

# Bosch Public Address

Leading the way in acoustical excellence



**BOSCH**

Invented for life



# Advanced **acoustical expertise**

With more than 60 years of experience in the design and development of electro-acoustic technology, Bosch is an established leader in the field. Their guiding principle is to create products that are superior in terms of technology, design and ease of use. From waveguide to array technology, and 3-D simulation to cutting edge design, Bosch's acoustical expertise is as extensive as it is innovative. Turning comprehensive experience into world-class acoustical solutions – that's how Bosch continues to lead the way.

## **Enabling optimal acoustics**

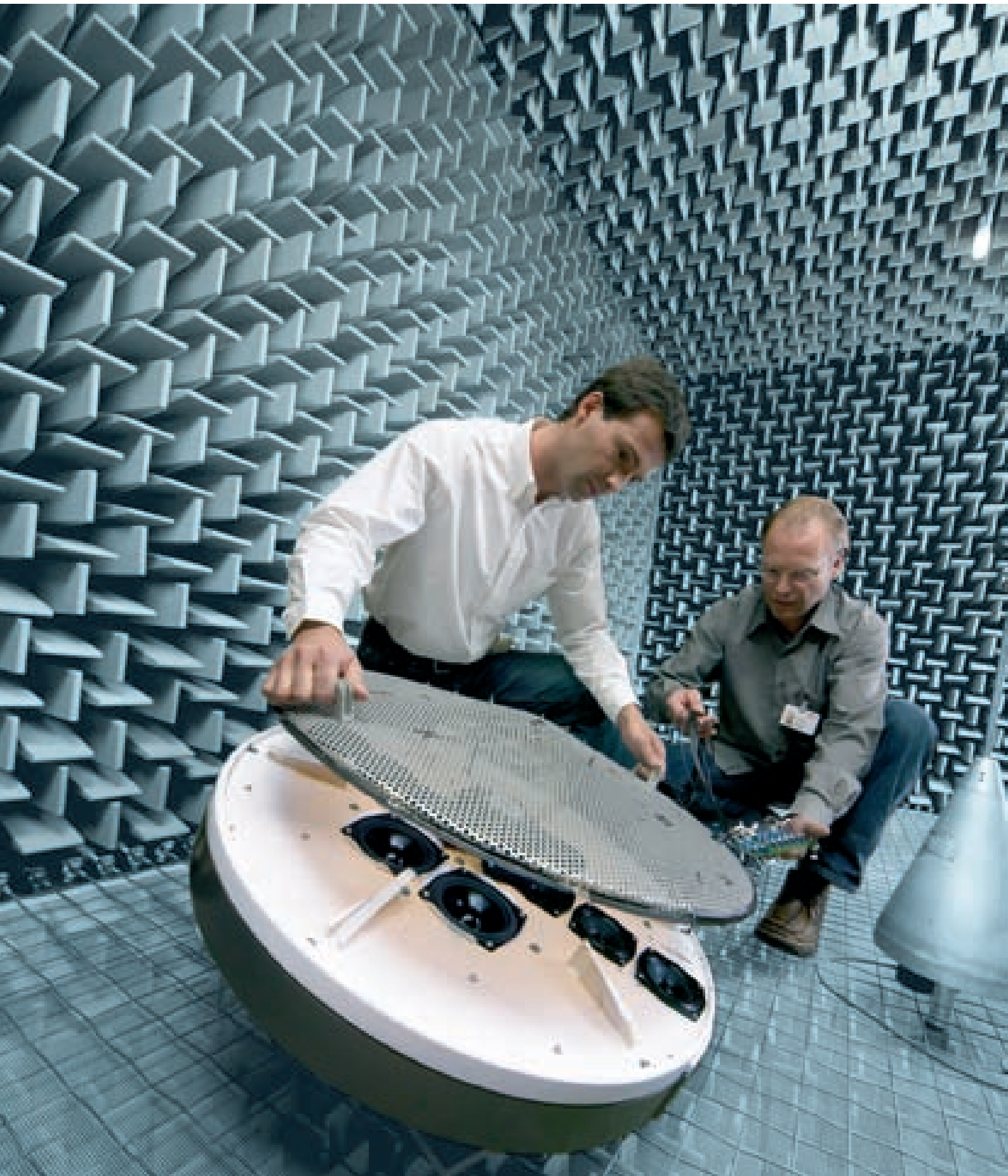
At Bosch, our expertise is in developing superior technology for an optimal acoustical environment. Sometimes this means high quality background music with a consistent sound level everywhere in the listening area. Other times, as in the case of an emergency, it means messages which are received clearly, with high speech intelligibility – even when there is considerable background noise. It's all made possible through the technologies developed by Bosch: cardioid column loudspeakers, feedback suppression, reverberation technology, and many others. And Bosch continues to innovate, creating today's technologies which will become tomorrow's industry standards.

