

Complete Acoustic Test
Environment Solutions



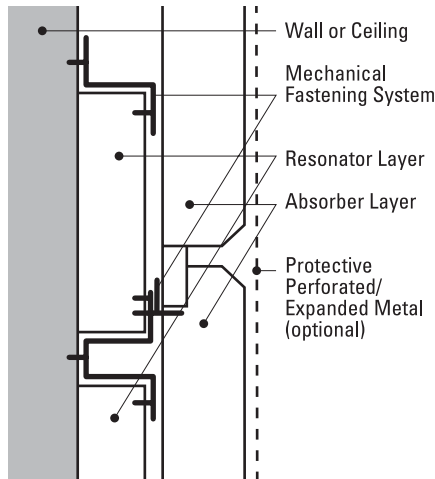
The illbruck advantage from concept to certification

To achieve free-field conditions within an acoustic test environment the testing area must be free from reverberation, feedback and resonance. illbruck creates optimal full anechoic and hemi-anechoic environments for the most precise testing and benchmarking in aerospace, automotive, electronics, research, government and hard goods manufacturing. In addition to our traditional wedge acoustic solution, our new nontraditional system saves between 30% and 50% of available room volume—a great retrofit solution for an existing space.

illbruck offers a complete solution—from facility design through final certification—with products and expertise to meet the most demanding needs. Our traditional solution, SONEXunilayer™ System and our new space-saving SONEXtrilayer™ System are designed to meet unique requirements for room and test specimen size, cutoff frequency and your precision test method. Our demanding test environments have exceptional performance from the desired cutoff frequency through the highest frequencies. Offering two decades of experience, illbruck’s full and hemi-anechoic chambers are the preferred choice for industry-leading companies worldwide.



Hemi-anechoic chamber at Continental Brakes in Hannover, Germany contains the SONEXtrilayer System with SONEXflat™ Panels.



SONEXtrilayer System

The SONEXtrilayer System allows extraordinary space savings thanks to an innovative combination of resonator, barrier and absorptive material layering. This system effectively meets a variety of testing needs and can be easily adapted to existing rooms or areas with limited space. To meet your cutoff frequency and test method requirements, SONEXtrilayer is available in three absorption layer options, all are constructed using illbruck’s innovative Class 1 fire-rated willtec® foam.



Made from illbruck’s willtec acoustical foam, SONEXpyramid™ Panels, as the top absorber layer in a SONEXtrilayer System, provide cutoff frequencies of 63 Hz or higher.

SONEXtrilayer System	Cutoff Frequencies	Test Standard	Thickness of Entire System
with SONEXflat Panel	50 Hz or higher	Measurement according to ISO 3744 engineering method, acceptable for ISO 3745 precision method*	4" to 10" (10 to 25 cm)*
with SONEXmax™ Wedges	50 Hz or higher	Measurement according to ISO 3744 engineering method, ISO 3745 precision method	24" to 61" (61 to 155 cm)*
with SONEXpyramid Panels	63 Hz or higher	Measurement according to ISO 3744 engineering method, ISO 3745 precision method	10" to 24" (25 to 61 cm)*

*Exact dimensions depend on the desired cutoff frequency of system selected.

SONEXunilayer™ System

The long-established workhorse of the acoustic test chamber, SONEXunilayer System utilizes either SONEXsuper™ or SONEXmax™ Wedges. The wedges, constructed from illbruck's innovative willtec® foam, have an increased surface area for exceptional acoustical performance. They are lightweight and install seamlessly for a continuous panel look.



