



## STADEDEFRANCE

Paris, France

The Stade de France in Paris this year celebrates its 20th anniversary, instantly recognisable on the international sporting scene for its distinctive elliptical lines. Built as the principal venue for the 1998 World Cup, hosted and won by France, the 80,000+ capacity stadium has enjoyed a lifelong relationship with local audio equipment manufacturer, NEXO, with nearly 300 of its high-output loudspeakers affixed to its immense floating roof.

One of the remarkable aspects of the stadium's design is the cushion of air that allows the lower stands to slide out in approximately 72 hours, depending on the different configurations needed, allowing the stadium to be reconfigured to house a running track for track and field

events, or to be used for prestigious concerts and spectacles.

With all its different uses, this huge structure was designed to be a stadium for the third millennium, and, after 14 years of successful service from its NEXO Alpha sound system, the Stade de France turned again to NEXO to come up with an equally forward-looking audio design. Installation of the new fixed sound system began in September 2010, and the Stade de France project team, led by Stanilas Degardin, worked with French event production company and installation specialist Melpomen and the NEXO engineering team. A short planned period of overlap with the old Alpha system produced the rather unusual sight of 700 NEXO loudspeakers in situ.

A new 13-zone audio system was installed, featuring nearly 300 NEXO GEO S12 loudspeaker cabinets and nearly 30 RS18's, the first time NEXO delivered these powerful sub-bass units into a sports stadium install. The GEO S12 design was, at that time, one of NEXO's popular live music line array designs. It was customised especially for the Stade de France installation, resulting in the creation of the now-standard S12-ST cabinet, so successful in large-format sporting environments. "We modified the GEO S12 with a +3dB treble boost to provide the output necessary for a loudspeaker that is installed so far above its listeners: 45-metres above, in the case of the Stade de France," explained Paul Massiani, NEXO's Stadium Sound Manager.

Put together with NEXO's GEOSoft programme and EASE, Melpomen's design provides high levels of management: control of the directivity of the loudspeaker output, which keeps the sound within regulation limits and within the stadium itself, and control of the operation of the system, which allows any signal to be sent to any zone from pitch to car-parks from a single control room.

The NEXO sound system is split to cover the upper and lower parts of the stadium. A total of 40 clusters of NEXO cabinets are flown from the roof for the stands. Seven GEO S12-ST modules are directed at the upper levels, while a separate array of six S12's faces directly down towards the lower levels. Another 32 cabinets of S12 are used for fill at ground level. RS18's are flown, 27

Above: Stade de France during the overlap period, with two NEXO systems in place



in total. "We can change any loudspeaker in any cabinet in 30 minutes, although the NEXO NXAMPs provide excellent protection," continued Paul. One of the additional benefits of the Melpomen/NEXO design is that visiting production companies, bringing in high-profile concert artists and theatrical spectacles, can opt to tie into the stadium's system to cover the upper levels of seating.

A high level of diagnostic control is provided by 32 NXAMPs, NEXO's proprietary amplified controller, tucked away in nine amp rooms in the stadium roof. These provide full diagnostic information to the control room, warning of a problem in a rack even if functionality is not actually affected. An additional eight NXAMPs are used to control a separate PA system for the stadium plaza, the open areas surrounding the stadium, which is equipped with NEXO GEO S8 compact line array modules.

The Stade de France system runs on a

full EtherSound network. Such is the level of system control that any input can be sent to any output at the Stade; publicity announcements for the car parks, or a message to a specific area of the grandstand. The connectivity is via fibre optic cable, which runs from the 11 Yamaha SB168-ES stageboxes; 10km have been installed in a ring architecture, which has itself saved a huge amount of cabling for the installation team.

Since the construction of France's national stadium, NEXO has gone on to become one of the world's pre-eminent suppliers of stadium and arena sound systems, recognised for loudspeaker products which can throw audio over large distances without loss of intelligibility or power. Its success is based on tight dispersion patterns of the loudspeakers, which deliver sound precisely where it is aimed, and proprietary modelling software such as the NS-1 package, which accurately predicts the SPL (volume) which will arrive at every seat in the house. ●



## TECHNICAL INFORMATION

INSTALLERS: Melpomen  
BRANDS: NEXO, Yamaha  
WEBSITE: [www.melpomen.net](http://www.melpomen.net) / [www.nexo-sa.com](http://www.nexo-sa.com) / [www.yamahaproaudio.com](http://www.yamahaproaudio.com)