



## Partenstein Hydropower Plant

<b>Application:</b>	Dams / Hydropower
<b>Place:</b>	Kleinzell im Mühlkreis, Austria
<b>Date:</b>	2017 - 2018
<b>Products:</b>	1 VAG EKN® H Butterfly Valve DN 2600 PN 6 incl. hydraulic CFD computation; 1 VAG HYsec PRO Hydraulic Brake-and-Lift Unit; 1 VAG Ranger-Stepped Coupling DN 2400/2600 2 VAG Spring-Loaded Air Valves DN 500 1 VAG Paddle Trip

## Project description

VAG supplies a customised butterfly valve as a turbine inlet valve to the Partenstein hydropower plant and meets all the challenges with excellence – from the customised coating up to special transportation.

The Partenstein hydropower plant was put into service in 1924 as Austria's first large-scale power plant with an overall capacity of 29.5 MW. Back then, the power plant generated so much electric power that it not only supplied the entire state of Upper Austria but also a part of Austria's capital of Vienna with electricity. Being a so-called storage power plant, it can store electric energy. Nowadays it mainly serves to meet peak demands in the power grid.

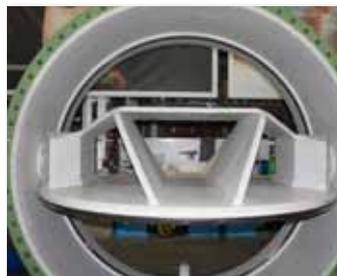
After the inspection of the entire plant, Energie AG Oberösterreich [Upper Austria] decided to replace the installed pipe-burst safety valve – which had been in service for almost 100 years – by a modern, new butterfly valve serving as a shut-off valve.

The order placed with VAG included:

- 1x VAG EKN® Butterfly Valve DN 2600 PN 6 as a turbine inlet valve with:
  - streamlined valve disk
  - welded body and disk
  - multi-component special epoxy-resin coating
  - a weight of 17 tons
  - with factory-assembled VAG HYsec PRO Hydraulic Brake-and-Lift Unit for a closing time of 50 sec (variable adjustment)
- 1x VAG Ranger-Stepped Coupling DN 2400/2600
- 2x VAG Spring-Loaded Air Valves DN 500
  - With a VAG DUOJET® Automatic Air Valve arranged on the side and an upstream inspection valve (VAG BETA200® Gate Valve)



The Partenstein Storage Power Plant (Picture source: Energie AG Austria)



Function test of the EKN® Butterfly Valve incl. hydraulic brake-and-lift unit at VAG's factory in Mannheim, Germany



- 1x paddle trip
- Computations
  1. Strength calculations
    - load-carrying capacity analysis
    - proof of serviceability
    - proof of endurance strength
  2. Hydraulic computations (CFD)

Following customer acceptance at VAG's Mannheim plant in early September 2018, the valves were delivered to the Partenstein hydropower plant by special transport because of their dimensions and weight.

Two special cranes were used to lift and then lower the extremely heavy valves into the valve chamber. VAG's Service Team, who had already measured the dimensions of the installation site with a 3D laser tracker at the beginning of the project, provided assistance during the installation and commissioning of the complete valve and ensured speedy and workmanlike execution.

VAG's meeting all the customer's requirements successfully rounded off the trustful cooperation between the two companies.

Finally, all works were completed reliably and to the operator's absolute satisfaction and the hydropower plant could resume its operation.



Trouble-free installation thanks to two special cranes and assistance by VAG's Technical Service Team



Final assembly of the valve and commissioning



VAG Spring-Loaded Air Valves