

# Case Study

## Keraflo Valves Control Stored Water at Arsenal's Emirates Stadium

<b>Product</b>	Aylesbury KP
<b>Location</b>	Emirates Stadium, London

Keraflo Ltd. has supplied stored water control valves to mechanical contractor MJN Colston for Emirates Stadium, the spectacular new home of Arsenal Football Club. These delayed action float valves ensure high water flow rates, ensuring that the 130,000 litre capacity water tank installed prior to the booster set is filled as quickly as possible.

Arsenal FC's stadium, named for its sponsors Emirates Airlines, was opened in July 2006 and was fully operational in time for the start of the 2006/2007 football season. Located close to the old Highbury stadium, the new facility is a huge elliptical structure built on a triangular site in Islington and comprises five main levels of accommodation with four seating tiers.

The new 60,000 seat stadium regularly attracts capacity crowds on match days and the requirement for water on the site is therefore enormous. The anticipated demand has been met by the installation of a 132m<sup>3</sup> sectional GRP storage tank by mechanical contractor, MJN Colston. The tank is of drinking water quality, manufactured by Balmoral Tanks. This serves all domestic cold water outlets on the site, including the extensive catering and toilet facilities, via a booster pumpset. The 11m x 3m x 4m deep tank is divided along its length by a partition which enables each half of the tank to be isolated for maintenance purposes.

Each side of the tank is fitted with a Keraflo Aylesbury KP Type valve kit, selected by consulting engineers Buro Happold. Their senior building services engineer, Peter Naylor commented: 'We selected these valves, in consultation with Balmoral Tanks and Keraflo Ltd., both for their ability to fill each side of the tank quickly and to accurately match water storage levels to occupancy.'

The KP Type valve kits installed comprise KB Type float valves located in a valve chamber above each half of the tank, with two larger in-line valves mounted at high level on the supply pipework. The Aylesbury KB Type valve offers a fully variable differential between opening and closing water level settings. Changes in water levels and settings can be made quickly by the installer or maintenance engineer without the use of tools, making it particularly suitable for use in buildings with seasonal occupancy. Water discharge is via an 'up and over' pipe to facilitate air gap compliance and provide back siphonage protection in accordance with BS1212 Part 2.



The 8" incoming water main was split into two 4" supply pipes, each fitted with an Aylesbury KP Type 4" (100mm) in-line valve. These valves are opened and closed by the Aylesbury KB Type pilot valves due to pressure fluctuations in the pilot lines. These smaller valves are operated by transfer of weight in an actuator tube which causes the valve to open or close in a single delayed action, rather than giving the gradual opening and closing achieved with a conventional ball valve. Attached to the actuator is a 2m long chain with a float and buoy assembly which offers a fully variable differential between opening and closing water level settings by simple adjustment of the length of chain between the actuator and the floats.

Keraflo delayed action float valves avoid water hammer, valve bounce and pump hunting leading to improved pump performance and maximum energy efficiency. In addition, they reduce the risk of stagnation and water borne diseases which can occur when stored water is not used for long periods of time, particularly at high ambient temperatures in the summer months.

The water services, float valves and incoming mains, as well as the remainder of the mechanical services and public health works were installed by MJN Colston Ltd. The main contractor was Sir Robert M<sup>c</sup>Alpine Ltd.

### Keraflo Limited

Unit 1, Woodley Park Estate, 59-69 Reading Road,  
Woodley, Reading, Berkshire RG5 3AN  
t: +44 (0) 118 921 9920 f: +44 (0) 118 921 9921  
e: sales@keraflo.co.uk www.keraflo.co.uk

