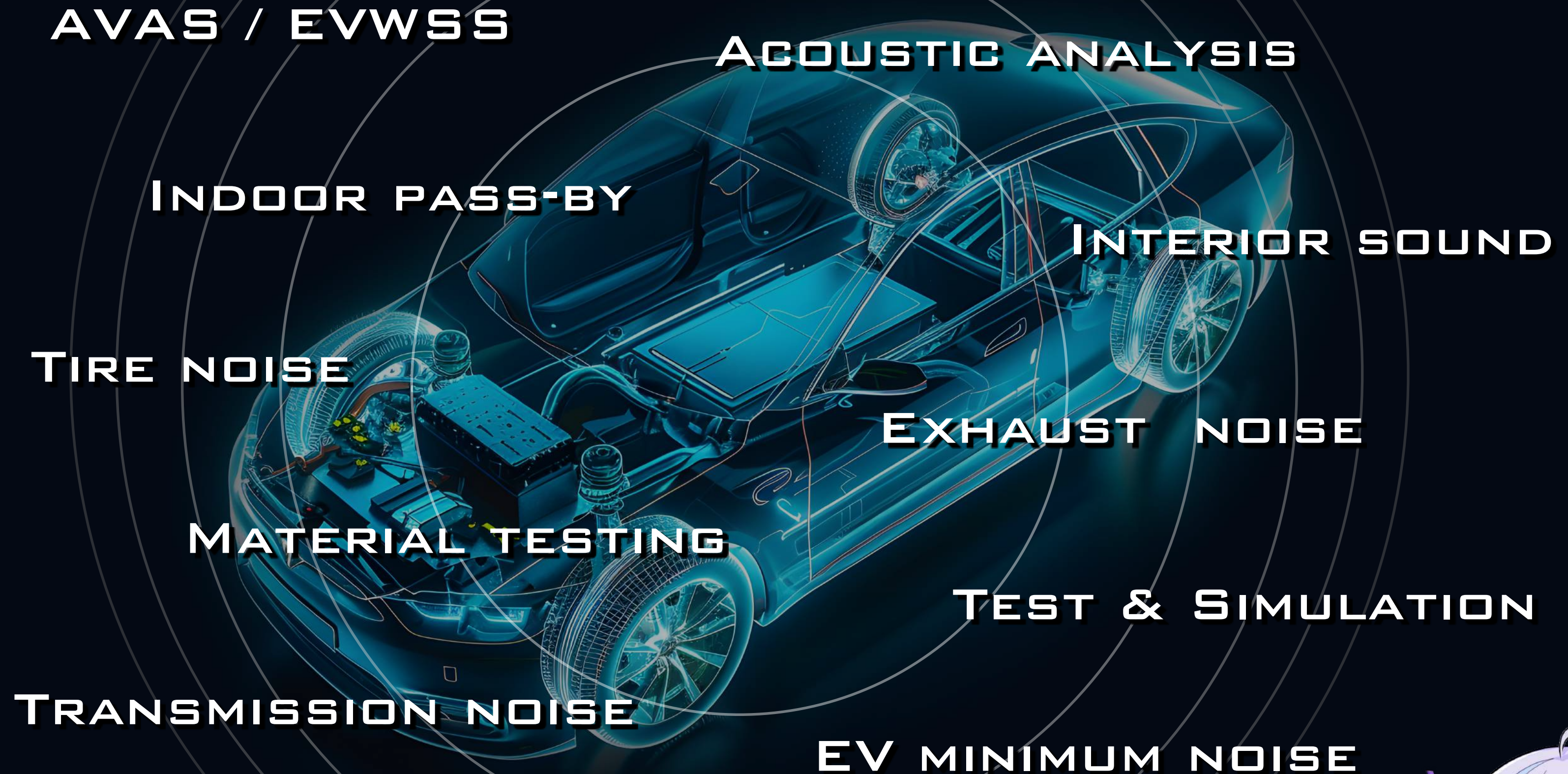




VSAC

VEHICLE SEMI-ANECHOIC CHAMBER



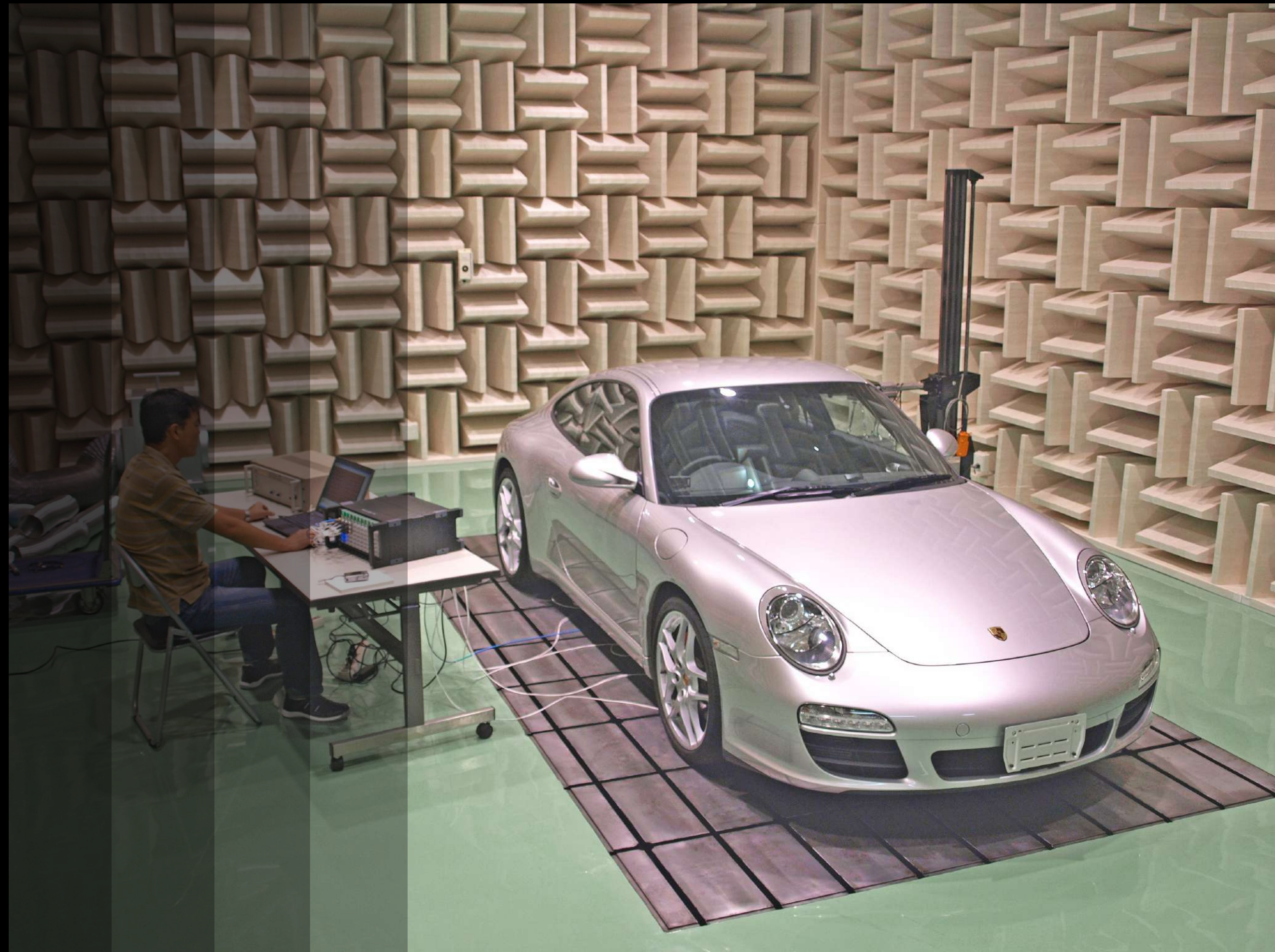
In order to conduct the different types of Vehicle NVH Testing, the development of VSAC and setting of the environmental requirements for performing measurements are important tasks for automotive manufacturers and manufacturers of automotive parts and components as well.