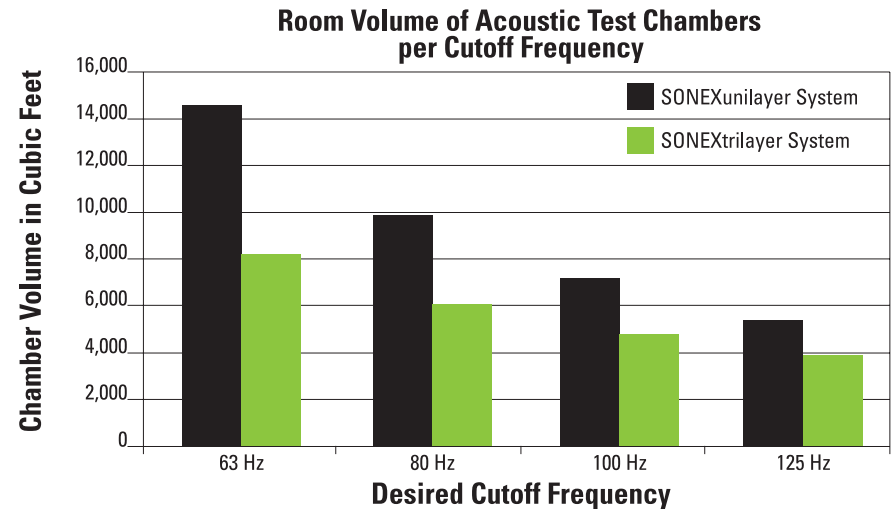
SONEX® Wedges provide exceptional low- to high-frequency sound absorption.



SONEX Wedges can be used to create full anechoic or hemi-anechoic chambers.

SONEXunilayer System	Cutoff Frequencies	Test Standard	Wedge Thickness
with SONEXmax or SONEXsuper Wedges	63 Hz or higher	Measurement according to ISO 3745 precision method	6" to 61" (15 to 155 cm)*

*Exact length depends on the desired cutoff frequency of system selected.



Depending on the desired cut off frequency, SONEXtrilayer Systems save between 28 and 44 percent of a room's available testing area.

The power and versatility of willtec

One of illbruck's clear advantages is our willtec foam that appears in a variety of styles. willtec is Class 1 fire-rated and can be used in virtually any application. It's amazingly lightweight with incredible acoustic control abilities. Plus, it is resistant to humidity, fungus and microbial growth for long-lasting performance. There is simply no better solution for improving sound quality in acoustic test environments.

References

Client	Purpose of Facility	Cutoff Frequency	Facility Type	illbruck Solution
Sony®	Research voice recording systems	125 Hz	Hemi-anechoic	SONEXtrilayer™ System with SONEXflat™ Panels
Müller-BBM	Acoustical engineering and research	200 Hz/80 Hz	Hemi-anechoic	SONEXunilayer™ System with SONEX® Wedges
Continental Tires	Tire research	125 Hz	Hemi-anechoic	SONEXtrilayer System with SONEXflat Panels
Airbus Industries	Commercial aircraft component testing	125 Hz/80 Hz	Full anechoic	SONEXunilayer System with SONEXmax™ Wedges
Airbus Industries	Commercial aircraft component testing	80 Hz	Full anechoic	SONEXtrilayer System with SONEXflat Panels
NASA Langley Research Center	Space and aircraft component testing	100 Hz	Hemi-anechoic	SONEXunilayer System with SONEX Wedges
NASA Langley Research Center	Acoustical research of components	100 Hz	Full anechoic	SONEXunilayer System with SONEX Wedges
Continental Brakes	Road simulation	50 Hz	Hemi-anechoic	SONEXtrilayer System with SONEXflat Panels
Stihl	Chainsaw Testing	100 Hz	Hemi-anechoic	SONEXtrilayer System with SONEXflat Panels

Physical Data — willtec® Foam

Material	Open-cell melamine-based foam
Density	0.5 to 0.7 lbs./cubic ft. (ASTM D3574-77)
Long-Term Service Temperature	302 degrees F
Fire Resistance	Class 1 per ASTM E 84 (all finishes), Meets UL 1715 (natural willtec)
Flame Spread per ASTM E 84	Natural: 5 Painted: 10 Hypalon®-coated: 25
Smoke Density per ASTM E 84	Natural: 50 Painted: 10 Hypalon-coated: 65
Microbial Growth	Passes UL 181, section 11
Fungus Resistance	Rating 0 per ASTM G21
Finishes	Natural (white and light grey), Painted or Hypalon-coated

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illbruck manufactures a broad range of attractive and high-performance ceiling tiles, wall panels and acoustical materials including CONTOUR® Ceiling Tiles, HARMONI™ Ceiling Tiles, SQUARELINE® Metal Ceiling Tiles, WHITELINE® Ceiling Tiles, illbruck Ceiling Grids and SONEX Panels and Baffles.

