

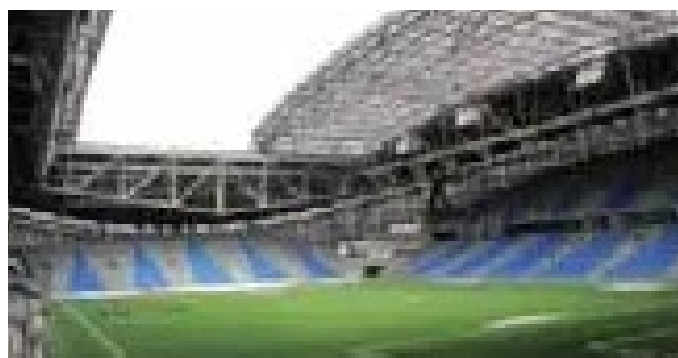
Astana Stadium

EKSPAN's Solution – The roof construction of the stadium created a number of technical issues with respect to managing dynamic loads. Additional rotations and movements had to be considered at the main support positions to accommodate the nature of the mobile roof structure. The stadium is to be used as a multifunctional entertainment complex for different sports and gathering purposes, but it is mainly programmed as a soccer field that fits the FIFA and UEFA criteria. The steel structure (11,000 tonnes), transparent glass and the partially used galvanized sandwich panels on the facade create a strong and clear expression.

A two-tiered solution, with exclusive areas, lower stands with 16,000 seating capacity situated at all four sides and the upper stands with 14,000 seating capacity are placed only on the east and west sides. The stadium, seating up to 30,000, has 24 portals for the entrance and exit of the spectators. The operable roof is an integral part of the structure. The main bearing construction being steel, the sliding roof shifts on the east-west direction. Polycarbonate elements cover the moving part of the roof for benefiting natural light; also grant impact resistance, sound absorption and natural ventilation.

JOB BRIEF

- Supplied: 44 No. Pot Bearings
- 4 No. High Load Spherical Bearings
- Project Team
- Client: Kazakhstan Ministry of Culture
- Architect: Tabanlıoglu Architects, Turkey
- Location: Astana, Kazakhstan
- Main Contractor: SAMKO Group
- Sub Contractor: Sembol Insaat
- Project Value: 18.7 Million US Dollars
- Completion Date: 2007 – 2008



EKSPAN'S SOLUTION

The roof construction of the stadium created a number of technical issues with respect to managing dynamic loads. Additional rotations and movements had to be considered at the main support positions to accommodate the nature of the mobile roof structure. EKSPAN worked closely with the designers and architects to find the most economical solution available which needed to be aesthetically considered as well. EKSPAN designed specialist spherical bearings ranging from 2,500 tons to 3,000 ton capacity to accommodate the huge loading conditions created by the dynamic roof structure.

EKSPAN also supplied a number of pot bearings to the ancillary steelwork for the roof structure. From the design of the roof it was clear that pot bearings could be utilised at the secondary steelwork positions. From the loading information received we proposed the use of EKSPAN 'K' Series pot bearings as this steelwork was relatively static in comparison to the main roof structure connecting the opening elements.

Sembol were appreciative of the technical issues that needed to be considered by EKSPAN to meet the stringent design parameters set out by the Structural Engineers. EKSPAN worked closely with Sembol Insaat to offer practical guidance and assistance in the installation of the main roof bearings.

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