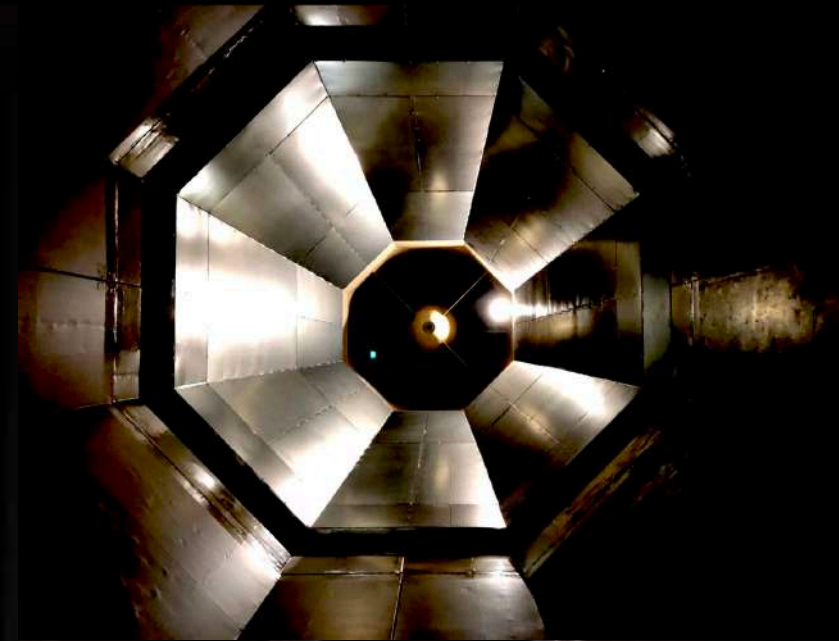


We propose: Acoustic measuring instruments + Semi-anechoic chambers.

ISO 3741
ISO 3744
ISO 3745
ISO 362-1, -2, -3
ISO 13325
ISO 26101-1
ISO 20908
ISO 8253-2
ISO 11201
ISO 15186-1



We propose: ISO standard semi-anechoic chambers.



+Constant temperature and humidity -40 ~ +120

+Wind tunnel experiment

+Vibration test (e.g. rattle noise test)



ANECHOIC CHAMBER +

Various measurement activities can be realized by combining semi-anechoic chamber with measurement system and environmental equipment.



+Chassis dynamometer

+Reverbration Chamber

+Various environmental tests



We propose: Semi-anechoic chamber + ancillary equipments.

Steel sound insulation panel

SOLA META



- Thin panels but high in sound insulation performance
- High corrosion resistance
- High dimensional accuracy
- Modular construction method

Sound absorbing wedge

BFW



- Thin layers but high in sound absorption performance
- High water repellency
- High durability (High scratch and tensile strength)
- No fiber scattering