## **Investment in R&D**

Bosch's reputation for producing state of the art technologies is largely due to the extensive research that it invests in. Its commitment to innovation is huge: Bosch owns and operates one of Europe's largest acoustical test and measurement facilities. This test centre has 5 fully equipped anechoic rooms, allowing Bosch to accurately and automatically measure microphones and loudspeakers. Extensive testing – all done according to internationally recognized industry standards – ensures that customers can be confident about the high quality of every Bosch acoustical product.

“With five anechoic rooms Bosch has enormous capacity for extensive acoustical measurement. And everything we learn gets funneled back into new product development.”

**Aldo van Dijk**, The Netherlands, Bosch Acoustic Engineer



## Acoustic **evolution**



### **Pioneering technologies**

For years now, Bosch has developed technologies that address some of the most persistent challenges in the field of acoustics. Legacy technologies – like Bosch’s Cardioid Column Loudspeaker and the Back Plate Electret (BPE) Microphone Transducer – remain immensely popular within the acoustic industry. Other technologies are also still widely applied. Adaptive technologies like Automatic Noise Dependent Audio Signal Processing (ANDAP), for instance, adjust sound so that it can be heard even when the background noise level is high or, like Multi-Channel Reverbration (MCR), actively and electronically adapt a theater’s acoustics without requiring architectural adjustment. And Bosch’s algorithm for feedback suppression is a powerful technology that is regularly used in both public address and congress systems.



“Bosch has some great electro-acoustic technologies. But what I really appreciate is how they make my life easier. Their equipment is remarkably robust, and easy to install and maintain.”

**Göbel Systemtechnik**, Germany, Professional Installer

### **Advancing developments**

Bosch continues to innovate. For instance, Bosch was the first to use passive line array technology in the public address market. In designing their new line array loudspeaker, a resourceful use of passive filtering ensures a consistent listening experience, without the use of expensive processors.

Additionally, advances in active line array technology have enabled Bosch to extend, as well as more accurately define, the listening area. Another ingenious solution is represented by their wide dispersion loudspeaker. By utilizing a radical new form, Bosch has effectively managed to create a powerful hemi-directional loudspeaker that provides a uniform sound field over a large area.

## Creating **effective solutions**

### **A measured approach**

Numerous tests are done to review how a loudspeaker distributes sound. In addition to quality control, these tests help expand Bosch's already considerable in-house knowledge and expertise. And by performing extensive acoustical measurements, Bosch generates a tremendous amount of data about its products. This data ensures that proper simulations can be carried out in various acoustic simulation programs, thus helping to ensure the effectiveness and trustworthiness of its products in real use.

