



Modernization with pneumatics

# Water for Istanbul

**Water is a valuable commodity in Istanbul.** The Turkish Metropolis has around 14 million inhabitants who all need to be supplied with drinking water. Festo Turkey supports the Istanbul utility company ISKI in modernizing their water treatment plants.

**I**n ancient times, Istanbul, then known as Constantinople, had an exemplary drinking water supply system which was very modern for its time. There was a large building in the middle of the city which was used as a water reservoir. It stored a year's supply of water for the city.

## **The situation today**

Today, five water treatment plants supply Istanbul, a city of 14 million inhabitants, with drinking water. Since there is little ground water, rain water and river water are used. There are problems, firstly with the quality of this water, which is often heavily contaminated, and secondly with the increasing shortage of water due to the reduction in rainfall in recent years.

These water treatment plants are operated by ISKI (Istanbul Suve Kanalizasyon Idaresi), the Istanbul water utility company and the largest water supplier in Turkey. This company aims to reach European standards, despite the fact that the water treatment technologies at its disposal are old-fashioned. All the waterworks have a certain degree of automation, but with unreliable and partially manual filter regulation.

In order to improve the supply situation and raise water quality, it was necessary to modernize and automate all the existing water treatment plants step by step. For four of the waterworks, there were regular tendering processes, all of which Festo Turkey was able to win. From 2003



**Everything at a glance:** the automation system of the filtration installations is controlled by new panels with a Festo FED touch screen, a manual control interface and CPX modules.



**The modernization of the filtration bassins** makes it possible to secure high water quality. What's more, the new automation structure can be expanded flexibly at any time.

to 2010, Festo Turkey modernized the automation systems of the filtration bassins in the following four waterworks: Ömerli Muradiye, Kagithane I+II, İkitelli Fatih and Büyükçekmece.

Each project involved roughly the same delivery of products and services required to create a reliable filter regulator system. Each of the filtration bassins is designed on the same principle.

#### **Scope of products and service supplied for modernization**

- Replacement of old swivel drives by Festo DRD double-acting drives on the shut-off valves at the outlets of the filtration bassins.
- Replacement of existing filling level

sensors on bassins with new sensors

- Installation of new flow sensors at the outlet of each bassin
- Measures to achieve reliable closed-loop control.
- Dismantling of existing old control panels and replacement by a control cabinet at each filtration bassin
- Each control cabinet is equipped with FED, CPX-FEC and a VIP WIN SCADA system
- Each control cabinet also has a manual control section for manual control of the filters in emergencies
- Connection and networking of the decentral control cabinets via Ethernet
- Installation of a central master control cabinet
- Installation of suitable cable conduits

#### **Customer benefits created**

- Easy operation and maintenance
- Lower operation and maintenance costs
- Significant reduction of quantity of water required for reverse flushing process
- Reduction of quantity of sand in filter
- Optimized flushing times, saving energy costs
- Measurable improvement in water quality by ensuring reliable continuous process operation
- Fast reaction in emergency
- Flexible and expandable automation structure. ■