+

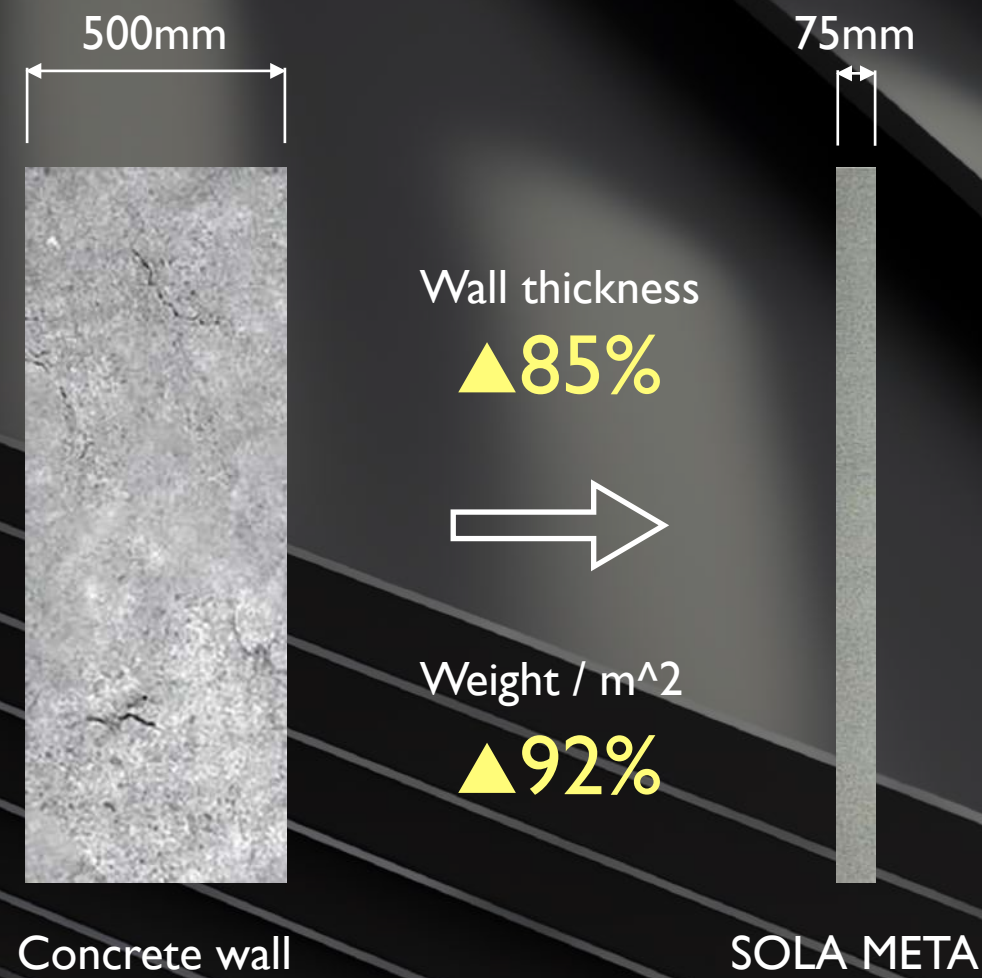
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Thin type
high performance
semi-anechoic chamber
(all made in Japan)



SONORA's Modular Semi-Anechoic Chamber is made up of the originally created structure based on our own technology by the in-house development.

鉄壁



- High performance in sound insulation despite a thin panel
- High resistance to corrosion
- High dimensional accuracy
- Modular construction method

#1 Sound insulation

Sound insulation level in the medium to high frequency range has been increased to the limit. Sandwich effect due to the rigidity of steel and the multi-layer structure of plates.

#2 Sound absorption

Sound absorption in the medium to high frequency range using high-density sound-absorbing material. Achieves low-frequency sound absorption by resonance.

#3 Vibration control

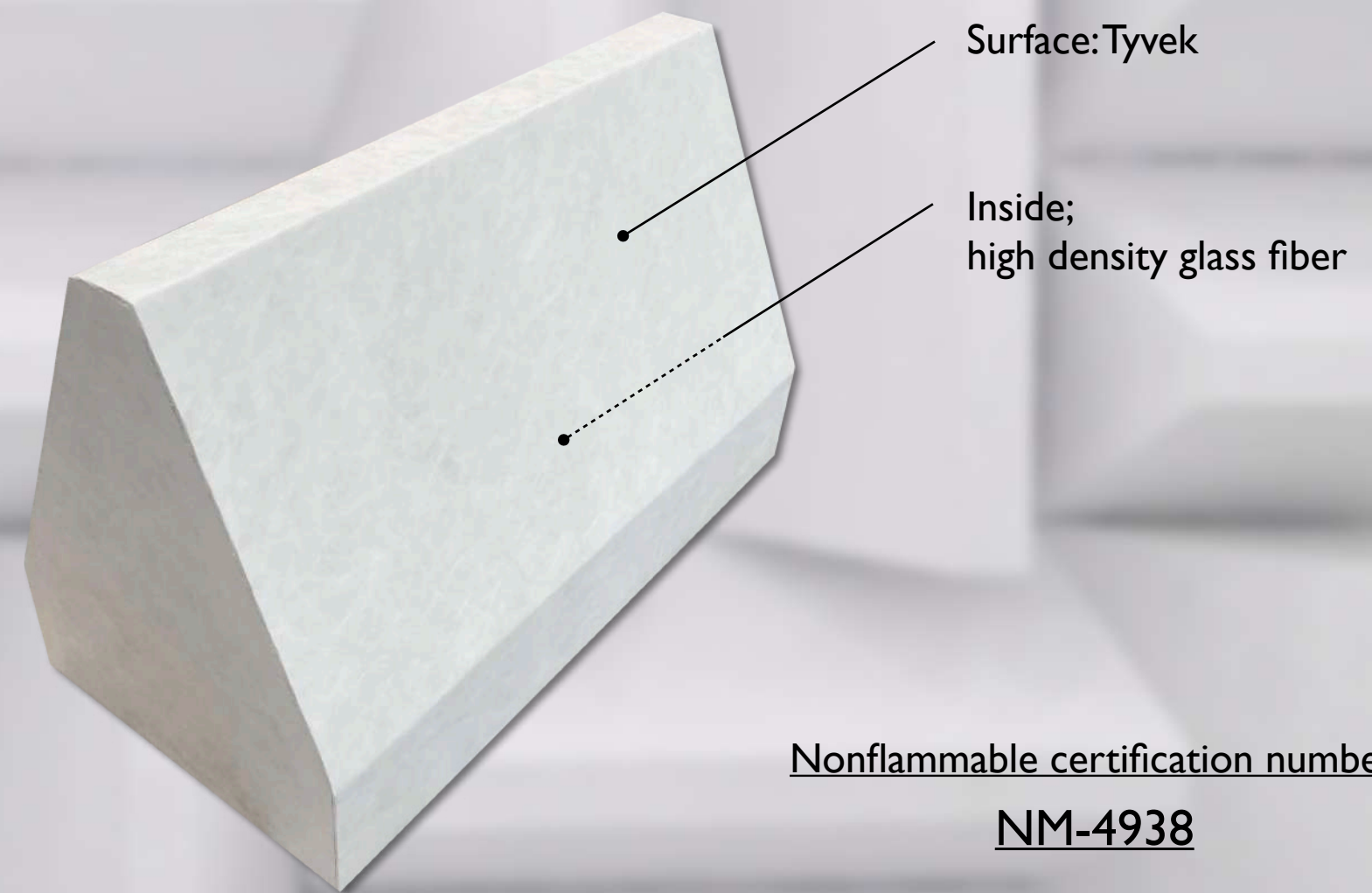
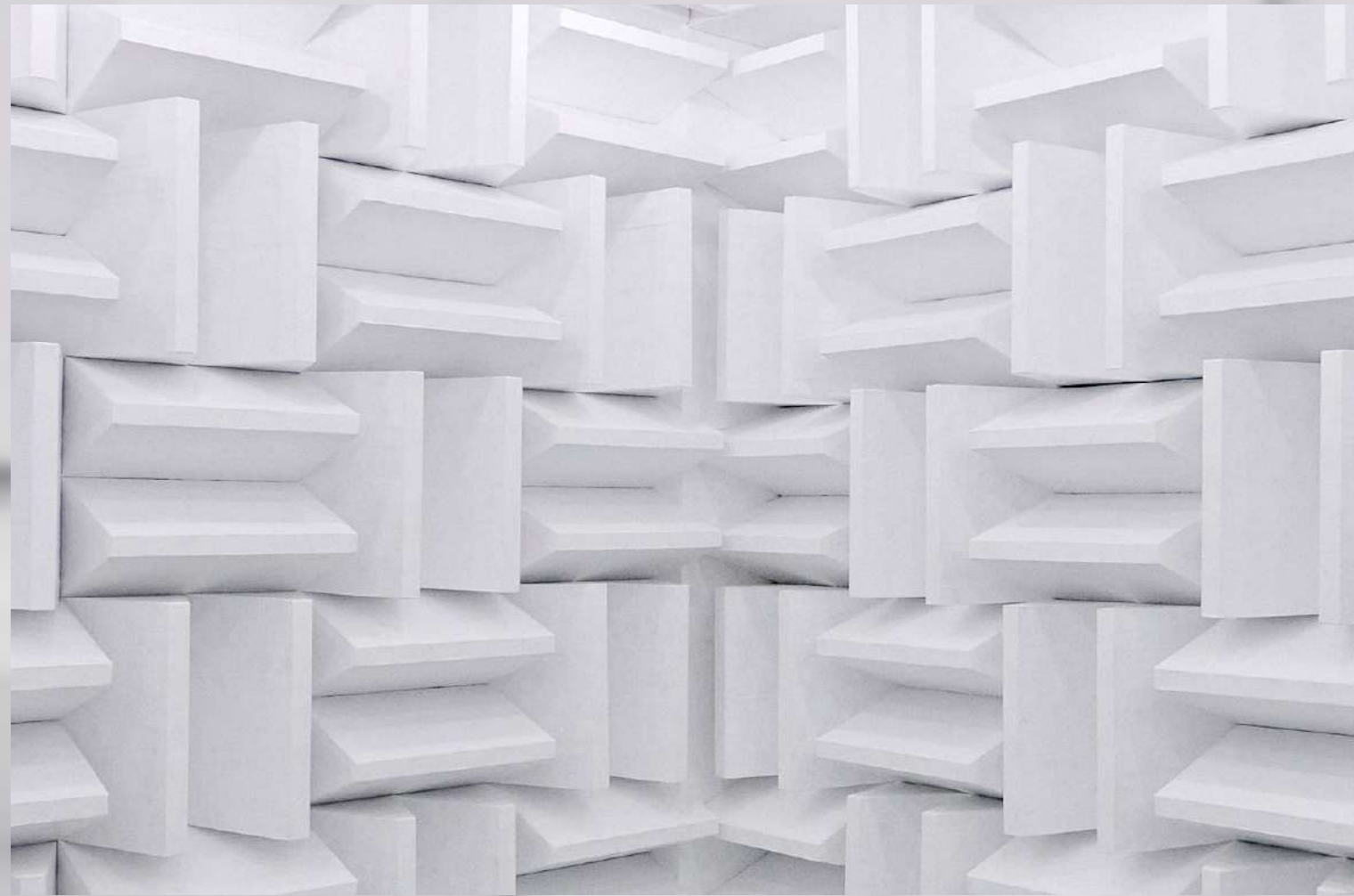
Vibration is controlled by vibration isolation material, adhesive layer, stiffener, and inner bolt.



