

Intelligibility engages stadium fans for an immersive, party atmosphere.



Pride Park Stadium, Derby, UK

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Stuart Fisher, Chief Technical Officer, Derby County

Setting the scene

The home ground of English Football League side Derby County Football Club, Pride Park Stadium, has also hosted a number of international matches and the FA Women's Cup Final since 2000.

With a capacity of nearly 34,000, its status as one of England's leading sports stadia is in no doubt yet in recent times the performance of its ageing sound reinforcement system has raised some questions.

Establishing objectives

Seeking a replacement for the existing infrastructure – which at nearly ten years old was approaching end of life, the Club's Chief Technical Officer, Stuart Fisher, approached leading audio and AV consultancy RH Consulting. As the result of a tender process involving five leading loudspeaker brands, d&b won the order. “We were asked to provide a system that would be capable of fully tantalizing the senses,” explains Steve Jones of d&b audiotechnik Education and Application Support. “The club is very ambitious about what it can achieve and is keen to think outside the box in every area.

“In terms of the new sound system it quickly became clear that the club wanted a system not only to deliver announcements and background music effectively – they were

also looking for that feeling of, ‘this is a great sound system that will engage people and make them want to have a party’.”

The solution

The exacting performance brief and project budget prohibited the use of a line array solution at an early stage of the design process – the cost being proportional to the multiple elements required to achieve the desired vertical coverage.

Jones reverted to the then new point source cabinet from the V-Series, the Vi7P. Electroacoustic modelling proved only three cabinets per cluster were needed to meet the PAVA specification and allowed for the inclusion of a Vi-SUB to extend the performance to low frequencies.

For Pride Park the advantages of a point source solution were clear: it would take up less space and still exceed the intelligibility and SPL requirements stipulated by the regulating bodies. For a project where minimizing weight and aesthetic intrusion were important priorities, the Vi7P ticked every box.

"The club was looking for that more subjective feeling of, 'this is a great sound system that will engage people and make them want to have a party'."

Steve Jones, d&b Education and Application Support

"The Vi7P offers outstanding headroom, power capacity and dynamic bandwidth, has exceptional vocal reproduction and it's also able to withstand the most challenging of weather conditions," explains Jones. "So the choice was made to go ahead with 22 clusters of three Vi7Ps apiece, located around the perimeter of the stadium roof to ensure optimum consistency of coverage."

The decision to replace the active loudspeakers of the former design with the passive d&b units was another important element of the revamp.

"It wasn't really ideal to have active speakers on the roof for ten years and have to use a cherry picker every time you needed to access them," says RH Consulting's Richard Northwood. "Hence the amplifiers are now located in four new rack rooms; fully weatherproofed and air-conditioned huts that allow us to keep the cable runs to the clusters as short as possible."

Comprehensive control and monitoring of the d&b loudspeakers and amplifiers is achieved via the QSC Q-SYS platform.

Northwood explains: "Derby FC has been provided with a fully redundant Q-SYS system and the amplifiers are fed from two Q-SYS Cores. The automatic Fallback functions integral to the d&b amplifiers means that signal will fall over from the primary to the secondary frame if needed."

With both Hemming and Northwood closely involved with UK and European standards bodies, it's no surprise that the new installation offers full compliance for PA/VA use. Pride Park Stadium is also one of the first UK venues to comply with FIFA's sound requirements for international stadiums. These include a stipulation that the system will provide maximum continuous sound levels of not less than 100 dB(A) and peak sound levels of at least 105 dB(A), with deviations in overall direct sound levels across the spectator seating not surpassing ± 3.5 dB(A).

The installation was carried out by Central & County Closed Circuit (CCCC) in time to be commissioned and signed off for the first home game against Leeds United on October 15th 2016. So far client and visitor response is said to be highly enthusiastic, with the project team in no doubt that it has effected a dramatic improvement upon the previous system.

"I spent a lot of time after the first match chatting to fans and everyone I spoke to remarked upon the improved audibility and clarity of the speech," confirms Jones. "It is evident that the system has set the venue up

very nicely for the long term future, both in terms of its core football commitments and potential entertainment events."

"It's a very powerful and versatile system, and it really is one of those cases where you need to go and hear it for yourself," concludes Northwood.

The club's CTO, Stuart Fisher, agrees wholeheartedly. "We are extremely happy with the d&b solution, as well as the support they have provided during the project - and continue to provide now. It gives us the best acoustic solution in our league and arguably in the UK too, having achieved superb voice measurements. The quality of the system is simply outstanding."

> System: Vi7P, Vi-SUB, Yi7P, Yi12 and 30D, D80