



Unique dam project in Algeria

Thirty-six dams fitted with flow meters
and flow control valves

VAG On-Site

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Algeria is situated between the Atlas Mountains in the north and the Sahara desert in the south. Most of the country's water is supplied from dams.

The dams are run by the government, while the pipelines and purification plants are run by the municipalities. The amount of water supplied from the reservoirs did not always match the amount received by the municipalities. This metering and documentation problem was solved by VAG valves: a 2 million Euro project that is yet to be equalled in type, size and cost.

Project overview

Project: Supply and install plunger valves in the pressure pipelines of 36 dams in Algeria

Valves: VAG Plunger valves DN 300 – DN 1600 PN 10
VAG Duojet Air valves DN 50 – DN 100 PN 10

Project duration: 2003/2004

Executed by: VAG-Armaturen GmbH

Contracted by: Algerian Water Enterprises (AWE)





Photos on front of page (from left to right):

- S.M.B.A. dam before the DN 1000 PN 10 plunger valve with orifice cylinder was installed
- S.M.B.A. dam after the DN 1000 PN 10 plunger valve with orifice cylinder was installed to avoid cavitation
- Beni-Bahdel dam during the installation of the DN 1200 PN 10 plunger valve with orifice cylinder

Photos on back of page (from left to right)

- Bou-Hanifia dam before the DN 1000 PN 10 plunger valve with orifice cylinder was installed
- S.M.B.A. dam DN 800 PN 10 Type E plunger valve with inductive flow meter for the approx 4 km lower lying purification plant



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Water was to be metered and documented at thirty-six of Algeria's major dams. To this extent, a tender to equip the pressure pipelines with flow meters and flow control valves was drafted in 2003.

In August 2003, an eight-person delegation, including an engineer from VAG Armaturen GmbH, visited all of the dams in two weeks. During this period, all of the data required for the calculation, dimensioning and design of the control valves were collected. The delegation, which was working on behalf of the government, was under constant military protection.

At the end of August 2003, the tender was commissioned to VAG Armaturen. A total of fifty plunger valves in nominal diameters between DN 300 and DN 1600 PN were to be delivered and installed by AWE.

Dimensioning and design

All of the plunger valves were calculated and dimensioned for extreme situations. To ensure the accuracy of the special valves' design, VAG used its own calculation program, Use-CAD®.

VAG created data sheets, a flow characteristic curve and a cavitation curve for each of the plunger valves.

Challenges: quantity, size and time

The tight schedule was particularly challenging for VAG's design and manufacturing teams. Fifty plunger valves, fifteen of which had nominal diameters between DN 1200 and DN 1600 and weights ranging from 8 to 12 tons had to be manufactured and delivered within a very short period of time. To guarantee a reliable supply of water, the valves had to be of the highest quality and reliability. This is one of the reasons why the tender was granted to the German manufacturer, VAG, who had gained the customer's trust with its expert advice before and during the project. VAG actively participated in pre-project discussions and advised solutions for problems that were not always related to valves.

Logistic excellence

VAG delivered the valves in six batches between December 2003 and December 2004. Everything down to the completeness check of the shipping container was meticulously planned. One missing screw was all that was needed to delay resuming the supply of water.

Installation

Most of the thirty-six dams are miles away from civilization. Two mobile installation teams carried out all of the installation tasks. They were equipped with the necessary devices and tools, including kitchen and accommodation containers.

The roller gate was closed, special tools

used to cut open the dam's pressure pipeline, and the plunger valve installed. The flow meter was then installed at the specified distance from the control valve, and the installation accepted and released for testing.

Each building site brings new challenges, all of which our installation teams always deal with capably. One of the challenges at this site consisted of bringing in bulldozers to build roads for truck-mounted cranes.

The result

The contractors, ANB (Agence Nationale des Barrages) and the construction company, AWE, highly appreciated the solution provider's competence and excellent product quality. The supply of water plays an important role in confirming the state's prestige. VAG was able to fulfil each of the client's requirements.