SOLA META PANEL
STEEL SOUND INSULATION PANEL

BFW +

SOUND ABSORBING WEDGE



Nonflammable certification number

NM-4938

Water-repellent

When the fibers in Tyvek are spun and bonded under high heat and pressure, Tyvek acts as a thermoplastic—returning to a high density, semi-solid state that prevents liquids from breaking the surface.

Tensile strength

The nonwoven fibers of Tyvek are randomly laid and compressed to provide superior tear and puncture resistance for long-lasting, durable protection.

Barrier protection

Tyvek is made up of continuous fibers that provide inherent microbial penetration resistance—preventing hazardous materials including asbestos, mold, fiberglass and lead from passing through the material.

BFW
SOUND ABSORBING WEDGE

Since our foundation in 2003, Sonora Technology has been receiving lots of orders from various customers, mainly from automobile manufacturers and home appliance manufacturers. We have established ourselves as a niche top manufacturer of chambers and boxes for acoustic measurement in Japan. (we have the no.1 domestic sales share of the Modular anechoic chamber, Modular Semi-anechoic chamber, anechoic box. *according to our research) As of 2023, we have achieved to deal with 1,085 companies with 3,424 projects.

Sonora Technology has been satisfying customers' requirements. We have been overcoming various challenges with a strong mind-set to keep up with increasingly dynamic needs required by major companies.

“Sonora Technology is more than just a manufacturer.”

