4.0	80 mm	Isover TECH dB Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2	B2	C2	D2	★
U TECH WM MT 4.0	100 mm	Isover TECH dB Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass layer (8 kg/m²)	A2	B2	C2	D2	★

WM = Wired Mat ★ The best performing solution is obtained with Isover TECH dB spacers

Saint-Gobain TI solutions for Class 3 (pipe diameter 650-1000 mm) according to ISO 15665

Insulation	Thickness	Spacers	Cladding	Mass Layer	Classes				
TECH WM MT 5.1	100 mm	Omega Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass Layer (8 kg/m²)		B3			
U TECH WM MT 4.0	100 mm	Omega Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass Layer (8 kg/m²)	A3	B3	C3		
TECH WM MT 4.2	100 mm	Omega Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass Layer (8 kg/m²)	A3	B3	C3		
TECH WM MT 4.2	100 mm	Omega Spacers	Steel cladding 1 mm (7.8 kg/m²)	ISOVER TECH dB Alu (3 kg/m²)	A3	B3	C3		
U TECH WM MT 4.0	120 mm	Omega Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass Layer (8 kg/m²)	A3	B3	C3	D3	
U TECH WM MT 4.0	120 mm	Omega Spacers	Steel cladding 1 mm (7.8 kg/m²)	Mass Layer (8 kg/m²)	A3	B3	C3	D3	
U TECH WM MT 4.0	80 mm	Isover TECH dB Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass Layer (8 kg/m²)	A3	B3	C3	D3	★
U TECH WM MT 4.0	100 mm	Isover TECH dB Spacers	Alu cladding 1 mm (2.7 kg/m²)	Mass Layer (8 kg/m²)	A3	B3	C3	D3	★
TECH WM MT 4.2	100 mm	Isover TECH dB Spacers	Steel cladding 1 mm (7.8 kg/m²)	Isover TECH dB Alu (3 kg/m²)	A3	B3	C3	D3	★

WM = Wired Mat ★ The best performing solution is obtained with Isover TECH dB spacers

Third party test reports for each system are available upon request. Additionally, other unpublished configurations are available that may meet specific needs. And we can also test or model custom systems at your request (e.g. systems for pipe diameters > 1000 mm).

CUSTOMER TESTIMONIAL

Company: BrandSafway, Belgium

Sector: Energy-Intensive Processes

The challenge

A zinc production site in Belgium exceeded the ISO 15665 regulatory noise limits, impacting nearby homes. Acoustic assessments identified an industrial fan's ducts (Ø 1000-1500 mm) as the primary noise source, emitting 51 dB(A) meaning 6 dB(A) above the maximum defined by regulations.

The answer

To ensure compliance, BrandSafway Belgium partnered with Saint-Gobain Isover Technical Insulation Benelux to design an efficient acoustic insulation system:

- **The solution:** 100 mm U TECH Wired Mat MT 4.0 (ULTIMATE™ light stone wool) with a loose aluminium cladding and acoustically decoupled support rings
- **Obvious choice:** Achieved required sound attenuation with only 1 layer instead of 7 layers of traditional mineral wool + mass layers
- **Lightweight & easy installation:** No need for extra mass layers or welded support rings, reducing installation time and plant downtime

Regulatory compliance achieved

Post-installation noise levels now fully comply with the regulatory values, eliminating noise pollution for local residents.

> *Very easy to use and an impressive sound reduction*

Feedback of the contractor,
Eddy Vorstenbosch
(**BrandSafway** Belgium)

GET THE MOST FROM OUR ACOUSTIC SOLUTIONS!

- **Achieve Excellence:** Best-in-class acoustic performance, consistently achieving the top ISO 15665 classifications, combined with the most advanced optimized systems for maximum design flexibility.
- **Enhance Safety:** Lighter materials reduce injury risks, ensure worker comfort, and improve site compliance.
- **Simplify Logistics:** Easier handling, reduced shipping costs, and faster installation keep your projects on schedule.
- **Save Money:** Lower transport and labor expenses, minimized structural reinforcement, and significant time savings in the field with fewer layers to install.
- **Boost Sustainability:** Fewer raw materials, lower carbon emissions, and environmentally conscious solutions.

Take a look at our ACOUSTIC BROCHURE for a deeper dive into our solutions.

Talk to isover experts

SAINT-GOBAIN

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