

BOSE

PROFESSIONAL

CASE STUDY - SPORTS | SYDNEY SHOWGROUND STADIUM





ABOUT THE PROJECT

Sydney Showground Stadium is a 24,000-seat multi-purpose venue in the heart of Western Sydney. Hosting a plethora of world class events including a share of the Sydney 2000 Olympics, the stadium is also home to the Australian Football League's Greater Western Sydney team and the Big Bash League's Sydney Thunder cricket team.

Notably, the stadium was announced as the host of the ICC Women's T20 World Cup Cricket Opening Celebration in 2020. This opening celebration was the culmination of an almost two-year process to reinvigorate the stadium with a brand new sound system.

In May 2018 the Royal Agricultural Society (RAS) of New South Wales embarked on a journey to replace Sydney Showground Stadium's aging PA system with a more powerful system that improved intelligibility and increased efficiency. Given the profile of the World Cup and the stadium's new identity as home of two significant sports teams, the RAS Capital Works and Assets teams went to market to seek ideas and options for the upgrade.

THE BOSE PROFESSIONAL SOLUTION

RAS engaged Sydney-based integrator The P.A. People to design and install the venue's new PA system. The initial task involved developing an acoustic model of the venue and the preliminary design of a sound system that would meet both

performance criteria and structural loading requirements of the existing grandstand roof. From the start, The P.A. People identified ArenaMatch as the ideal option for Sydney Showground Stadium.

"ArenaMatch is a relatively lightweight solution," said Chris Dodds, managing director of The P.A. People. "Back in 1998 when the stadium was first constructed, we recalled a significant weight limitation imposed on the loudspeaker mounting points. We wanted to ensure any design we created would be able to be supported, so after a structural analysis, we provided the proposed weights and loadings based on our initial assessment utilizing an ArenaMatch design."

ArenaMatch is Bose Professional's latest generation of constant curvature line array loudspeakers. Released in February 2019, it is a high performance, IP-rated system for outdoor use. It can be powered in low impedance or 100V line mode with an option for bi-amped configuration.

Each ArenaMatch cabinet houses a custom 14-inch woofer and six mid/high drivers giving the system significant mid-range punch and penetration. Amplification-wise, The P.A. People opted to power each cabinet individually in order to maintain maximum flexibility through the commissioning process.



A UNIQUE SOLUTION DESIGNED FOR CELEBRATION

The system involves 11 clusters, each comprised of three 100° x 40° ArenaMatch AM40 loudspeaker cabinets, plus an additional two fill 60° x 40° ArenaMatch AM40 cabinets to cover the area between the new and the old grandstands. The system is powered using 12 PowerMatch PM8500N eight-channel power amplifiers connected to an existing Biamp Vocia DSP system.

Each cluster is suspended from a custom fabricated bracket, designed so the system can be lowered for maintenance without a requirement for a boom lift or other access equipment. The bracket design and fabrication were carried out in-house by The P.A. People — no small task given the roof is curved on two axes, resulting in a slightly different mounting angle for each array cluster.

“Design of systems with a view to their ongoing maintenance is a feature of our large venue projects,” commented Ross Ford, The P.A. People project manager for the RAS upgrade. “Each cluster hangs vertically from a beam which is inclined in two directions; every mounting bracket for the clusters is unique. The bracket design and fabrication are quite a detailed engineering project in itself.”

While the low end extension (down to 55 Hz) of the ArenaMatch AM40 loudspeaker negated the need for installed subwoofers, the ‘Let’s Dance’ theme of the T20 Opening Celebration event called for extra low end energy. For this event, The P.A. People supplemented the installed ArenaMatch system with 10 of its ‘Bose Professional Carts,’ placing them in front of the grandstands. Each cart

featured a three-element ShowMatch array and two 18-inch ShowMatch subwoofers, all powered from an onboard Linea Research amplifier. Infill between the carts was provided by LT9702 cabinets in layback frames.

The bottom element in the ArenaMatch clusters was switched off for this event with primary coverage supplied by the cart-loaded ShowMatch rigs. The entire system was time aligned with the two upper cabinets in the installed arrays to provide even coverage and a focus on the field of play.

“ArenaMatch is an extremely good value for your money especially for a high performance system...the range of vertical and horizontal dispersions to tailor and suit the coverage requirements is unique.”

- Chris Dodds, Managing Director, The P.A. People

A SYSTEM BUILT FOR ENDURANCE

RAS Head of Project Development, Jonathan Seward, was delighted with the end result. “The P.A. People listened to our requirements and developed a solution that has already, and we trust will continue, to meet our needs for the next 15 years. Overall, we are very happy with the outcome.” ■



PowerMatch PM8500N power amplifier

PowerMatch PM8500 configurable professional power amplifier provides concert-quality sound with a high level of scalability and configurability for fixed installation sound reinforcement systems. Ethernet-equipped versions enable network configuration, control and monitoring, and an expansion slot supports input from optional digital audio accessory cards.

SYSTEM COMPONENTS

ArenaMatch Utility AMU108 loudspeaker

ArenaMatch AM40 loudspeaker

PowerMatch PM8500N power amplifier



The P.A. People is a specialist integrator and contractor in sound reinforcement, audio visual systems, performance lighting and production communications. For almost 50 years, The P.A. People has

developed a reputation as a leader, understanding the rigors of working in a design construct environment and working with other trades and services to ensure delivery of a fully integrated solution.



ArenaMatch AM40 loudspeaker

ArenaMatch loudspeakers bring proven DeltaQ sound quality and flexibility to outdoor installations. Rated for direct-exposure outdoor use, ArenaMatch DeltaQ modules offer 10°, 20° or 40° vertical coverage and easily swap between 60°, 80° or 100° horizontal waveguides, making it easy to create outdoor loudspeaker arrays that bring consistent, intelligible sound to every listener.



Bose Professional serves many different markets, delivering great sound in venues all around the world — performing arts centers, theaters, places of worship, stadiums, restaurants, schools, retail stores, hotels, and corporate buildings.

We know that our pro audio customers depend on us in a unique way. This is your business, your reputation, your livelihood — not just an amp, not just a loudspeaker. So, when you buy a Bose Professional product, you get the full weight of the global Bose Professional team behind you — our time, support, and attention. We see every purchase as the beginning of a partnership.



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