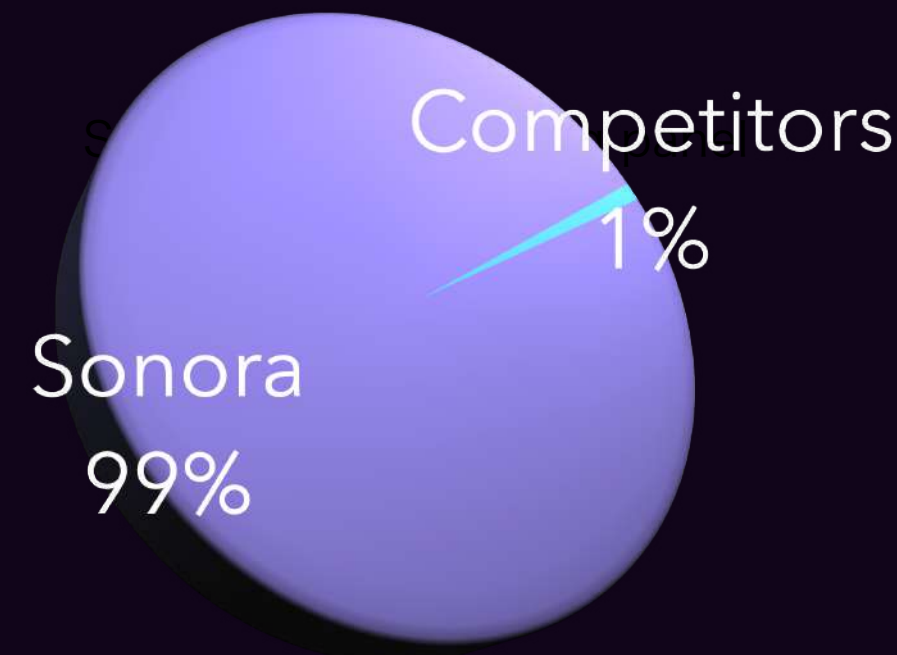
When major companies order our anechoic chamber, it is not enough for us only to deliver the product according to their required specifications. They have many requirements, for example, “we want to conduct combined testing in a constant temperature and humidity environment”, “need a cleanroom compatible”, “remove the steps”, “have an automatic door”, “be relocatable” ...etc. 65% of our projects are custom-made in addition to our standard products. Such experiences enabled us to build up our own know-how.

The more demands are required by customers in terms of noise reduction and vibration damping, the more improvement of specifications will be required according to them. The technology of acoustic control has not established yet in academia. It is not possible to keep up with the changing of the times only using the existing technology.

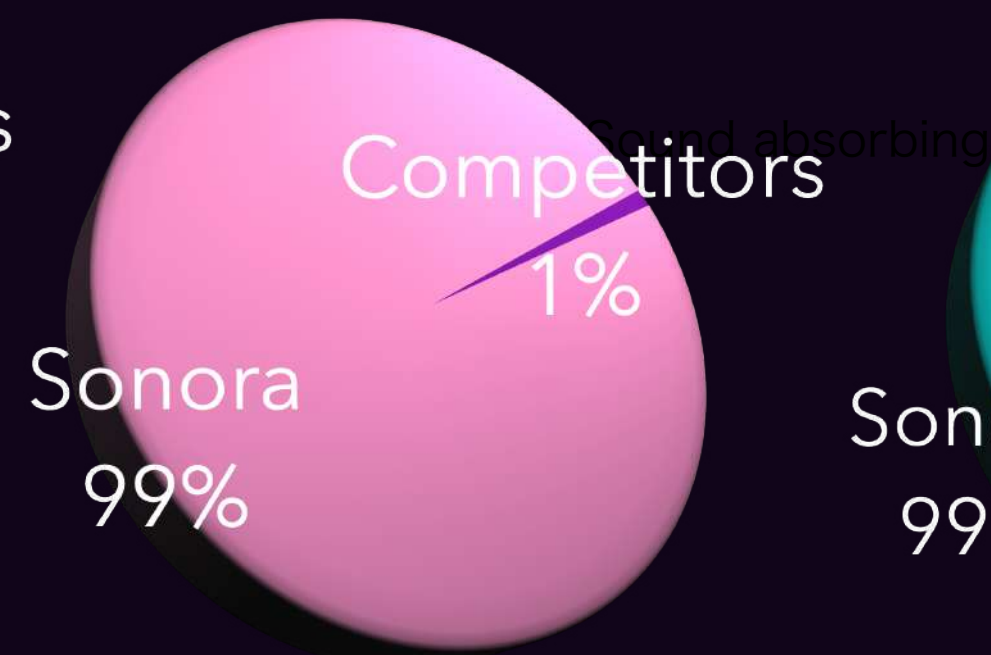
Sonora Technology has opened our own factory and research and development facilities in 2009, where enabling us to manufacture various many products with our developed unique technology. We keep continually moving forward in research and development on a daily basis.

Client Companies **1,085** ↑ Sales Transactions **3,424** ↑

Our proven TRACK RECORD explains TRUST by clients.
SONORA TECHNOLOGY never stops evolving each day, implementing innovation and providing our clients with the latest technology in order to meet their needs.