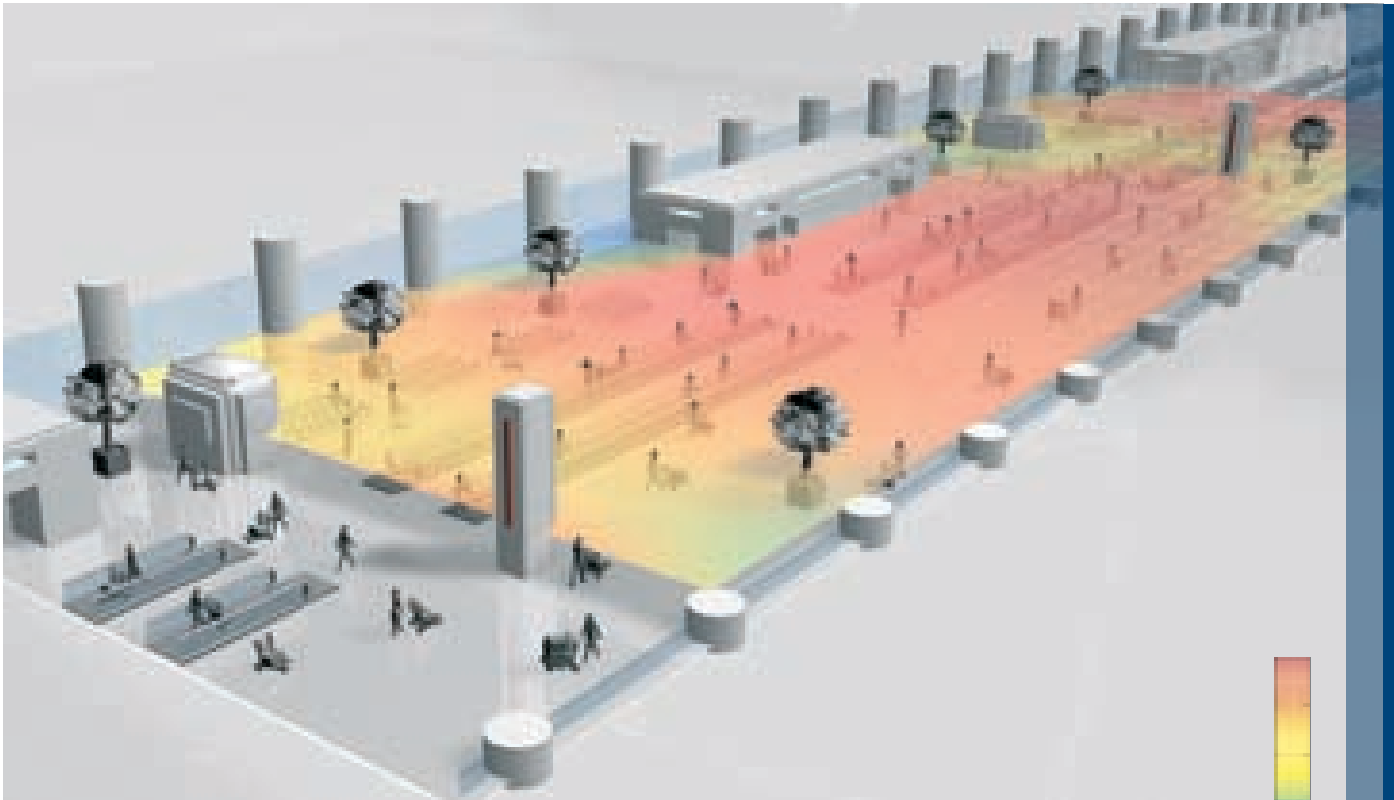
### **Solutions for a complex world**

When developing their acoustical products, the Bosch team recognizes that real-life environments can be often quite complex. Which is why they always take the complete situation into consideration. And which is why they have been able to create effective solutions for even traditionally difficult locations such as long hallways, large areas with numerous obstructions, and areas that are exposed to moisture. For customers faced with complicated sound requirements, Bosch is able to play the role of vital strategic partner, making its expertise and acoustic simulation support available in order to propose an optimal solution.



“We knew we had an acoustic challenge. Bosch was able to show us in a simulation how it would all work. Sure enough, when the system was in, it performed just like they predicted!”

**ADPi**, United Arab Emirates, Satisfied Customer



Sound (pressure) level

**Bosch trademark quality**

Without compromising on quality, Bosch provides you with an overall lower cost of ownership. All of its acoustical products meet, or exceed, international standards. They are robust, require minimal power and are easy to install and maintain. Bosch has even established a certified training program for installers, to ensure that installations meet rigorous quality controls. And while proud of its technical proficiency, Bosch strives always to match the highest audio quality with great looking design.

**Superior inside and out. That’s typical Bosch.**

### **A Tradition of Quality and Innovation**

For over 100 years, the Bosch name has stood for quality and reliability. Bosch is the global supplier of choice for innovative technology, backed by the highest standards for service and support.

Bosch Security Systems proudly offers a wide range of security, safety, communications and sound solutions that are relied upon every day in applications around the world, from government facilities and public venues to businesses, schools and homes.



### **Bosch Security Systems**

To learn more about our product offering, please visit [www.boschsecurity.com](http://www.boschsecurity.com) or send an e-mail to [emea.securitysystems@bosch.com](mailto:emea.securitysystems@bosch.com)

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