

ONE HUNDRED PERCENT

HIGH FIDELITY

Råsunda Stadium management was planning only to augment its existing sound system until they heard just how good their arena could sound

By Rebecca Hansen



THE VENUE:

A 35,000-seat outdoor arena, home to the Swedish National Soccer Association.

THE CHALLENGE:

To raise the standard of what the stadium managers expected from large venue outdoor sound systems.

THE SOLUTION:

Use the Bose® Auditorioner® system to demonstrate how a Bose solution would sound before a system was installed – and guarantee the customer’s satisfaction with the final installation.

THE RESULT:

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– Lars Richt
Råsunda Stadium Manager

A national team’s most important games. Months before, Allén had used blueprints of the stadium to enter data into Bose Modeler® design program software and produce a computer model of the space. That information was then fed into the Bose proprietary Auditorioner system, which simulated how the proposed design would sound once installed.

Richt, upon first hearing the Auditorioner system was skeptical, but soon changed his mind. “When they played the Swedish National Anthem, I was struck by the superb sound quality. I had heard that song played so many times in the stadium with our existing system that I immediately noticed the difference.”

The ability to hear that difference was critical to an important decision Richt and his colleagues needed to make. “Originally, we were interested in a partial solution that would provide sound for only two new stands we were in the process of installing,” Richt recalls. “We

weren’t too surprised when Bose tried to convince us the stadium would sound better if we replaced the existing system with their speakers. But we were surprised when they told us that if we went 100 percent Bose, they would guarantee the result.”

Allén explained that Bose is so confident of its technology and sound system designers, it offers customers money-back guarantees. If the sound of the installed system was not as good or better than that which Richt had heard with the Auditorioner system, Bose would remove the system at no cost and refund the price.

“This was not a decision we made lightly,” says Richt. “We had many meetings to discuss the additional expenditure, which represented several million Swedish kronor

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(several \$100,000 U.S.). But the sound Bose was guaranteeing was so spectacular, we decided we should make the investment and have the best. I doubt we would have come to this consensus if we hadn’t been able to hear what we were going to get before the system was installed.”

One aspect of the Auditorioner® system Richt was particularly impressed with was the ability to listen from any seat in the house. Allén let him “sit” on one side of the stadium in the existing stands, then move around to the other side to “sit” in a seat in one of the stands that had yet to be built.

When the Bose® sound system was actually installed, Richt did the same thing: he moved around the finished stadium, marveling

at what he heard from each position. "I must have sat in just about every seat in the place!"

The result, he felt, was even better than what he had heard with the Auditor system. "I didn't think that it would ever be possible to achieve sound like that in an outdoor arena," he exclaims. "The speech was crisp and intelligible. I could hear every instrument clearly in the music."

An audio consultant, hired by Råsunda management, listened to the Auditor system then went out into the stadium and listened. "He said flat out it was the best outdoor system he had ever heard," recalls Allén.

While the previous sound system suffered from echoes and uneven sound coverage that produced gaps and interference, the Bose system delivers smooth coverage and consistent sound quality from one side of the stadium to another. This is achieved by a design that uses Bose 802® Series II and 402™ loudspeakers, known for their broad, even dispersion patterns. Each loudspeaker provides sound reinforcement across the entire spectrum of frequencies.

Where sound must cover long distances at Råsunda, Bose Panaray® LT loudspeakers were used. They represent an industry breakthrough in their ability to control the direction not only of high frequencies but also of broader mid-range frequencies. In most large arenas, sound energy from midrange frequencies gets "sprayed" beyond audiences to unpopulated areas and surfaces. From there they reflect back, causing reverberations and echoes. In addition, audiences often receive signals directly from more than one speaker. This signal interference causes distortion. The result is that some parts of the sound can be uncomfortably loud and other parts barely discernible, even dropping out altogether.

Panaray LT loudspeakers solve this problem by using acoustic waveguides to direct midrange frequencies into a more narrow beam.

Outside the diameter of the beam, sound energy falls off sharply. This minimizes overlap between signals from adjacent speakers, resulting in smooth sound coverage across large seating areas. It also keeps sound energy on the audience and away from walls and other reflective surfaces.

"The new system has totally eliminated the echoes," remarks Richt, "even when the stadium is half full. We get the same quality of sound whether the stands are empty or full, and that is very unusual, in my experience, for arenas."

Råsunda is taking advantage of its improved sound by adding entertainment to sporting events. "We Swedes are a cool and

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calm people," explains Richt. "Football fans here are more reserved than their counterparts in Italy or Spain. They need a little encouragement to get excited and shout and cheer. We've recently replaced the orchestra with disco music and cheerleaders to stir up the enthusiasm of the crowd."

The enthusiasm of local journalists has not gone unaffected either. Richt says the sound system was discussed in the newspapers, which



raved about how "the new Råsunda stadium" was setting the trends for Swedish football.

Today, managers of other Swedish stadiums frequently visit Råsunda, and Richt loves to watch their reaction when they hear the sound system. "They can hardly believe their ears, but they have to because the evidence is right there."

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