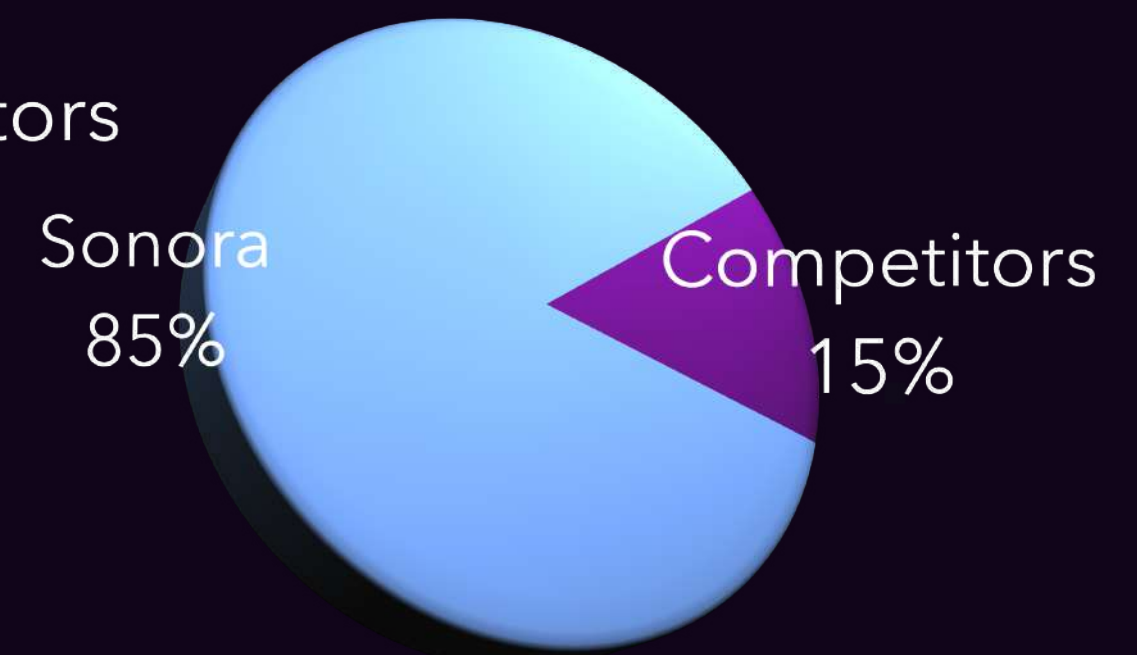
Modular
Semi-Anechoic Chamber



Modular
Anechoic Chamber



Anechoic Test Box



Modular
Soundproof Chamber



- Toyota Motor
- Honda Motor
- Matsuda Motor

- Nissan Motor
- SUBARU
- Aisin Seiki

- Denso
- Toyota Boshoku
- Continental Automotive Japan

- Schaeffler Japan
- Calsonic kansei
- Koyo steering

- Tokairika
- Toyo sheet
- Autoliv

- Sanden
- JTEKT
- Hitachi Astemo

We are currently unknown outside of Japan. However, manufacturers of acoustic anechoic chamber in the world are not our competitors. We have been overcoming challenges in order to satisfy Japanese strict standards up to now. In 2024, our overseas sales is finally starting up all across the world.



Across our factories, we produce high-quality products with high-precision manufacturing thanks to highly skilled master craftsmen and the state-of-the-art processing equipment.

#1 Low Profile and Space-saving

Sound insulation layer: composed of in-house developed steel sound insulation panels. Only 40mm to 150mm thickness depending on the required sound insulating value. Feasible significant space savings, compared to the concrete layer as conventional construction method. Sound absorbing layer: Composed of in-house developed sound absorbing wedges. High sound absorption despite its low profile. Selected according to the required sound absorption performance. 60% to 80% lesser thickness compared to the conventional products. Space-saving design.

#2 Ready-to-assemble

Modular frames and panels enable dismantling and relocating. It also enables cost savings when changing layouts. Excellent dimensional accuracy due to prefabrication in factories.

#3 High Performance

Sonora guarantees sound insulating value and sound absorption performance. High performance despite low profile. Our anechoic chamber is second to none.

#4 Premium Quality

All component parts are manufactured in factories in Japan. Ensure premium quality with the state-of-the-art equipment. "MADE IN JAPAN."

#5 Competitive Price

Workflow automation in production processes. Competitive price thanks to space-saving design avoiding unnecessary costs. Less expensive than the offered prices by other companies in terms of the same conditions.

#6 Delivery Record

Since 2003, Sonora Technology has achieved to deal with 1,024 companies, mainly among major Japanese companies, and concluded with 3,229 deals during around 20 years.

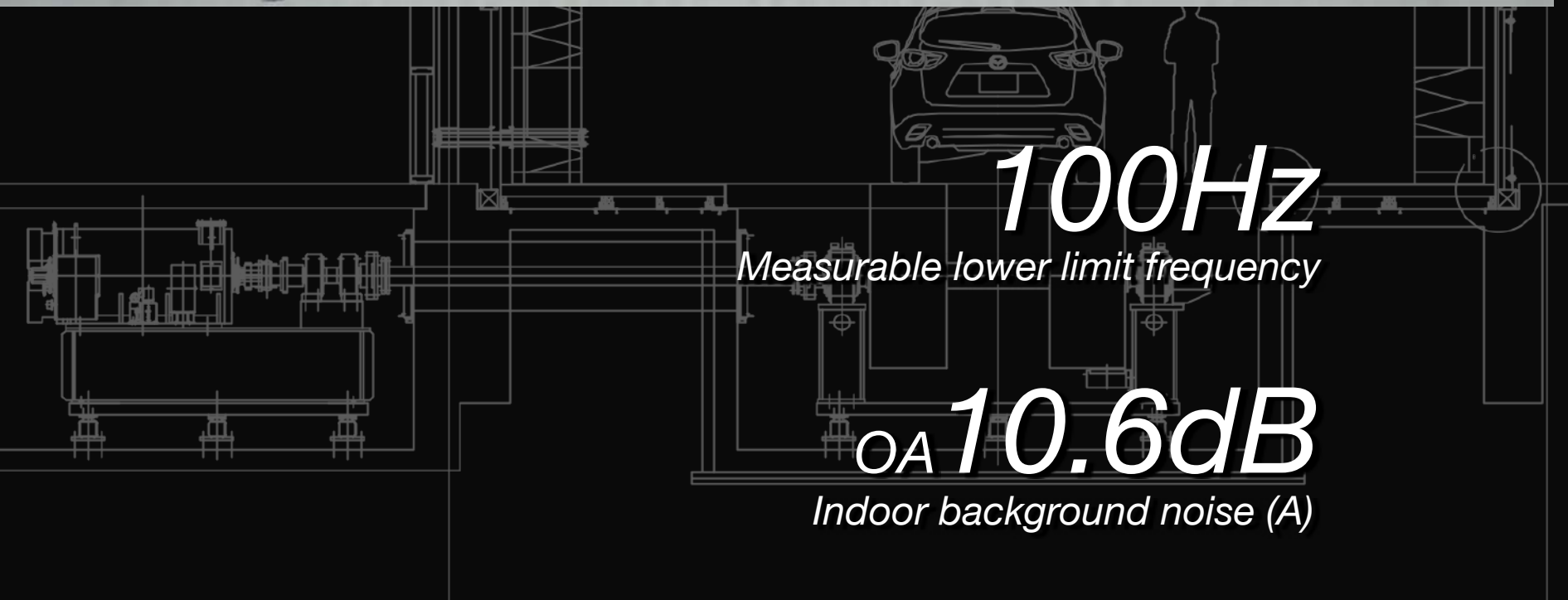
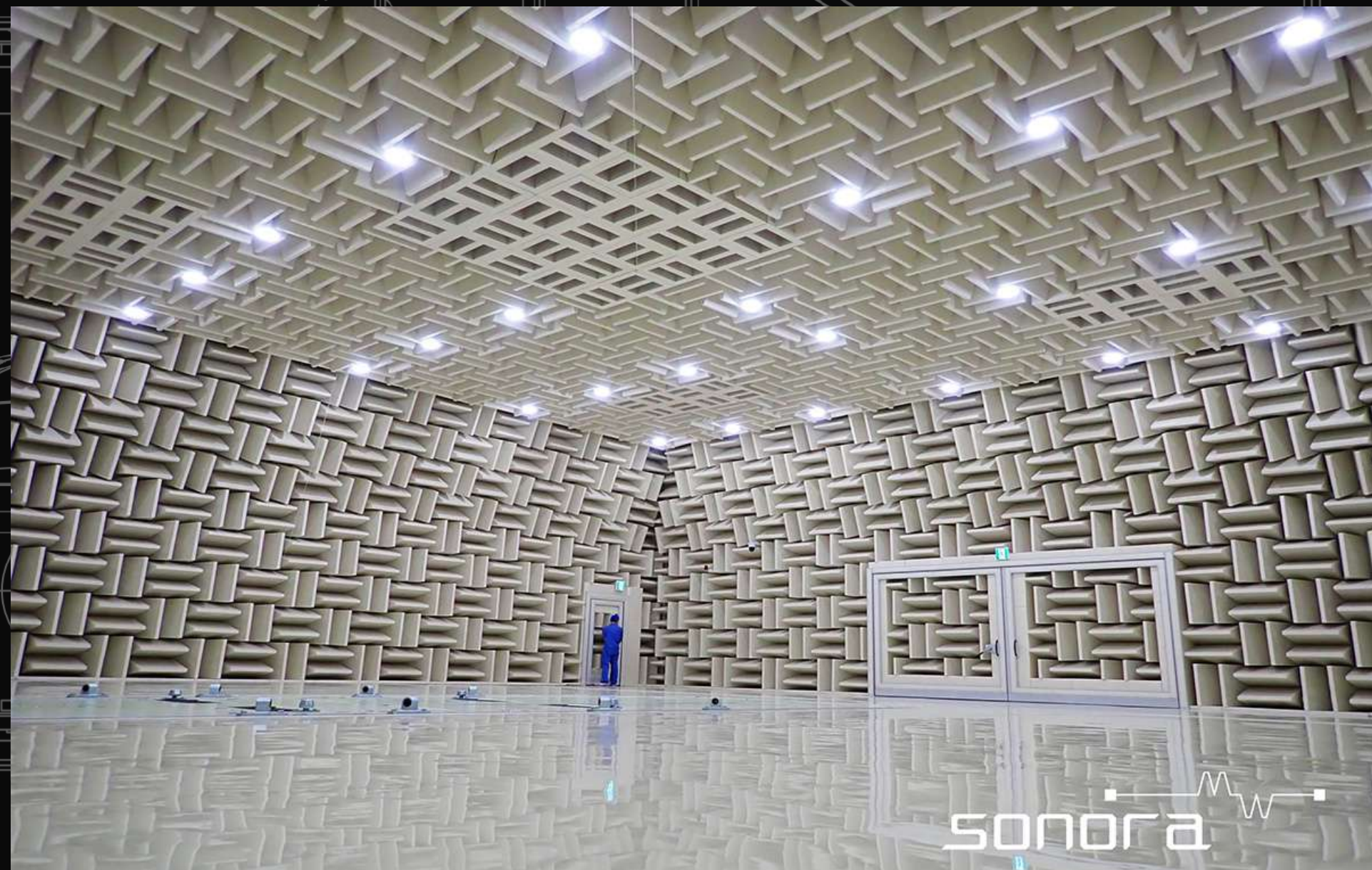
#7 Expertise and Effective proposals

Sonora Technology has been satisfying clients' requirements as a leading manufacturer of the ready-to-assemble anechoic chamber in the Japanese market. Since our foundation, we have been overcoming various challenges with a strong mind-set. Thanks to that, now we possess the right expertise, unique technologies and various kinds of strengths. We are confident to make effective proposals.

7 Strengths. We are experts in noise control.

Semi-Anechoic Chamber: Indoor pass-by

- Dimensions: W20m×L20m×H7m
- Sound Insulation Layer: Steel Panel
- Sound absorbing layer: SonoWedgeT-850
- Door A: W5.4m×H2.6m
- Door B: W1.05m×H2.1m



100Hz

Measurable lower limit frequency

OA 10.6dB

Indoor background noise (A)

Semi-anechoic chamber for indoor pass-by testing for automotive manufacturers.

Large semi-anechoic chambers are also designed using the “independent construction method”, not to be connected with walls and ceilings of the building.



Indoor background noise

10.4 dB(A)

単位dB(A特性)

Hz	AP	63	125	250	500	1000	2000	4000	8000
室内暗騒音	10.4	7.8	1.5	-10.3	-6.5	-3.6	-2.5	-3.1	-4.0

※空調、換気装置非稼働時

Measurement frequency

100 Hz ~ 12500 Hz

Inward

W 7,000 × L 20,300 × H 3,150 mm

Semi-anechoic chamber for vehicle sound measurement

National Traffic Safety and Environment Laboratory

National traffic safety and environment laboratory.
Semi-anechoic chamber for conducting commissioned acoustic tests on vehicles at a public institution in Japan.



Semi-Anechoic Chamber for vehicle sound measurement

W20,500 × L11,200 × H7,150

Automotive parts manufacturer.
The bottom part of the loading/unloading door has a step-free “flat sill structure.”



NVH Semi-Anechoic Chamber

W10,850 × L14,950 × H7,350

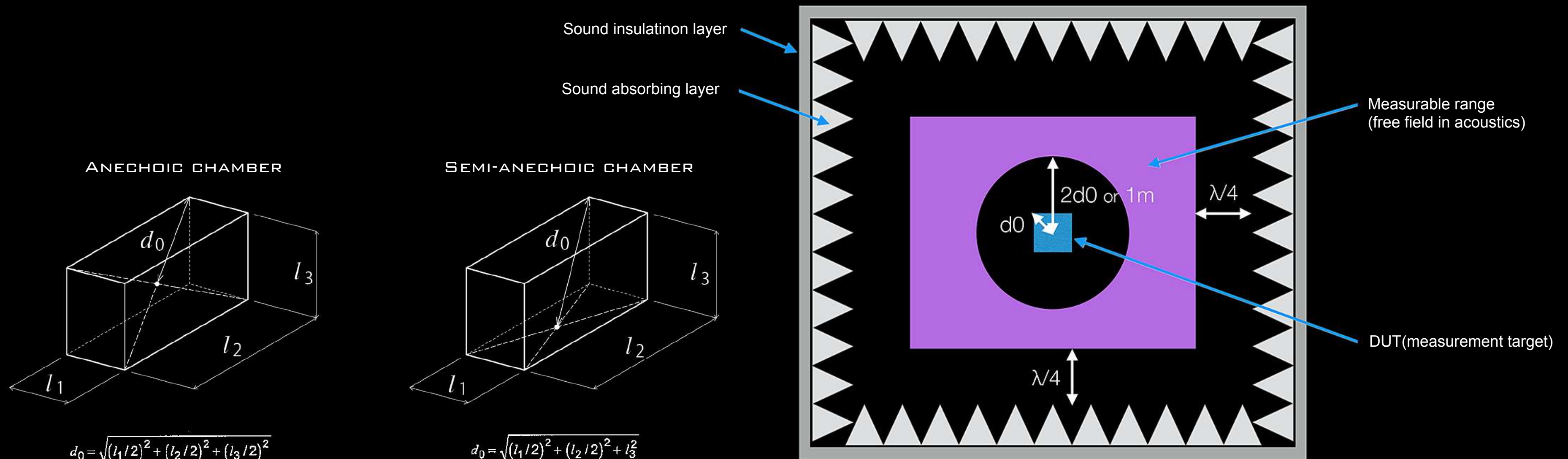
Chassis dynamo manufacturer.

Semi-Anechoic chamber for acoustic measurement and analysis on large vehicles such as trucks.

NEED A QUOTATION?

PLEASE GET IN TOUCH WITH US AS SOON AS YOU PREPARE THE FOLLOWING INFORMATION!

#1 Dimensions of anechoic chamber, measurement target, setting of lower frequency limit to be measured
Setting according to the ISO3745 : setting from measurable range



This section explains the measurable range (free field in acoustics) of an anechoic / Semi-anechoic chamber. The area shaded in pink in the above-mentioned plan view indicates the measurable range.

- [1] the range $\lambda/4$ away from the sound absorbing layer (sound absorbing wedges)
Wavelength of targeted frequency x 1/4 (approximately 560mm for 150Hz)
- [2] the range excluding a radius of $2d_0$ or 1m from the center point

The calculation method for d_0 differs between anechoic chamber and Semi-anechoic chamber. As shown in the diagram above.*

*ISO3745:2012(E) Figure1 – Reference box, centre for the measurement surface (when using the geometric centre of the source) and characteristic source dimensions for application in an anechoic and a Semi-anechoic chamber.

According to the ISO3745:2012, not 2a nor 1 is used as standard, but it has been revised as:
Anechoic chamber -the distance from the center of the measurement target to the diagonal
Semi-anechoic chamber -the distance from the center of the floor surface where the measurement target is placed to the diagonal

NEED A QUOTATION?

PLEASE GET IN TOUCH WITH US AS SOON AS YOU PREPARE THE FOLLOWING INFORMATION!

#2 Information on planned installation site

Where the anechoic chamber/s is/are installed:

- Floor loading capacity (kg/m²)
- Which floor: first floor or second floor or?
- Need a floor foundation work or use the existing floor foundation surface?
- Vibration data on the floor surface: dB, Hz *if no such data is available, we will set the guaranteed sound insulating value.
- On-site acoustic data: dB, Hz *if no such data is available, we will set the guaranteed sound insulating value.
- On-site carry-in route...etc.

#3 Information on ancillary equipment

- Acoustic measuring instrument, methods for measurement
- Ancillary equipment inside/outside anechoic chamber: equipment for carry-in/carry-out of DUT (measuring target) such as door, surface plate, crane, device for lifting
- Electrical and air-conditioning facilities: lightings, AC plugs, camera, air-conditioner
- Safety equipment: fire alarm, oxygen concentration meter, fire extinguishing equipment, revolving safety warning light, buzzer...etc.

#4 Terms and conditions of transaction

- Guaranteed performance value: guaranteed sound insulating value, guaranteed performance of sound absorption (inverse square law), guaranteed value of background noise
- Delivery date
- Payment conditions
- Required documents

The following service is provided free of charge:

- Quotations, conception drawings, specifications
- Meetings

For further clarification, please feel free to contact us.

- In case of no available data
- Selection of measuring instruments
- Distributor or agent
- and other requirements



MONO-ZUKURI PRIDE.

Pride of craftsmanship as one of the Japanese manufacturers.

Speaking of Japanese manufacturers, what comes to mind these days?

Is "Made in Japan" a past glory?

Are Japanese companies stubborn and inflexible?

There are many excellent Japanese manufacturers, but many are not active in expanding overseas. This is unfortunate.

In addition to our own manufacturing, we have established cooperative partnerships with these outstanding companies.

As "Team Japan," we will take care of any projects with sensitivity and flexibility, taking pride in the good old Japanese manufacturing "Monozukuri".

Why not take another look at Japanese manufacturers?

Then please compare us with other competitors under the same conditions.

We are your partner.

Just leave the construction of VSAC to Sonora Technology.

Our practical knowledge, skills and expertise will surely be at your service.

SONAR SOUND SEEKER. SONORA.

The field of acoustic control is much deeper than you may imagine. As if the undiscovered "Shinkai", depth of the ocean. Sonora Technology is always seeking silence like a sonar exploring the deep sea. Soundless is the ultimate form of silence.

"Exploring silence"

John Cage, an American composer, composed 4'33" The music has no sound, not to be performed, while the player sits down in front of piano for the entire duration of four minutes, thirty-three seconds.

John Cage visited the acoustic anechoic chamber, in a complete silent environment, in order to hear silence.

However, he heard unexpected two sounds: his nervous system in operation and his blood in circulation.

It is said that the realization as he saw it of the impossibility of silence led to the composition of "four minutes, thirty-three seconds."

Soundless space should be the sound pressure level [0Pa] and the realization of which is considered physically impossible.

Founder & CEO
Yusuke Aoki



President & representative director
Shinya Suzuki



"We are SONORA TECHNOLOGY."



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